

# Concepts of IT

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# Hardware

## Concepts

### Hardware

The term hardware refers to the physical components of your computer such as the system unit, mouse, keyboard, monitor etc. In other words, hardware are things you can physically touch.



### Personal computer

#### Desktop



laboratories only.

IBM introduced the **IBM PC** in 1981. Since then, the PC market has been dominated by two types of PCs – IBM PC Compatibles and computers produced by Apple. IBM PCs and its compatibles are computers based on CPUs built by Intel and run Operating Systems known as Windows (other OS are also available for IBM PC Compatibles, e.g., Linux). Apple has its own hardware and OS.

**Capacity:** Large hard disks combined with a large working memory (RAM)

**Speed:** Fast. Normally measured in GHz.

**Costs:** Getting cheaper by the day.

**Typical Users:** Home users, large and small office users. Education, Doctors. In fact just about everyone needs to know how to operate a PC these days.

#### Apple computers

The Apple Mac is a PC. It uses a different operating system, and may require special versions of application programs (such as word-processors or spreadsheets). Even the hardware add-ons have to be customised to some extent to be able to be connected to a Mac

In the early days the thing which really distinguished the Mac over the IBM PC was the GUI (Graphical User Interface), or in plain English the way you could use the mouse to drive the computer. In the early days of



the PC, you really had to be a bit of an expert to use and maintain your PC. Recently the differences between the IBM PC and the Mac have blurred, with Microsoft buying a stake in Apple.

### Laptop/Notebook & Tablet PC

Laptop computers, as the name implies, are small portable computers which can run on batteries as well as mains power. They use special screens, rather than the traditional bulky monitors, which allows for longer battery life as well as portability. A newer term, "Notebooks", simply indicates a VERY small laptop. These are especially popular with salespersons on the move or people giving presentations. While they tend to still be more expensive than an equivalent Desktop computer, they can now match the power of a Desktop computer. Palmtops are even smaller computers which can literally fit into the palm of your hand.



**Capacity:** Large hard disks combined with a large working memory (RAM) – Often less powerful than for a PC of equivalent price.

**Speed:** Fast. Normally measured in GHz. Often speed specifications are less than for a PC of equivalent price.

**Costs:** Components need to be much more compact, so there is a price overhead when compared to a PC of equivalent power.

**Typical Users:** Business users, people on the move, educational users.

### **Common handheld portable digital devices**

#### Personal Digital Assistant (PDA)

These devices use a special pen, rather than a keyboard and can be used for storing and retrieving information. Like most computer devices, many can connect to the Internet. They are extremely compact. PDAs have many built-in features such as a calculator, a clock and a calendar.

Many allow you to send and receive emails and even browse the web.

PDAs can also be used for accessing the Internet, sending and receiving e-mails, video recording, typewriting and word processing, use as an address book, making and writing on spreadsheets, scanning bar codes, playing computer games, recording survey responses, and Global Positioning System (GPS). Newer PDAs also have both colour screens and audio capabilities, enabling them to be used as mobile phones (smartphones), web browsers, or portable media players. Many PDAs can access the Internet, intranets or extranets via Wi-Fi, or Wireless Wide-Area Networks (WWANs). Many PDAs employ touch screen technology.

**Capacity:** Much smaller storage capacity compared to a PC.

**Speed:** Much less than a PC unless you pay a lot extra.

**Costs:** In relative terms expensive when compared to a PC.

**Typical Users:** Mostly business users.



### Mobile phones (cell phones)

A mobile phone or cell phone is used for mobile communication. As well as speech they may be used for text messaging, emailing, accessing the Web. Many also allow you to send and receive pictures and video. Most mobile phones use a signal from a local transmission tower and will not work when you are out of range or if the signal is blocked by mountains, or even buildings.



Satellite phones use a signal coming from a satellite. They tend to be much more expensive to purchase and use. While you should never be out of range, the satellite signal may be blocked by tall buildings.

### Smartphones

A smartphone is a mobile phone (cell phone) offering advanced computer-like features. Capabilities and standards vary from one manufacturer to another. Most smartphones have some sort of operating system allowing you to connect to other devices and also to install applications. Most smartphones allow you to send and receive emails and may even allow you to browse the Web. Some have a personal organizer built into them and some sort of contact management organiser. Some even have a miniature computer-type keyboard built into them, while others have a touch screen. Some have GPS positioning systems. Some smartphones allow you to read documents in Microsoft Word or Adobe PDF format. Other features can include a built-in camera, the ability to play music, display photos and video clips, media software for playing music, browsing photos and viewing video clips.



### Media players

Media players allow you to store digital music and video. A famous example is the iPod from Apple, which lets you store your digital music which you can then listen to at your leisure. Thousands of songs can be stored on these devices.

You can also get devices with a built-in screen which will allow you to watch films and video clips that you download to these devices.

**WARNING:** Remember that most music and films are covered by copyright and should only be downloaded from legitimate sources.

## **Parts of a computer**

You should understand some of the basic elements that make up a computer including:

- Central processing unit (CPU)
- Types of memory
- The hard disk
- Input and output devices

### The CPU

The CPU (Central Processing Unit) is normally an Intel (or equivalent) and it is one of the most important components within your computer. It determines how fast your computer will run and the CPU speed is measured by its MHz or GHz speed. Thus, a 2 GHz Pentium is much faster than say a 1 GHz Pentium CPU. It is the CPU which performs all the calculations within the computer, when running programs such as word-

processors, spreadsheets and databases. The CPU contains following elements:

**Control Unit:**

The control unit is responsible for controlling the sequencing and timing of the other elements making up the CPU.

**Arithmetic Logic Unit (ALU):**

The ALU performs the mathematical calculations using data stored within the CPU registers.

**Registers:**

The registers are memory storage areas within the CPU that hold the data that is worked on by the ALU.

**BUS:**

The computer bus transports data between the memory and registers.

**Memory (RAM)**

The RAM (Random Access Memory) within your computer is where the operating system is loaded to when you switch on your computer and also where your applications are copied to when you start an application, such as a word processor or database program. When you create data, (e.g. letters and pictures), these are initially created and held in RAM and then copied to disk when you save the data. As a rule of thumb, the more RAM you have installed in your computer the better. These days you will commonly find over 512 Megabytes of RAM installed.

**ROM-BIOS**

The ROM-BIOS (Read Only Memory - Basic Input Output System) chip is a special chip held on your computer's system (mother) board. It contains software which is required to make your computer work with your operating system, for instance it is responsible for copying your operating system into RAM when you switch on your computer.

**Disks**

You use disks to store any data that you create. This can range from a memo created within a word processor to a video file created using a video camera. There are many different types of disk.

**The Hard (Fixed) Disk**

Hard disks are the main, large data storage areas within your computer. Hard disks are used to store your operating system, your application programs (i.e. your word processor, games etc) and your data. They are much faster than CD/DVDs and can also hold much more data. Hard disks are installed within the system unit of your computer.

## Input/output ports

The Input and Output ports are normally located at the back or on the side of your computer. These include ports such as USB, serial, parallel, network and FireWire ports. You plug cables into these ports to connect your computer to other devices, such as printers, scanners and cameras.

### Universal Serial Bus (USB) Port

The Universal Serial Bus is a relatively new item within the PC. You will see one or more USB sockets at the back of the system unit, allowing you to plug in devices designed for the USB. These devices include printers, scanners and digital cameras. Memory sticks can also be plugged into a USB port allowing you to copy data to or from your hard disk.



### Serial Port

The serial port is a socket located at the back of your computer which enables you to connect items to the computer, such as a modem. They are commonly labelled as COM1 or COM2.



### Parallel Port

The parallel port is a socket located at the back of your computer which enables you to connect items to the computer, such as a printer. It is commonly labelled as LPT1 or LPT2.

**NOTE:** The parallel port used to be the main way the computer connected to a printer. These days you are more likely to use a USB cable to connect the computer to a printer.

### Network Port

The network port allows you to plug a 'network cable' into your computer, which then lets you communicate with other computers connected to your local network or to other computers via the Internet.



### FireWire Port

FireWire is an interface from Apple Inc. that allows high data transfer between your computer and a compatible device such as a digital camera. FireWire has largely replaced earlier ways of transferring data, such as parallel or SCSI cables. There are numerous versions of FireWire including fibre optic, coaxial and wireless versions. Most multimedia computers will have FireWire ports built into them. Firewire connectors usually look like this:



# Computer Performance

## Factors those affect computer performance

There are a wide range of factors that can affect the performance of your computer. These include CPU speed, RAM size, type of graphics card processor and memory plus the number of applications running. It is important to realise that it is not just the speed of the CPU that affect the overall performance of your computer. There is no point in having a very fast CPU if the other parts of a computer may slow down the real world performance.

### CPU speed

The computer speed or better say the processor speed governs how fast the CPU will run. The higher the speed the faster the computer will work for you. The speed is given in Gigahertz (GHz). The higher the GHz speed the faster the computer.

### RAM size

Computer keeps all its working files in RAM while working. So the larger the RAM size is, the more comfortable and faster computer can perform. Like, if a person has a large table top space he will be able to work easily on many files open at a time.

### Graphics card processor and memory

To display what user wants, computer uses its graphics card. If the graphics card memory is a little bit lower than the graphics card shares the RAM to complete its task. While a portion of the RAM is used to display things, the user is not getting the RAM at its full performance. As a result, affecting on the computer's performance.

### Number of applications running

Windows is a multitasking system, which means that it can run more than one program at a time. However the more programs which are running at the same time, the slower each one will run. To some extent this slowing effect depends on what each program is doing. Editing a large high definition video for instance can take up a lot of CPU time.

## MHz and GHz

MHz is short form Mega Hertz and GHz is short form of Giga Hertz. Hertz is usually the unit of frequency measurement. It indicates the speed of the computer's CPU or of any other component whose performance is given in terms of frequency. Generally, higher Hertz indicates faster performance

1 MHz = 1,000,000 Hertz (1 million Hertz)

1GHz = 1,000,000,000 Hertz (1 billion Hertz)

## CPU speeds

The speed (operating frequency) of the CPU is measured in megahertz (MHz) or gigahertz (GHz). The higher the value the faster the CPU will operate. The original IBM PC released way back in 1981 ran at 4.77 MHz whereas modern PCs can run at over 4000 MHz, which gives you an idea of how far things have progressed. 1 MHz means that the device will run at one million cycles per second. 1 GHz is a thousand times faster, so that 1 GHz = 1000 MHz.

# Memory and Storage

## What is computer memory?

You can store data on your hard disk, while data which is being processed is stored in RAM (Random Access Memory). Data which is stored on a hard disk can be permanent, while data in RAM is only temporary. Normally when people talk about memory in relation to a PC, they are talking about RAM.

### RAM

Random Access Memory (RAM) is the main 'working' memory used by the computer. When the operating system loads from disk when you first switch on the computer, it is copied into RAM. The original IBM PC could only use up to 640 KB of memory (just over half a megabyte), whereas a modern computer can effectively house as much RAM as the motherboard and processor support. Data and programs stored in RAM are volatile (i.e. the information is lost when you switch off the computer).

### ROM

Read Only Memory (ROM) as the name suggests is a special type of memory chip which holds software which can be read but not written to. A good example is the ROM-BIOS chip, which contains read-only software. Often network cards and video cards also contain ROM chips.

### ROM-BIOS

The 'Read Only Memory-Basic Input Output System' chip is a chip located on the computer's system (mother) board, which contains software. This software performs a variety of tasks. When you first switch on the computer the ROM-BIOS software performs a self-diagnostic to check that the computer is working OK. This software then loads your operating system from the disk into the RAM.

### Video (graphics) memory

The picture which you see on your screen is a form of data and this data has to be stored somewhere. The on-screen pictures are held in special memory chips called video memory chips; these chips are usually located on the video card. A modern motherboard is supplied with several Megabytes of video memory.

### Storage capacity measurement

It is important that you understand a little about the measurements used to define storage capacities:

#### Bit:

Computer are digital. This means they work by processing ones and zeros. The basic one or zeros is called a bit of information.

#### Byte:

There are eight bits in a Byte.

#### KB - Kilobyte:

There are approximately a thousand bytes in a KB (known as a Kilo Byte)

#### MB - Megabyte:

There are approximately a million bytes in a MB (known as Mega Byte)

**GB - Gigabyte:**

There are approximately a thousand, million bytes in a GB (known as Giga Byte)

**TB - Terabyte:**

There are approximately a million, million bytes in a TB (known as Terra Byte).

## Types of storage media

These days there are a range of storage media to choose from including CDs, DVDs, USB flash drives, memory cards, internal hard disks, external hard disks, network drives and on-line file storage. Some are more suitable than others for a particular job, for instance a flash drive is great for quickly transferring relative small amounts of data from one computer to another.

### Internal hard disks

All PCs are supplied with an internal hard disk. This is where the operating system (such as Windows) is stored. It is also where you store your data. When you install new applications, they are copied from CD or DVD to your internal hard disk.



### External hard disks

As the name suggests these are secondary hard disks that you can plug into your computer. They are normally connected via a USB cable. They are available in a range of speeds and storage capacities and are an ideal way to backup your data, such as photos or movies.

### CDs

Most computers are now supplied with a CD-ROM (Compact Disc - Read Only Memory) drive. CD-ROM discs look exactly like music CDs but contain computer data instead of music. The advantage of a CD-ROM is that it can hold a vast amount of data (equivalent to the storage capacity of over 450 floppy disks). The other big advantage of CD-ROMs is that they are interchangeable. This means that you can own a range of different CD-ROMs and choose which one to insert into your CD-ROM drive.

### DVDs

Short for "Digital Versatile Disk". Similar to CD-ROM drives but allows you to use DVD disks, which contain vastly more information than a traditional CD-ROM disk. These also transfer the data from the disk to the computer far faster, allowing you to watch movies on your computer screen. A CD-ROM can store 650 MB of data, while a single-layer, single-sided DVD can store over 4 GB of data.

### Recordable CD & DVD drives

CD-ROMs are read-only devices, but increasingly people are purchasing a special type of CD drive unit which allows you to record data, music or video to your own CDs. These devices require the purchase of special CDs to which you can write, called CD-R (Compact Disc – Recordable).



### USB flash drives (memory sticks)

Flash drives plug into the USB port and when viewed via the Windows Explorer, look just like any other drive. They are supplied in a range of sizes with the 1 GB devices being a very cheap way of transferring relatively small amounts of data between computers.

### Memory cards

A memory card (also called a flash memory card) is a card containing memory chips that is often used in devices such as digital cameras, telephones, music players, video game consoles, GPS system and similar devices where there is a need to store data in a compact form, often using a battery power source. There

are a number of different types of memory cards with different storage capacities.



Many new PCs have built-in slots for different types of memory cards.

### Network drives and on-line file storage

Within an office it is normal that the computers are connected together via a network. This allows you to store your data centrally, on a network server. This network server should be backed-up by the IT support staff on a daily basis. This means that your data is safely backed up for you.

Alternatively you may create and store your data on your own PC or laptop and periodically copy it across the network to be stored safely on a central network server. In many companies network software automatically backs up selected folder on each computer to the central server.

# ***Input Devices***

## ***Input devices.***

Input devices allow you to input information to the computer and include things such as the keyboard and mouse.

### **Keyboard**

The keyboard allows you to type information into the computer. It has evolved over the years. The keyboard is built into laptop computers but is a separate item if used with a Desktop computer. They can be connected via cables or may be wireless.



### **Mouse**

When using an operating system, such as Microsoft Windows, you use the mouse to select drop down menus, to point and click on items, to select items and to drag and drop items from one place to another.



### **Scanners**

A scanner allows you to scan printed material and convert it into a file format which may be used within the PC. You can scan pictures and then manipulate these inside the PC using a graphics application of your choice. In addition, you can scan printed text and convert this not just to a picture of the text but also to, actual text which can be manipulated and edited as text within your word-processor. There are a number of specialist programs, generically called OCR (Optical Character Recognition) programs which are specifically designed for converting printed text into editable text within your applications.

### **Tracker balls**

A tracker ball is an alternative to the traditional mouse and favoured by graphic designers. Tracker balls often give much finer control over the movement of the items on the screen. They may take a while to get used to if you are used to the traditional mouse, but offer a lot in terms of added flexibility.



### **Touch pads**

A touch pad is a desktop device and responds to pressure. Used in conjunction with a special pen they can be used by graphic artists wishing to create original, digital artwork.

### **Joysticks**

Many games require a joystick for the proper playing of the game. There are many different types, the more sophisticated respond to movement in 3 axis directions, as well as having a number of configurable buttons. Like most things in life you get what you pay for with joysticks and it is worth investing in a good, strongly constructed model, especially bearing in mind that children will hammer these devices whilst playing games.

### Web cams

Ever since it was invented, the Web has become increasingly interactive. You can now use a small digital movie camera (a Web cam) mounted on the PC monitor to allow two-way communication involving not just text communication but sound and video communication as well. While not yet considered a standard piece of PC kit, it is only a matter of time.



### Digital cameras

A digital camera can be used in the same way a traditional camera can, but instead of storing images on rolls of film which require developing, the images are stored digitally in memory housed within the camera. These pictures can easily be transferred to your computer and then manipulated within any graphics programs which you have installed on your computer. Currently they are limited by the quality of the image recorded and the number of pictures which you may store within the camera.

## **Microphones**

Early voice recognition systems offered very poor results, due to the limitations of the software combined with hardware limitations. It takes an awful lot of CPU processing power to convert the spoken word into text which appears on the screen. Things are changing rapidly however and recent systems allow you to talk to a PC and see text appear on the screen. Most of these systems require an initial training period, where you train the software to respond to your particular voice. Whilst still not perfect this is a key technology of the future.



# Output Devices

## Output devices

Includes items such as screens (monitors), printers, speakers and headphones.



### Traditional computer monitor

The original computer monitors were TV type screens on which you viewed your programs. They were supplied in different sizes, common sizes range from 15" to 21" screens. You should be aware that poor quality or badly maintained monitors could harm your eyesight.



### Flat screen computer screens

Traditional computer monitors are based on the same sort of technology which is used within a television screen. More recently, flat screen computer screens have become available. These take up a lot less room on a desk and use less energy than the traditional, more bulky monitors.

You should be aware that often if you specify a screen of a certain size, say a 17-inch screen, this is the size measured diagonally, not horizontally across the screen. If you are upgrading you should also ask for the "visible viewing area" of the screen.

### Projection devices

These are projection devices which can be attached to your computer and are useful for displaying presentations to a group of people. They are best used in combination with presentation programs, such as Microsoft PowerPoint. They are used within education and are also very popular for sales presentations. The price of these devices has dropped dramatically recently. When purchasing one of these devices the two things to look out for are the resolution (go for a minimum of XGA) and the brightness of the lamp (the brighter the better). Other factors to be aware of are the quietness (or otherwise) of the device, as well as the cost of replacement bulbs.



### **Speakers and headphones**

Most computers are sold with the capability to add a pair of speakers to your system unit. In fact, in some cases, the computer screen may have speakers built directly into the unit. This enhances the value of educational and presentation products and can now be considered a standard PC component. Most computers allow you to plug headphones into one of the computer sockets. This is useful as the sound will then not annoy others in the room.

## Speech synthesizers

A recent development is the ability not only to display text on a monitor but also to read the text to you. Thus, you could receive a text email from a colleague and the system could read that email to you. This is of enormous benefit to the visually impaired when using a computer. On the flip side, it is now possible to use a microphone to talk to the computer and for the computer to directly convert the spoken word into text which will be displayed within say your word-processor. Whilst these systems are far from foolproof they are getting better as more advanced software is being made available.

## Printers

Most data is printed once you have created it and there are a vast number of different printers available to accomplish this. Most common are ink jet and laser printers both of which can now produce coloured output (at a cost).

### Different types of printer

There are many different types of printers. In large organisations, laser printers are most commonly used because they can print very fast and give a very high quality output. In most organisations, the printers are connected to the computers via a network. This means that each person with a computer does not require his or her own printer. Each computer connected to the network can print using a particular shared printer. When you buy a printer, one of the things the salesperson will not necessarily stress is how much it will cost to keep that printer running. Laser printers do not use ink; they use something called toner which is normally supplied in a sealed unit called a toner cartridge. Each toner cartridge will allow you to print a certain amount of pages and when the toner is used up it needs to be replaced. In some cases the costs of these toner cartridges is very high. Ink jet printers can work out even more expensive to run.

### Laser printers

Laser printers produce high print quality at high speed. They are called "laser printers" due to the fact that they contain a small laser within them. There is a wide range of laser printer manufacturers and one buzzword to be aware of is Postscript, a type of printer which is designed to give very high quality reproduction of pictures.



### Colour laser printers

Originally, most laser printers would only print in black and white (mono). More recently colour laser printers have dropped in price and are entering wide spread use. While many of these produce excellent results, you should be aware of the fact that the "price per page", especially if you are using a lot of colour on a page can be very high compared to the cost of printing in black and white.



### Inkjet printers

Inkjet printers work by using tiny jets to spray ink onto the paper. Inkjet printers are very quiet in operation and produce print quality comparable to that of laser printers, though laser printers still have the edge in terms of speed. Inkjet printers are ideal for low volume printing where high quality print is required and speed is not a high priority, e.g. printing letters in a small office or in the home.

### Dot Matrix printers

Dot matrix printers work by firing a row of pins through an ink ribbon onto the paper. The more pins the print head has the higher the quality of the print, most modern dot matrix printers have 24 pins. Unfortunately, dot matrix printers can generate a lot of noise and do not produce a very high quality of print, especially when printing graphics. As a result, the inkjet printer has now largely replaced the dot matrix printer. Dot matrix printers are used for high volume / low quality printing, e.g. printing company pay slips.



## ***Input and output devices***

Some devices are both input and output devices. A modem can be used for downloading information from web sites and receiving emails. It can also be used for uploading and sending emails. A touch screen can display a menu system (output device), and accept input when people touch the menus displayed on the screen.



# Software

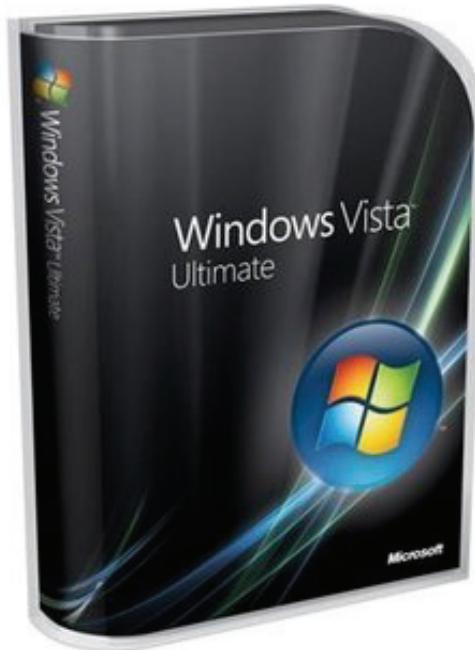
## Concepts

### What is software?

Software is the collection of instructions which makes the computer work. For instance, when you type in words via the keyboard, the software is responsible for displaying the correct letters, in the correct place on the screen. Software is held either on your computer's hard disk, CD-ROM, DVD or on a diskette (floppy disk) and is loaded (i.e. copied) from the disk into the computers RAM (Random Access Memory), as and when required.

### What is an operating system?

The operating system is a special type of program which loads automatically when you start your computer. The operating system allows you to use the advanced features of a modern computer without having to learn all the details of how the hardware works. There are a number of different types of operating system in common use. The IBM PC (Personal Computer) was introduced way back in 1981 and was originally supplied with an operating system called DOS (Disk Operating System). This operating system was very basic, and you had to be a bit of a computer expert just to understand how to use it. It was NOT user-friendly. Later on, Microsoft introduced Windows and this is the operating system which is most widely used on PCs today. To complicate matters further, there are a number of different types of Windows. Most people are today running either Windows XP or Windows Vista.



IBM produced an operating system called OS/2 but this was largely ignored and is only used by a few companies.

UNIX and Linux are other examples of operating systems which may be run on PCs.

Other types of computers, such as those manufactured by Apple have a completely different operating system.

**Microsoft Windows:** Microsoft: <http://www.microsoft.com>

**IBM OS/2:** <http://www.ibm.com/software/os/warp>

**Mac OS X:** <http://www.apple.com>

## Examples of software applications

An application program is the type of program which you use once the operating system has been loaded. Examples include word-processing programs (for producing letters, memos etc), spreadsheets (for doing accounts and working with numbers), databases (for organising large amounts of information), games programs and graphics programs (for producing pictures, advertisements, manuals etc).

It is important that you recognise examples of application programs covering the following areas:

- Word processing
- Spreadsheets
- Databases
- Presentations
- E-mailing
- Web browsing
- Photo editing
- Computer games

### Word processing applications

A word processing program (such as Microsoft Word) allows you to produce letters, memos, etc., easily. You can easily mail merge a list of names and addresses to produce mass mailers, individually addressed to customers or subscribers.

### Spreadsheets applications

A spreadsheet program (such as Microsoft Excel) allows you to work out a company's income, expenditure and then calculate the balance. It enables you to make 'what if' type projections of how the company will fair in the future and to forecast how changes in prices will affect profits.

### Database applications

A database program (such as Microsoft Access) allows you to compile information and then to search this information to extract just the information you require. For instance, if you have a database of all the equipment housed within an office you can very simply produce a report listing only the equipment above a certain value.

### Presentation applications

A presentation program (such as Microsoft PowerPoint) allows you to produce professional looking presentations, which can be printed out directly onto slides for use with an overhead projector. Alternatively, you can display your presentations directly on a computer screen or via a computerised projector.

### E-mailing applications

There are many emailing programs available. As the name suggests you use these to send and receive emails. Microsoft Outlook is supplied within Microsoft Office. Another well known example is the Thunderbird email program.

### Web browsing applications

Applications used to view and interact with the World Wide Web (WWW).

**Microsoft Internet Explorer** <http://www.microsoft.com/ie>

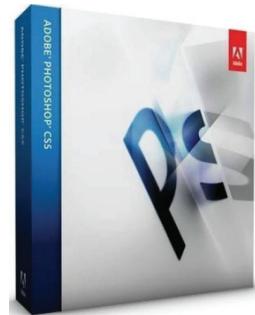
**Netscape Navigator** <http://www.netscape.com>

**Mozilla Firefox** <http://www.mozilla.org/products/firefox>



### Photo editing applications

These programs allow you to edit digital photos. You can adjust items such as the picture brightness, contrast and colour balance. You can remove defects such as the red eye effect often caused when using a flash. You can apply interesting special effects and filters to visually enhance your photographs. Examples include Photoshop from Adobe and Paint Shop Pro from Corel.



### Computer games

Computer games started off as simple bat and ball games and today have evolved into an enormous worldwide business. There are many different types of games ranging from the educational, to the 'shoot them up' variety. The level of graphical detail on the screen gets better each year.

There are many different formats available for games. Some games can be played on a standard computer, while others require a dedicated console such as a Sony Playstation.

Famous examples include Doom (a shoot them up game) and Simms (a game where you build your own little world within the computer).

## **Difference between the operating system and application software**

The operating system works closely with the hardware that you have installed within your computer. It interprets the input via the mouse or keyboard and outputs data to the screen.

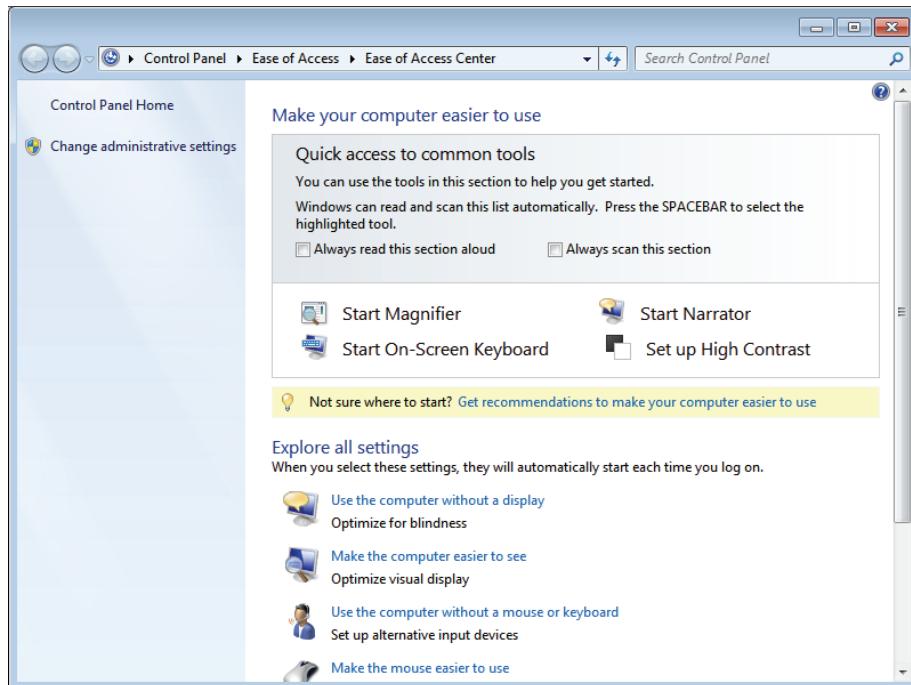
The application programs sit above the operating system, and make use of the functionality built into the operating system. They are specific to a particular task. For instance Microsoft Word is designed as a word processing program, while Microsoft Excel is a spreadsheet program.

## **Accessibility options**

There are a range of options to improve computer accessibility. These cover:

- Voice recognition software
- Screen reader software
- Screen magnifier software
- On-screen keyboard.

In addition many web sites are now written to be compatible with software designed to increase accessibility.



### Voice recognition software

Voice recognition software lets you talk to a computer and use simple commands or sentences. These systems are easily confused by regional accents and background noise, but are getting better each year as the software improves.

This type of software is commonly used when phoning large organisations, typically banks. You may be requested to read your credit card number. The software at the other end of the phone will recognise the numbers that you tell it, and put your call through to the correct person.

Voice recognition software has obvious benefits as far as improving accessibility option is concerned. If you are unable to use a keyboard then the ability to talk to a computer offers tremendous opportunities.

### Screen reader software

Screen reader software is designed for the visually impaired and tries to interpret the contents of the computer screen and then communicate that information in different formats, such as speech output, sound icons or as Braille output.

There are many commercial options available. Try searching the web for 'screen reader software' for an idea of what is available.

### **Screen magnifier software**

This type of software magnifies the screen contents, making it easier to read for the visually impaired. Microsoft Windows has basic screen magnifier software included.

## On-screen keyboard

An on-screen keyboard is a representation of the physical keyboard on the screen. It is designed to be used by individuals who are not able to use a physical keyboard.

Windows has a basic on-screen keyboard option located within the **Accessories** group.

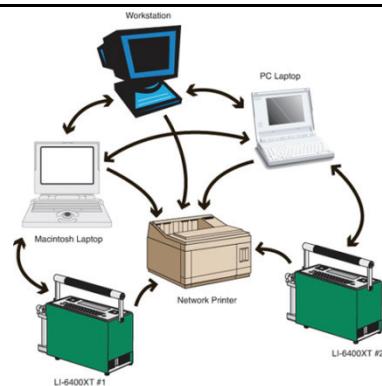


# Networks

## Network Types

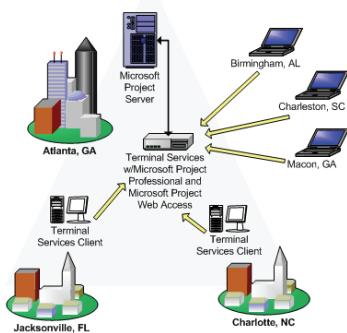
### LAN (Local Area Network)

A LAN (Local Area Network) is a system whereby individual PCs are connected together within a company or organisation. For instance if ten people are working together within an office it makes sense for them all to be connected. In this way, the office can have a single printer and all ten people can print to it. In a similar way, other devices such as modems or scanners can be shared. Even more useful is the ability to share information when connected to a network.



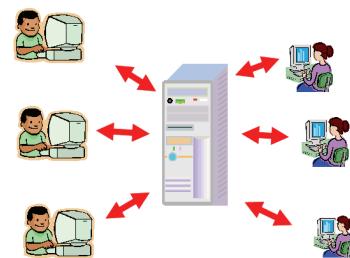
### WLAN (Wireless Local Area Network)

A WLAN (Wireless Local Area Network) allows you to connect to other computers within your LAN using wireless technology.



### WAN (Wide Area Network)

A WAN (Wide Area Network) as the name implies allows you to connect to other computers over a wider area (i.e. the whole world).



### Client/server networks

This term relates to the type of network where resources are kept centrally on the server and used locally by the client. The server tends to be a very powerful PC (or group of PCs), while each client workstation, which the users have, is less powerful.

### Internet

The Internet is a global network of interconnected networks. The unique thing about the Internet is the sheer amount of information which you can access from it. Whatever your interest, you can search for and find information on the most obscure topics. For research the Internet is an incredibly valuable tool. Whether you are gathering information about a rival company on the other side of the world, or are looking for information about your family tree, you will find there is plenty of information available. If you publish material on the Web, it can be accessed by everyone on the Web (providing they can find it.). As a marketing tool, this has interesting possibilities. It is possible for a small company to sell products and services worldwide, without the need for a single sales-person. These days the problem is often not finding information but rather dealing with the sheer amount of information which is available. Also, you have no idea how accurate or up to date a lot of the information you access really is.

## World Wide Web (WWW) vs. the Internet

The World Wide Web (WWW) is just a small part of the Internet as a whole. The Internet relates to all the hardware and software involved, as well as the WWW, it also includes FTP (File Transfer Protocol), email and newsgroups. The WWW is basically the text and pictures which you can view using your web browser, such as Microsoft Internet Explorer, or Netscape Navigator.

## Intranets

An Intranet is a smaller, closed version of the Internet, which can only be accessed by authorised members of an organisation. Intranets are becoming an increasingly popular way to share information within a company or other organisation. An Intranet uses Internet technologies to allow users to access company documents, search databases, schedule meetings and of course send emails. Once a company has installed a comprehensive Intranet many users need only one piece of software on their PC, a web browser.

## Extranets

An Extranet is an Intranet which is partially accessible to authorised outsiders. An Intranet is normally only accessible by members of the same company or organisation; an extranet also allows outsiders who have been issued with a password to gain limited access to information held on a company network. Extranets are being used as a way for business partners to share information.

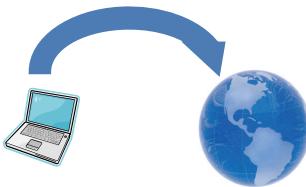
## Data Transfer

### Downloading from & uploading to a network

You can 'download' data from a network, for instance you can download a file from a web site. Another example of downloading would be copying a file from another computer on your Local Area Network to the hard disk on your computer.



Uploading refers to copying data from your computer to another computer, either on your local area network or on your company web site.



### Data transfer rate measurement

When you download or upload data the speed of the data transfer is measured by the amount of data that is transferred per second. Common transfer rate units are:

- Bits per second (bps). Very slow connections will be quoted in bits per second.
- Kilobits per second (kbps).
- Megabits per second (mbps). High speed data transfer is measured in megabits bits per second.

### Broadband & dial-up Internet connection services

In the early days of the Internet, you plugged a modem into your computer, which in turn was plugged into a phone line. Each time you wanted to connect to the Internet you had to dial up your Internet Service Provider (ISP), via your modem and you would be connected to the Internet. You were charged for every second that you connected to the Internet. As a result most people, spend most of the time not actually connected to the Internet. This made emailing frustrating. It was like phoning someone who unplugged their phone for most of the time. When you reconnected to the Internet, you would check for email and read it then. Dial up Internet access is very slow. It is OK for browsing Web sites, but you would not be able to watch movies on a dial up connection.

A broadband Internet connection means that you are permanently connected to the Internet. Your email program can receive and display mail as soon as someone sends you mail. Broadband Internet connection is not charged by the second, but by a monthly fee. The speed of your broadband connection depends on how much you wish to pay each month. A fast broadband connection allows you to view movies and listen to music.

## Internet connection options

Most people will connect to the Internet via a phone line or via a cable connection. There are however a range of Internet connection options including:

### Phone line:

The most common type of Internet connection. Your computer is connected to a modem which connects to the phone line. You can use dialup or broadband via the phone line.

### Cable:

The same cable that supplied TV channels can also supply your Internet connections. Often cable gives you very high speed Internet access.

### Mobile phone:

This is often very expensive and mainly appeals to the younger Internet users. The connection is established via special, Internet compatible phones. The screen on mobile phone is tiny, so you are limited in what information you can usefully view via a mobile phone.

### Wireless Hot Spots:

Many public places, such as shopping malls, hotels, airports and restaurant chains now offer wireless access to the Internet. This is sometimes free but is normally charged via your credit card as a fixed rate per time period. Often you cannot download materials, you can just browser the Web or view your emails.

### Satellite:

If you live in a very remote area, your only way to connect to the Internet may be via a satellite link. This may require large satellite dishes and expensive specialised equipment. The cost of the Internet connection may also be high.

## Characteristics of a broadband Internet connection

### Always on:

Unlike a dialup connection a broadband connection is always connected to the Internet.

### Flat fee payment:

Unlike a dialup connection where you often pay for every minute connected a broadband connection is paid for via a flat monthly fee.

### High speed access:

With broadband the more you pay the higher the connection speed. There are technical limitations that cap the speed and you should be aware that the theoretical access speeds quoted by Internet Service Providers (ISPs), are seldom reached.

### Risk of intruder attack:

Because a broadband connection is always connected there is more chance that hackers will try and invade your computer connection. This is often done via virus like programs and you should always have an up-to-date virus checking program installed on any computer that has a broadband connection. You will also need a firewall in place to protect you from some of the online threats.

# ICT in Everyday Life

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## Electronic World

### What does 'Information and Communication Technology' (ICT) mean?

ICT stands for Information and Communications Technology. In the Australasia region the term IT & T is often used instead of ICT. This stands for Information Technology and Telecommunications.

These terms cover a wide range of computer related fields including:

- Installing and maintaining computer systems and applications
- Designing, installing and maintaining computer networks
- Data management
- Computer hardware maintenance
- Database and software design

and many other areas!

### Internet services for consumers

The Internet offers a vast range of services for consumers including e-commerce, e-banking and e-government.

### E-commerce

The phrase e-commerce is a buzzword which relates to buying or selling via the Internet. Increasingly you can purchase directly via a Web site by selecting the goods or services which you require and entering your credit card details. When you send your credit card details these SHOULD be encrypted by the site operators so that no one can intercept your details. Most sites which accept credit card payment are on secure services and your Internet browser program (i.e. Microsoft Internet Explorer or Netscape Communicator) will normally inform you (via a popup) when you are entering or leaving a secure server.

### E-commerce

There are numerous web sites from where you can purchase online, a famous example being amazon.com. Most Internet based shopping sites use a virtual "shopping cart" system. As you browse the site you can add any products you want to purchase to your cart. Once you have placed items in the cart you can then move to the checkout stage. At the checkout you enter your name & address, select the type of delivery you want and enter your payment details.

#### Advantages of e-commerce

##### **Services available 24 / 7:**

Unlike a normal shop which closes in the evening, you can shop via the Internet 24 hours a day, 7 days a week, and 365 days a year.

##### **Large stock range:**

A larger range of stock can be carried than a conventional store. The stock does not have to be distributed and duplicated over many physical stores, but rather it can be held in one central distribution warehouse.

##### **Detailed product information:**

A detailed product description for each product, along with a picture can be given. There can even be links

to the product manufacturer's own web site.

**Ability to compare prices:**

Many sites claim to offer you the very best prices. You can use the information on these sites to compare prices.

**Equal delivery to town and country:**

The fact that you may live in the countryside, far from the nearest town makes no difference at all when shopping via the Net.

**Right to return defective goods:**

Most e-commerce web sites will have a 'Returns Policy' and it is advisable to read this prior to purchase. In many cases you will find that the law gives you a right to return defective goods or even goods which are not quite as you expected.

**Disadvantages of e-commerce****Possible credit card fraud:**

Some web sites have been set up solely to trick you into providing your credit card details, which can later be sold to criminals so that they can make purchases with your money. When it comes to credit card fraud there is basically one rule 'wherever humanly possible the bank never pays: - someone else does', make sure that someone is not you. Check the small print on your credit card agreement.

**Is the web site genuine?:**

When you purchase from a company such as amazon.com, you know that the company is well respected, is unlikely to go bust tomorrow, and above all will not attempt to 'run off with your money'. But what about when you purchase online from a company you have never heard of? Look for clues. Is there a client list on the site? How long has the company been trading. Are full contact details provided? If in doubt ring the phone numbers provided on the site and try to decide whether the company sounds genuine. Ask for references from other customers. Just because you see trade association logos on a site, do not assume that the use of these logos is genuine. There are organisations now whose sole purpose is to verify that other web sites belong to honest companies.

**What about returning faulty goods?:**

If the goods arrive and are substandard, who pays to return them. Where do you return them to? Be sure you know about a company's returns policy, BEFORE you make an online purchase.

**How are you covered when you purchase goods from another country?**

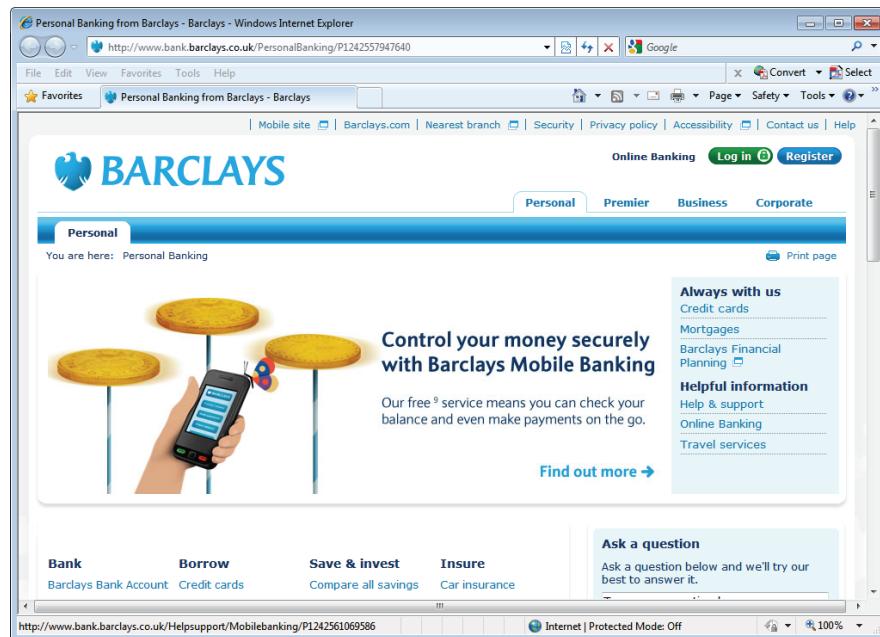
This is a minefield. Each country may have its own laws relating to consumer protection. Be warned!

**Can you talk to a real person?**

I recently heard a radio presenter who purchased a computer online, through a very well-known PC manufacturer. He purchased the computer for his daughter, in good time for Christmas. As Christmas drew near he tried to find out what was happening, but was unable to talk to a real person and was forced to rely solely on email contact with the company. The computer eventually turned up in February. Never buy from a company which does not provide you with full contact details including a telephone number.

## E-banking

The phrase e-banking relates to managing your money online. Instead of having to go to the local branch, or telephoning them, you can pay your bills online and move money from one place to another. Some online banks have no physical branches at all, making it a very profitable operation for the bank. There are security considerations relating to online banking, with numerous examples of poor security coupled with sloppy operations.



Most banks now offer some form of online banking. This has the advantage to the bank that costs can be reduced. Some banks are completely online, with no physical branches at all. The customers benefit from 24-hour access to banking services. The downside is that this leads to many job losses in the banking industry and when things go wrong there is no physical person you can go and see and make your complaints to. Some leading banks have demonstrated a degree of incompetence when it comes to the security of their online systems and many people are very reluctant to trust online banking systems yet.

**Smile:** <http://www.smile.co.uk>

## E-government

**Census:** Every few year's census details are taken and entered into large computer databases. This data can then be used to extract useful information and predict trends. In some cases this data is also being made available online, so that it becomes even more accessible and useful.

**Vehicle registration:** All car and lorry details are kept centrally; this makes it easy to find the owners of cars, which can be useful for police, customs and security services.

**Revenue collection:** Increasingly aspects of government revenue collection are being computerised, which in many cases involves online systems as well.

**Electronic voting:** Governments are experimenting with online voting systems, often in response to appallingly low voter turnout. Security remains the main obstacle to the extension of this idea.  
[www.ukonline.gov.uk](http://www.ukonline.gov.uk)

## E-learning

E-learning refers to learning via the Internet or working through a disk based tutorial. There are many advantages, some disadvantages too.

## Uses of computer applications in education

**Student registration and timetabling:** There are many specialist programs designed to computerise these otherwise time consuming tasks.

**Computer Based Training (CBT):** Computer Based Training (CBT) offers a low cost solution to training needs where you need to train a large amount of people on a single subject. These programs are normally supplied on CD-ROM / DVD and combine text, graphics and sound. Packages range from general encyclopaedias right through to learning a foreign language. As an alternative to training via CD-ROM / DVD, CBT can also be delivered via the Internet.

**Using the Internet as a homework resource:** The Internet is the ultimate resource for getting the information necessary to complete a student's homework. The Internet can also be used to set and collect homework (via email).

**Distance learning systems:** E-learning is a term used to describe studying via the Internet. It can take many forms ranging from a simple web version of printed books, through to advanced use of video images with sound. In many cases there can be real-time two-way communication between the teacher and the student.

### ***Advantages include:***

- One trainer can train many people at many different locations.
- If the training is solely computer based, then the students can work at their own pace, and repeat parts of a course which they do not understand. Also the teaching can be at any time, 24 hours a day, and 7 days a week.
- Often e-learning solutions are cheaper to provide than other more traditional teaching methods.

### ***Disadvantages include:***

- There may be no opportunity to ask a question of a real person.
- The Internet connection may temporarily fail for some reason.
- You may have to pay for the connection time, by the minute.
- The download speed may be too slow for some forms of e-learning
- Because of the increased time required to produce some types of e-learning packages, the e-learning tutorials may not be available for some time following the release of a new version of software, or a new certification syllabus.

## Teleworking

Tele-working is a broad term which refers to people working at home connected to the rest of the organisation via a computer network. Communication is via email or the telephone. This arrangement has advantages and disadvantages to both the employer and the employee.

## Some of the advantages of tele-working

Advantages include:

### **Reduced or zero commuting time.**

This saves time (and money) for the employee and reduces environmental overheads, as less commuting means less car pollution. It means that the employee does not arrive at work already stressed from car jams or late train connections.

**Greater ability to focus on one task:**

As there are fewer interruptions from low priority phone calls, there is a greater ability to concentrate and focus.

**Flexible schedules:**

In many cases, as long as the job gets done, it does not matter when the job gets done. This means there is time for other activities, such as picking up the kids from school. It also means that work can be finished in the evening if required. If it is a beautiful day, why not take advantage of the weather, and finish your work later.

**Reduced office desk space requirements:**

The cost of Office space can be very high and tele-working can help to reduce these costs if a proportion of the staff works at home. "Hot Desking" is a term used to indicate that people do not have a desk dedicated to their exclusive use. People simply sit at any desk and log on to the networked computers using their own ID, which will allow them to uniquely access their own work stored within the computer system. Hot Desking is popular where staff spend a proportion of their time working at home, or at sites outside the main office complex.

## **Some of the disadvantages of tele-working**

As well as advantages, there are many disadvantages for tele-workers, which include:

**Lack of human contact:**

Many people cite this as the single biggest factor when switching from a regular office job, to tele-working. In fact many companies now arrange company gossip networks, just so that people can keep in touch.

**Negative impact on teamwork:**

If you never see the rest of the team it is hard to feel part of the team. To some extent this is offset by video links and by occasional get-together meetings.

**Self-discipline:**

It can take a lot to work from home and remain focused on work. It is all very well saying 'I will take the afternoon off and work this evening', but come the evening you may not feel like working.

**Possible Employee Exploitation:**

If workers are isolated from each other there is the possibility for companies to take advantage. Some large companies using tele-working restrict trade union activity (or if they can, ban it altogether).

# Communication

## Electronic mail (e-mail)

Email allows you to send a message to another person almost instantly, anywhere in the world. It requires both computers to be connected to the Internet. As well as sending a text message, files can be sent as email attachments.

## Instant messaging (IM)

Instant messaging (IM) provides a mechanism for real-time communication between two or more people sending text messages via their computers. This is different from sending an email which once sent may be read sometime later by the person you sent the email to.

Some types of instant messaging software let you speak rather than having to type your messages. You can use your web cam so that you can see the person you are talking to.

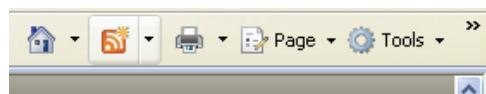
## Voice over Internet Protocol (VoIP)



Voice over Internet Protocol, (VoIP pronounced voyp), is a technology that allows you to talk with other people via the Internet. You can talk at no extra cost to other people using VoIP on their computers. You can even make calls to real telephones at a much cheaper rate than normal. This system is ideal when you need to make a lot of long distance or international calls. You can use VoIP by just installing a microphone and headset, or you can purchase a special VoIP compatible phone, which will normally plug into one of the USB sockets on your computer. A well known VoIP product supplier is Skype, who produce a range of excellent phones.

## Really Simple Syndication (RSS) feeds

RSS (Really Simple Syndication) is a method used to publish information that needs to be frequently updated. Such as news headlines, tickertapes or podcasts. A RSS document is called a "feed" or "channel".



You need software called an RSS reader to read and update RSS content. You can then subscribe to a feed using the RSS reader. The RSS reader regularly checks for updated content and then displays the new content. Most good news websites will have the option of an RSS feed. In most cases to subscribe, you need only click on a button within the site.



## Blogging (web logs)

A blog (a combination of the words web and log) is a website on which chronological entries that can be viewed by visitors. The word Blog is used as a verb and describes the activity of maintaining a blog. Blogs can provide information on a vast range of subjects, and often contain personalised views on a particular subject. Some are devoted to news, politics or current affairs. Readers can often comment interactively on the blog while other blogs are more like a shared, personal diary. Some blogs have become incredibly popular and been made into published books.

Blogs are mainly text based with the odd picture, but they may also contain music and video contents.

The blog search engine Blogspot tracks well over 150 million blogs. You can visit and make your own blog at:

<http://www.blogspot.com>

## Podcasts

A podcast is a way of providing content such as radio programs in a form which can be easily downloaded and listened to later on a PC or mobile device such as an Apple iPod.

The term "podcast" is a combination of the words "iPod" and "broadcast".

Many web sites allow you to manually download content.

The thing that makes a podcast different is that once you subscribe to a podcast it will be downloaded automatically for you.

# Virtual Communities

## Online (virtual) communities

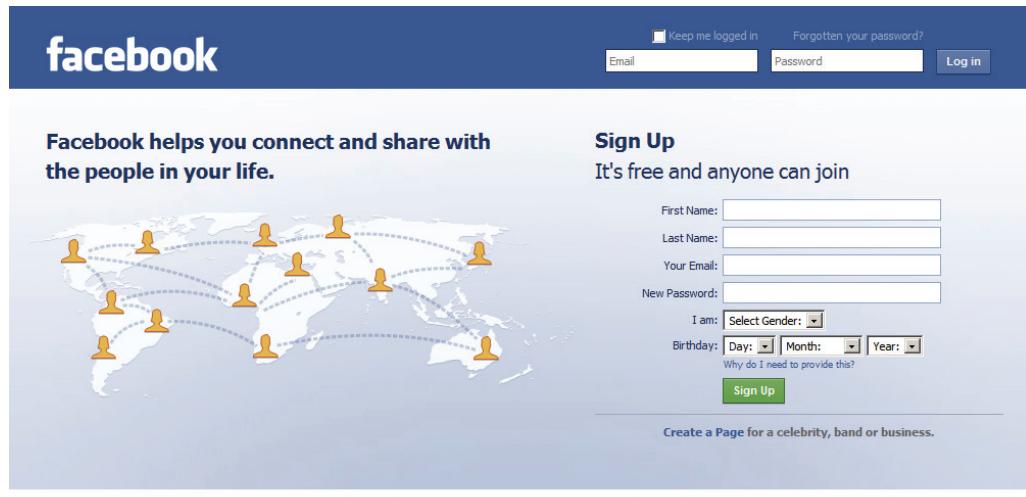
It is important to understand the concept of online (virtual) communities. These can take many forms including:

- Social networking websites
- Internet forums
- Chat rooms
- Online computer games

## Social networking websites

These sites allow you to link up with other people, to share news, experience and gossip. Some, such as 'Friends Reunited' are specifically designed to let you find friends that you have lost contact with.

Facebook



## Internet forums (message boards / discussion boards)

An Internet forum is a web based application that lets you join in online discussions. You can post your views or comments for all in the forum to see and react to. Try searching the Web for information on message boards and you will find that there is a discussion for you, whatever your interest!

## Chat rooms

The term 'chat room' has had a lot of media attention over the last few years. The term has evolved to include any web based mechanism to share your news with others on the web. The communication is in real time, i.e. you can talk to other individuals, rather than leaving messages. Try searching the Web for more information and examples.

## Online computer games

Online games are games that are accessed and played via the Internet. In many cases you can play against other people. Try searching the web using the phrase 'online computer games' and you will find lots of sites you can access.

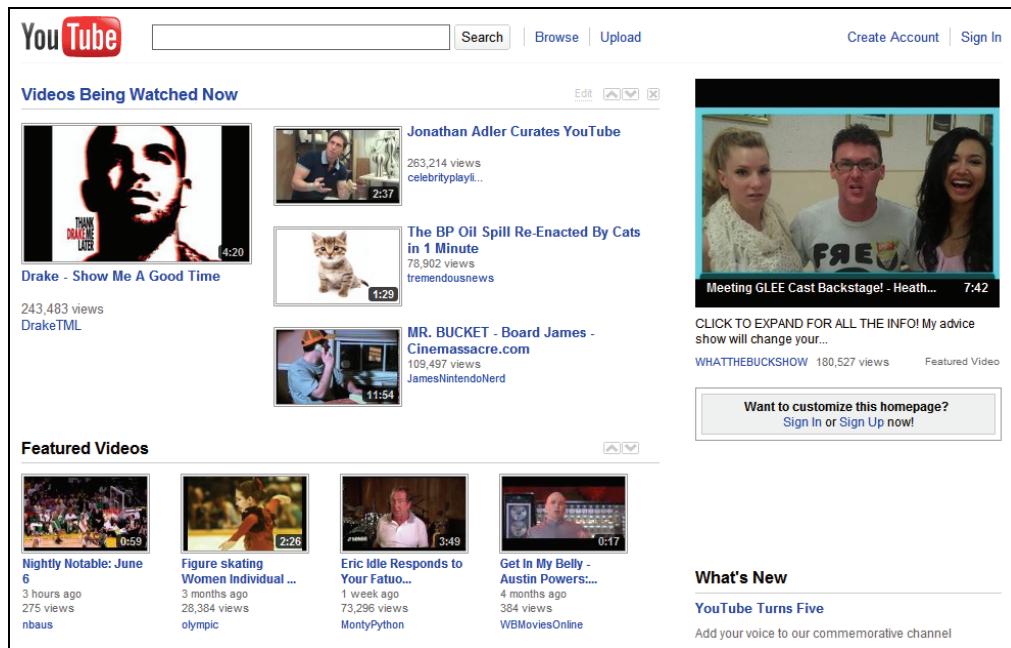
## Publishing and sharing content online.

It is important to understand the ways you can publish and share content online. You can set up your own web log (blog). You can even set up your own podcast.

## Sharing photos, video and audio clips.

There are many web sites that allow you to upload pictures, audio clips or video clips. Facebook is a good example of a site that you can upload items of interest to.

YouTube contains clips that have been uploaded from people around the world. If you have something to share give it a go.



## Precautions when accessing online communities

You should take basic precautions when accessing online communities including the following:

### Keep your profile private and limit the amount of personal information you post:

In many cases you can keep your profiles private and only share limited information with other users as you get to know them. Remember that a criminal armed with just your age and address may be able to access your bank details. Use common sense on the Web!

### Be aware that posted information is publicly available:

Remember that information that you post is often publicly available and can be used by fraudsters.

**Be wary of strangers:**

The Internet can be a dangerous place. Do not take information from people you meet on the Internet at face value. If you are a child, how do you know the person that you are talking to is a child of your age rather than someone pretending to be something that they are not? Be very cautious of arranging to meet people that you have met via the Internet and make sure that any meeting is in a public place, and preferably take a friend along.

# Health

## What is ergonomics?

Ergonomics covers the physical environment and design of equipment to maximise the quality of an employee's wellbeing. This covers everything from the design of the computer, the computer desk, the chair and even the design of the lighting within a room.

Take regular breaks, have regular eye tests and get a good desk and chair to maintain good posture.

## Repetitive Strain Injury (RSI)

Often referred to as RSI. This is a condition caused by constant use of the keyboard or mouse. You should take regular breaks to help avoid this type of injury. You may want to consider the use of a pad on which you can rest your arms, which will help to some extent.

**More information:** <http://www.rsi-center.com>

## Lighting issues when using a computer

It is vital that the correct type of lightning is used in conjunction with your computer use. Many people find that banks of overhead fluorescent, tube lighting gives them headaches. Natural light is better, but can cause reflected glair off the computer screen. Too much light can cause as much eye strain as too little light. The direction of the light is also a consideration. If you are facing a bright light source while concentrating on your computer screen, this can lead to eye strain.

## Screen and keyboard positioning

When sitting at your computer you should have a monitor at eye level which can be adjusted to suit you. In addition, you may want to consider a footrest. Neck pain and backache can result from prolonged bad posture.

**Screen:** Your screen should be fully adjustable so that your eyes are at the same height as the top of the screen. You may wish to use a filter attached to the screen to reduce glare. If the screen is badly focused, too bright or appears to flicker, then get a qualified technician to take a look at it. You should periodically refocus into the distance, as opposed to always gazing at a screen a few inches from your eyes.

**Keyboard:** Use a good keyboard and you may also wish to use a wrist pad to relieve pressure on your wrists.

**Mouse:** Use a mouse mat to make the mouse easier to use. Ensure that you have enough space to comfortably use the mouse. If your arms or fingers become tired or painful when using the mouse, take a break and do something else.

## Seating issues when using a computer

If you spend a lot of time sitting at your desk using a computer it is vital that you pay attention to the type of chair you are sitting in. Your chair should be fully adjustable, and be able to be moved up or down. It should have an adjustable back. If your chair is not easily adjusted it can lead to permanent back injury.

## Wellbeing when using a computer

You should take regular breaks to avoid staring constantly at the screen and straining your eyes. During regular breaks, refocus your eye between short and long distances as this can reduce eye strain.

During your regular breaks, you may also wish to do some practice stretching exercises. These should be done only after medical advice so that they are appropriate for each individual.

You should consider using the best (i.e. most expensive) monitor which you or your company can afford. The better the monitor the better the screen resolution and the higher the refresh rate. For detailed work, you should also consider using a larger screen size. In many countries, your employer has a legal duty to pay for eye tests for employees as and when they request it. You can get filters which fit in front of the screen and reduce glare.

You may wish to use a footpad to rest your feet while using the computer.

Make sure that the area where you are using the computer is adequately lit and well ventilated.

Ventilation is especially important if you are using a laser printer, which may produce ozone when printing.

## Make sure that cables are safely secured

You should always use the power cables which were supplied with your computer or cables of a similar quality. Make sure that the cables are safely secured at the back of the desk and that you have power points located near the desk. If your desk has a cable ducting system make sure that you use it. Avoid long trailing cables as you or other people can easily trip over them and cause injury to yourself or others. Apart from personal injury, accidentally pulling out a power cable could cause your computer to lose power and you will lose data as a result. Network cables tend to be delicate and easily damaged and the most common cause of failure to log onto a network server is that someone has accidentally dislodged or damaged the network cables.

## Make sure that power points are not overloaded

Overloading of a power point is dangerous and a potential fire hazard. If you need more power sockets, have them properly installed by a qualified electrician.

## Environment

### Computer recycling options

You should have a separate bin for paper which can be sent for recycling (be sure that sensitive material is first shredded).

Printer toner cartridges can be sent for recycling; in fact some charities now collect spent toner cartridges, and send them for recycling. You may also wish to consider the use of recycled toners in your printers (but be aware that in some cases this may invalidate the printer's guarantee).

Rather than dump unwanted computer equipment, see if you can get them recycled, or even collected and used by charitable organisations.

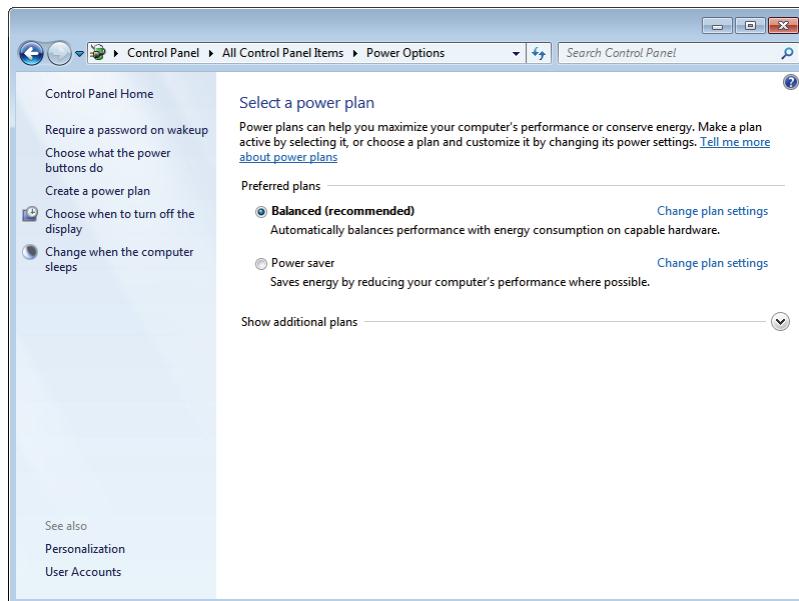
Where possible the use of on-screen manuals and help systems, rather than printed manuals, will save on the amount of paper consumed. This equates to less trees being cut down.

### Computer energy saving options

You may consider switching off computers and monitors when they are not being used.

Many monitors and other peripherals will automatically switch into 'sleep' mode after a period of inactivity. This means that even though the computer is still switched on, it will consume less power.

Power saving options is illustrated below.



# Security

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## ***Identity/Authentication***

### **Computer logon user name (ID) and password.**

#### **Passwords:**

If your computer has a password which prevents other users from accessing it then do NOT give this password to anybody else. Do not write the password on a card and prop this up next to the monitor and above all do not attempt to hide your access passwords on the underside of your desk (this is the first place most criminals would look if trying to break into your system). Make sure you do not forget your passwords; in many cases, data cannot be recovered once the password is lost.

#### **User IDs and passwords:**

A User ID is normally used to logon to a computer, or computer network. It uniquely identifies you to the network. In addition you use a password which is only known to you. The password guarantees that no one can access the network and impersonate you (in theory). Once you have logged on (i.e. connected) to the rest of your computer network, you will have been assigned access rights to the network. Your network administrator will have defined these access rights. The idea of access rights is that you only have the ability to connect to, or share, devices which you have authority to use. In other words, the network administrators often have access rights to just about every computer, printer, modem etc on the network. You on the other hand may have access rights to print to only certain, specified printers and you may be able to access only certain data held on the network.

### **Password policies**

Your password is the only thing which will prevent someone else logging into a computer using your user ID and impersonating you. It is important to choose a password which cannot be easily guessed by other people. Ideally a password should be at least 8 characters long & contain a mixture of words and numbers. It is also recommended that you change your password regularly; some computer systems will require you to change your password periodically. Never share your password with others.

# Data Security

## Off-site backups

It is no good backing up your data only to leave the item which you backed up next to the computer; if someone steals your computer it is likely that they will also steal your backups too. If you have a fire, then again you will lose your backups if the backups are stored next to the computer. Ideally, backups should be stored off-site at a safe location. At the very least, consider storing your backups in a fireproof safe, which will give some protection against fire damage.

## Why do you need to backup your computer?

The most important thing which you store on your computer is information. Often the contents of a hard disk can represent years of work. If the hard disk stops working one day you could lose all those years of work. For this reason it is VITAL that you take regular backups of the information which is stored on the computer. In large organisations this backup procedure is normally performed automatically by your computer support team, where the data is normally held on a centralised, networked computer.

In smaller organisations, it is often up to the individual to organise some sort of data backup. If nothing else is available, copy your files to a USB memory stick or CD/DVD disk and make sure that these backups are stored away from the computer, ideally off-site. If there is a fire and your office burns down, if your backup disks are stored next to the computer they too will be incinerated.

## Organising your computer for more efficient backups

When you think about it, you have a computer containing many programs and also a large amount of data which you have created, then it is only the data which really needs to be backed up. If you create a folder structure which contains only data then only this directory (plus any sub-directories of this directory) needs to be backed up.

## Complete vs. incremental backups

A complete backup means that you backup all the data on your computer. This has the advantage that the entire hard disk can be backed up, but suffers from the disadvantage that this process can take a long time if your computer contains a lot of data. An incremental backup means that once a week you can perform a complete backup, but every night for the rest of the week, you only backup files which have been newly created or modified since the last backup, saving time. With the right backup software, this process is automatic, and normally you only have to select full or incremental.

## What is a firewall?

A firewall is a system that secures your network from access by unauthorized users. A firewall can be implemented via software, hardware or by a combination of the two. If you are using broadband for Internet access, it is vital that some sort of firewall is in place to stop people trying to hack into your computer.

## Data theft issues

You should take steps to prevent data theft and be aware of the following issues:

### User name and password:

Always use a login ID and password to access your computer.

**Physically securing your computer:**

In some cases the computer may be secured to a desk by a cable and locking device. While this will help prevent physical thief of the computer it does not restrict access to sensitive data stored within a computer.

**Portable disks and memory sticks:**

Many companies ban the use the portable disks or memory sticks as they can be used to copy data from a computer and then carried out of the office for improper use by criminals.

**Stick to data handling procedures:**

A while back the UK government managed to loose two computer disks containing the personal details of over 25 million people (include bank accounts). This was put down to a failure to follow basic procedures.

**What if your laptop is stolen?**

If there was no start-up password then all the data on the computer could be at risk. The same goes for important/sensitive documents; if these were not individually password protected they could also be vulnerable. If you work within a large organisation, always report an incident of this type immediately to your technical support department.

# Viruses

## Computer viruses

Viruses are small programs which hide themselves on your disks (both diskettes and your hard disk). Unless you use virus detection software, the first time that you know that you have a virus is when it activates. Different viruses are activated in different ways. **BETTER:** Viruses can destroy all your data.



## Computer virus infection issues

Viruses hide on a disk and when you access the disk (either a diskette or another hard disk over a network) the virus program will start and infect your computer. The worst thing about a computer virus is that it can spread from one computer to another, either via the use of infected disks, or over a computer network. The Internet allows you to access files from all over the world and you should never connect to the Internet unless you have a virus-checking program installed on your computer. It is vital to keep your virus monitoring software up to date. Many anti-virus programs, such as Norton Anti Virus allow you to update the program so that the program can check for recently discovered viruses.

### More Information:

<http://www.bitdefender.com>

<http://www.kaspersky.com>



## Protecting against computer virus infection

The safest way to use a computer is to not connect it to a Local Area network or the Internet. This is called a 'stand-alone' computer, providing that you do not use disks on that PC which have been used in other computers, this type of computer is virtually immune from any form of intrusion.

Unfortunately it is the ability to connect to other computers or indeed the Internet, which makes the modern computer so versatile and so useful.

Always make sure that all computers require an ID and password to access them. Make sure that all relevant 'security patches' from Microsoft have been applied.

Make sure that the password is long enough, contains a random mixture of numbers and letters, and that the passwords are changed on a regular basis.

There are many examples, where people have used passwords which relate to something personal, such as a partner's first name, the dog's or cat's name, etc. For a determined, serious computer hacker, these are easy to guess. If you have a system, where lots of different passwords are required to access the system, then security often breaks down and computer users will sometimes keep a list of these passwords in their disk. This defeats the whole object. If you forget your network access password, the network administrator should be able to assign you with a new one.

## What to do if you discover a virus on your computer

If you discover a virus on your computer don't panic. If your virus checker alerts you to a virus, then the chances are that it has caught the virus before the virus could infect your computer and cause damage. For instance you may insert a disk into your computer and the virus checker should automatically scan the disk. If the disk contains a virus, a message will be displayed telling you that the disk is infected, and it should automatically remove the virus. The other common method of infection is via emails.

If you work within a larger company, you should have a company IT support group which will come and rid your computer of viruses. Be sure that you are familiar with your company's policy regarding viruses.

## The limitations of anti virus software

Anti virus software can only detect viruses (or types of viruses) which the software knows about. As such it is vital that you keep your anti virus software up to date so that it can detect new viruses which are constantly appearing.

# Law

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## Copyright

### What is copyright?

Most programs which you purchase are copyrighted and you must not copy them. If you do so you may be breaking the law and if caught, you could find yourself being prosecuted. Many people will buy a copy of a game and make a copy for their friends or other family member. This is also normally unlawful. Even lending your program disks or CD-ROM to other people may be breaking the law in most cases. There are numerous organisations, such as FAST (the Federation Against Software Theft), which are dedicated to preventing the illegal copying of software. In a business situation, if your manager tells you to copy software, ALWAYS first make sure that you have a licence which entitles you to copy the software, because in many countries, you will be personally liable for damages.

Most text which you will find on the Internet is copyrighted. Never copy text without authority to do so and always quote your sources.

There are many sites offering free graphics and clipart. Some are genuine and have the authority to offer you a free download of images. Many sites however may not have this authority. Popular examples are pictures, sound clips, or movie clips from Star Trek. If you visit the official Star Trek site ([www.startrek.com](http://www.startrek.com)) you will see that use of images, and even the name 'Star Trek' is protected and may not be used on 'fan sites'. Even downloading sound clips to replace the bleeps which Microsoft Windows makes is often illegal. Some sites even allow the 'free' download for complete films or music tracks. If you can download a free film before it is even officially available on video/DVD, it is a pretty good bet that the site is unauthorised. Cover yourself. Get written permission to used downloaded materials and 'if in doubt - don't' is the safe rule. Because CD-ROM writers have become so widely available, it has become possible to copy entire CD-ROMs which can contain software, games or data. Do not do this. Always be careful of software which you may find advertised at very cheap prices, it may be illegally copied.

**More Information:** The Federation Against Software Theft <http://www.fast.org.uk>

### Copyright Issues when copying files

#### Transferring files across a LAN:

You need to be careful that you do not accidentally make copies of software via your Local Area Network (unless of course you are authorised to make such copies).

#### Downloading files from the Internet:

You need to be VERY careful when downloading files from the Internet. Just because a site may say you are free to download materials from the site, does not necessary mean that the owners of the Internet site have the authority to allow you to do this. It is possible to download entire software packages from the net, even entire movie films. In many cases however it is not legal to do so.

#### Copying diskettes / CD-ROMs / DVD / ZIP disks:

If you purchase software, you may, in some cases be allowed to make a single, backup copy of disk. You are not allowed to distribute copies to family and friends. You are certainly not allowed to copy and re-sell commercial software.

**Freeware:**

This is software which can be copied or downloaded free. It is often fully functional. Examples may include software developed by organisations such as Universities, where the aim was not to profit from the software. It is very important not to confuse freeware and shareware.

**Shareware:**

This is where you can use software for a free trial period. Sometimes the shareware versions may be fully functional, but after a time period will either start to display an annoying message, asking you to register (i.e. pay for) your software, or in some cases it may stop working altogether after the trial period. This 'try before you buy' method of getting software is becoming increasing popular with the major software suppliers.

**User Licences:**

If you have more than one PC, then you can either purchase a separate copy of the software you require for each PC, or better: you can purchase a user licence. This user licence allows you to make copies and install them on each computer. The more copies you make the more the user licence will cost, but the cheaper the effective cost per PC.

## Site licenses

Many large companies do not go out and buy a certain amount of 'shrink-wrapped' copies of each software product which they need, instead they will buy a site licence. These site licences are different in their small print, but generally mean that the companies purchasing the licence can make a fixed numbers of copies available to their staff, normally via a company network.

## Checking software licence status

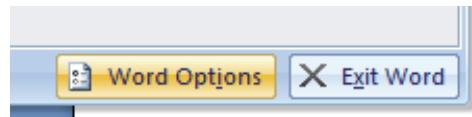
Normally if you click on the **Help** drop down menu within an application, there will be a command such as **About**. Clicking on this option will often display your software product identification number.

## What is an 'end-user license agreement'?

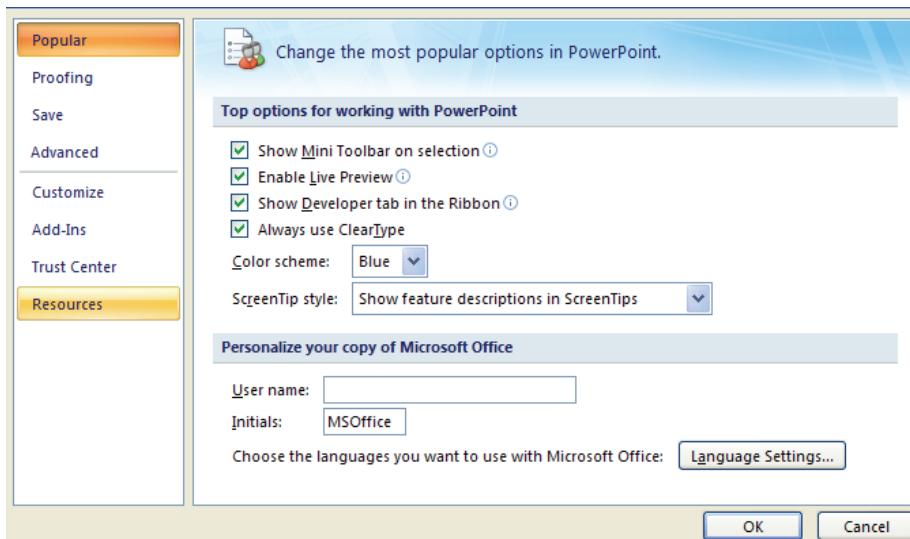
Normally when you install software these days there is a step within the installation routine in which you have to agree to be bound by the end user licence agreement. This agreement can be very large and is drawn up to protect the manufacturers of a product from being prosecuted due to faulty software. It also defines how many copies of the software you are entitled to. I recently printed out a Microsoft end user agreement and it was over 15 pages long.

## Examining the 'end-user license agreement' within Office 2007 software

To view the licence agreement within Word 2007, click on the **Office Button**. You will see a dialog box open and in the bottom-right corner of the dialog box you will see the following buttons. Click on the **Word Options** button.



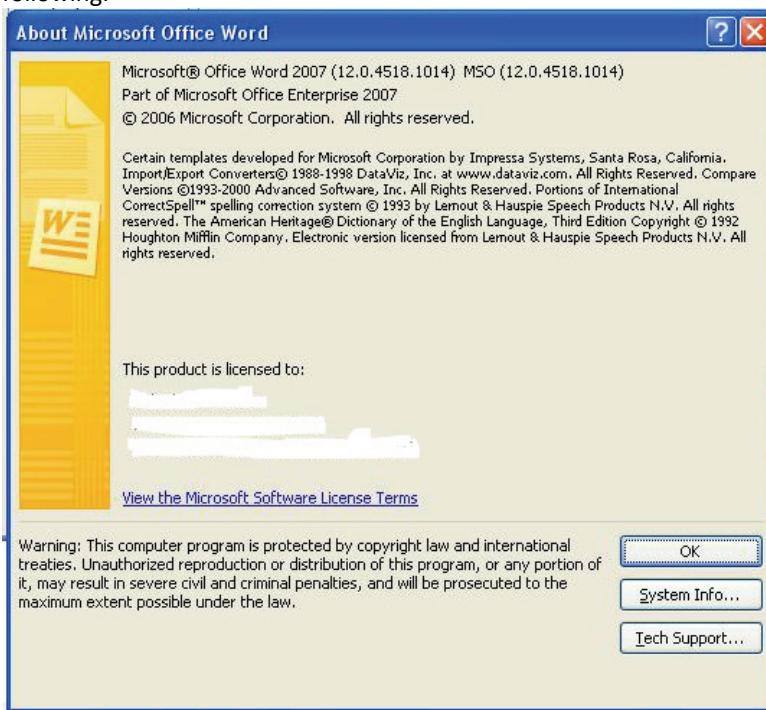
You will see the following dialog box displayed.



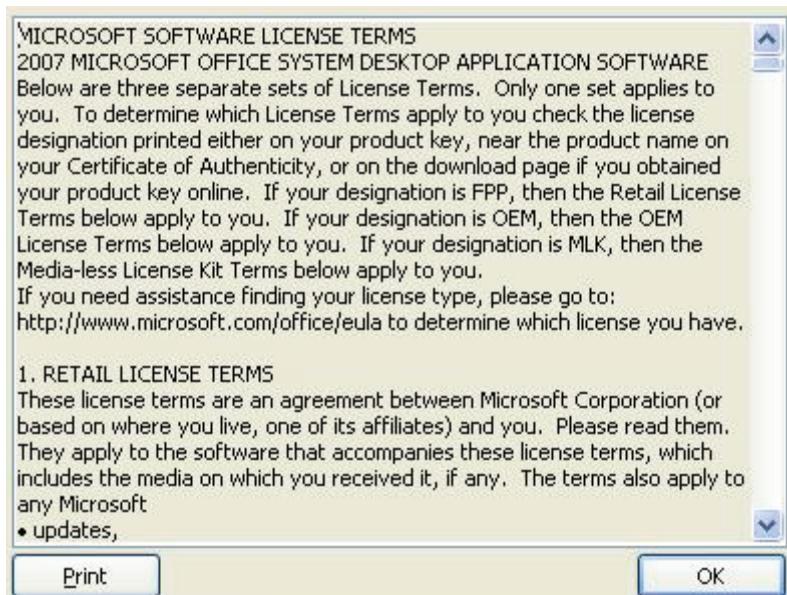
Click on the **Resources** option (displayed down the left side of the dialog box). This will display the following.



Click on the **About** button to the right of the **About Microsoft Office Word 2007** option. You will see the following.



Click on the **View the Microsoft Software Licence Terms** link to view the terms and condition of your licenc. You will see the following. Notice that you can print the terms and conditions if you want.



## Types of licence agreement

It is important that you understand that there are different types of software licence agreements.

As well as tradition commercial agreements you need to understand the terms:

- Shareware
- Freeware
- Open source

### What is shareware?

Shareware is software which is freely available and is designed to let you use the product free or charge, for a limited period while you decide if you like it or not. After this period, you must legally either remove it, or pay an amount to the producers of the product.

**More information:** <http://shareware.cnet.com>

### What is freeware?

Some software is made freely available. Demonstration disks often come under this category. In addition, a lot of software is produced by the educational community and is made freely available. Always read any licences supplied with such software very carefully before use.

### Open source software

This type of software licence makes the programming code available to anyone who wishes to enhance or develop the code. Over the years many companies have complained that Microsoft is reluctant to share this level of code detail with competitors, which they claim gives Microsoft an unfair advantage and stifles competition. It is important not to confuse open source software with free software. Sometimes the source code is made available within the public domain for use by all, as they see fit. In other cases the source code is made available to particular companies under tight non-disclosure agreements, to protect commercial sensitivities.

# Data Protection

## Data Protection and Privacy Issues

If your computer system holds information about individuals, then you have a moral and legal duty to treat that information with respect. For instance if a police force computer is used by unscrupulous people to gain unauthorised information about a person's private life, that would be a clear breach of trust. In the same way doctors, government departments and credit agencies often hold vast amounts of information about the general public, which is both sensitive and private. In a free society you have the right to ensure that the information held about you is not abused. In many countries, this right is enshrined under data protection laws.

## Data Protection Legislation

Some countries have laws while others have guidelines regarding data protection and privacy. Data protection laws can differ substantially between countries. Apart from a coverage for trade related data in the Copy Rights Act, 2000, at present there is no data protection legislation in Bangladesh. However, the government is actively proceeding towards introducing laws covering certain infringements and offences such as, hacking, unauthorized access to computer system, tampering with computer source documents, etc.

### Data protection legislation relating to those who keep data (data controllers)

Personal data shall be obtained fairly and lawfully.

Personal data shall be processed fairly and lawfully.

Personal data shall be held specified and lawful purposes.

Personal data held will not be used or disclosed in any way that is incompatible with the purpose it was obtained, processed or stored.

Personal data must be adequate, relevant and not excessive in relation to the purpose it was obtained, processed or stored.

Personal data should be accurate and if necessary kept up to date.

Personal data should not be kept for longer than is necessary for the purpose it was obtained.

Where personal data held or processed by a third party computer bureau there should be appropriate security measures in place to prevent unauthorised access to the data.

### Data protection legislation relating to individuals about whom data is stored (data subjects)

An individual is entitled to be known as a data user holds personal data about them.

An individual is entitled to access any personal data stored on a computer.

An individual is entitled to have any inaccurate data corrected or erased.

# Abbreviations & Terminology

ITEM	MEANING
<b>ADSL</b>	Asymmetric Digital Subscriber Line
<b>Bit</b>	1 or 0 level of storage is called a bit
<b>BPS</b>	Bits Per Second
<b>Byte</b>	A measurement of storage capacity
<b>CBT</b>	Computer Based Training
<b>CD</b>	Compact Disk
<b>CD-R</b>	Compact Disk - Recordable
<b>CD-ROM</b>	Compact Disk - Read Only Memory
<b>CPU</b>	Central Processing Unit
<b>DAT</b>	Digital Audio Tape
<b>DOS</b>	Disk Operating System
<b>DSL</b>	Digital Subscriber Lines
<b>DVD</b>	Digital Versatile Disk
<b>FTP</b>	File Transfer Protocol
<b>GByte</b>	Gigabyte. A gigabyte consists of 1024 MBytes
<b>GHz</b>	Measurement of computer speed. Gigahertz
<b>GUI</b>	Graphical User Interface
<b>Hz</b>	Hertz (this is a measurement of frequency (i.e. speed).
<b>IS</b>	Information Systems
<b>ISDN</b>	Integrated Services Digital Network
<b>IT</b>	Information Technology
<b>KByte</b>	Kilobyte. A kilobyte (KB) consists of 1024 bytes.
<b>LAN</b>	Local Area Network
<b>MByte</b>	Megabyte. A megabyte (MB) is one million bytes
<b>MHz</b>	Million Hertz
<b>PC</b>	Personal Computer
<b>PSTN</b>	Public Switched Telephone Network
<b>RAM</b>	Random Access Memory
<b>ROM</b>	Read Only Memory
<b>ROM-BIOS</b>	Read Only Memory - Basic Input Output System
<b>RSI</b>	Repetitive Strain Injury
<b>TByte</b>	Terabyte. A terabyte (TB) is one million MBytes
<b>UPS</b>	Uninterruptible Power Supply
<b>USB</b>	Universal Serial Bus
<b>VDU</b>	Visual Display Unit
<b>WAN</b>	Wide Area Network
<b>WWW</b>	World Wide Web

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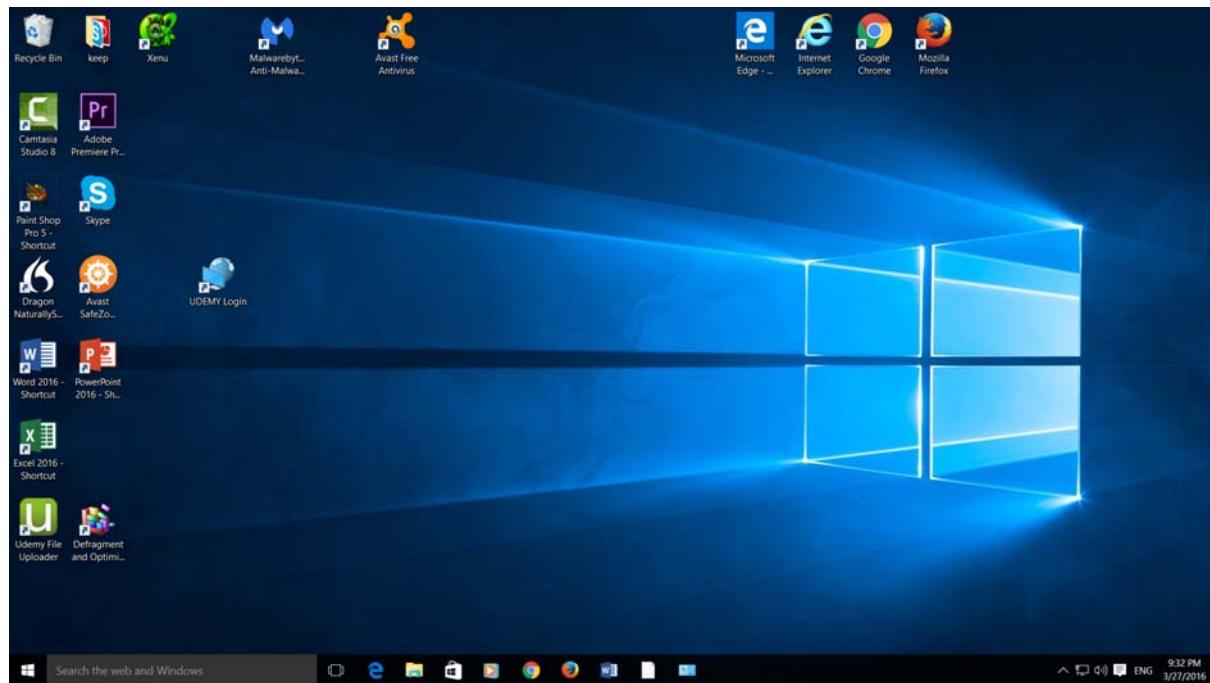
## Tutor Setup Information

- Copy the folder called **Windows 10 Foundation** (containing the sample files & folders) to the **Documents** folder on the PC.
- At the end of the course, remove all files modified or created during the course, prior to re-running the course.
- At the end of the course, reset all program and operating system defaults that may have been modified during the course, prior to re-running the course.

# The Windows 10 Desktop

## What is the Windows Desktop?

- Normally when you start your computer with Windows 10 installed on it, you will see the Windows Desktop screen displayed.



## Desktop icons

- The icons you see on the Windows Desktop will vary from one computer to another, depending on who installed and customized the Windows installation. As a user of Windows, you can add, remove and move icons on the Desktop. Typically, the Desktop will look something like this.



## Moving Desktop icons

- Click once on the **Recycle Bin** icon, to select it.



- Make sure that the mouse pointer is pointing to the **Recycle Bin** icon. Press down the mouse button and while keeping it pressed move the mouse pointer to a different position on the Desktop. When you release the mouse button, the icon will have moved.

You would use exactly the same technique to move any other icons that are displayed on your Desktop.

**TIP:** The Recycle Bin is used as a temporary store for files that you delete. More about all this later!

## Windows Taskbar

- The Windows Taskbar is the bar normally displayed across the bottom of your Windows screen. It contains a number of important items, such as the Start button, icon representation of running programs and a clock at the right edge.

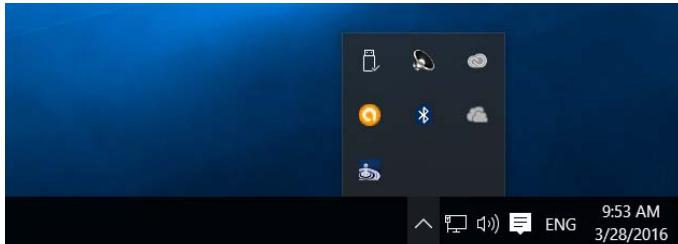


## Showing Hidden Icons

- Within the Taskbar along the bottom of the screen, you will see the **Show Hidden Icons** control displayed to the right of the screen.



- Clicking on this control will display more icons that you can click on.

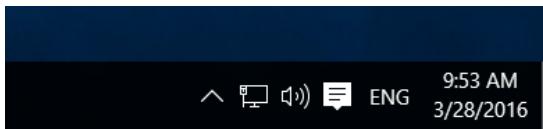


- This control allows you access to icons that may occasionally be of use, without cluttering up the Taskbar. Try clicking on any icons that are displayed in the pop-up list.

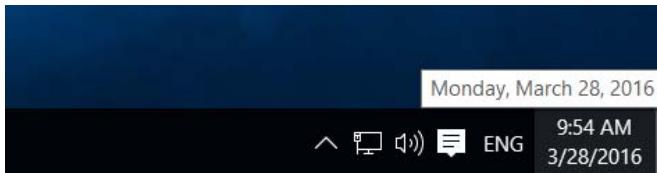
## Taskbar clock

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- Located at the right edge of the Taskbar.



- If you move the mouse pointer over the time display (and wait a short time) you will see the date displayed, as illustrated.



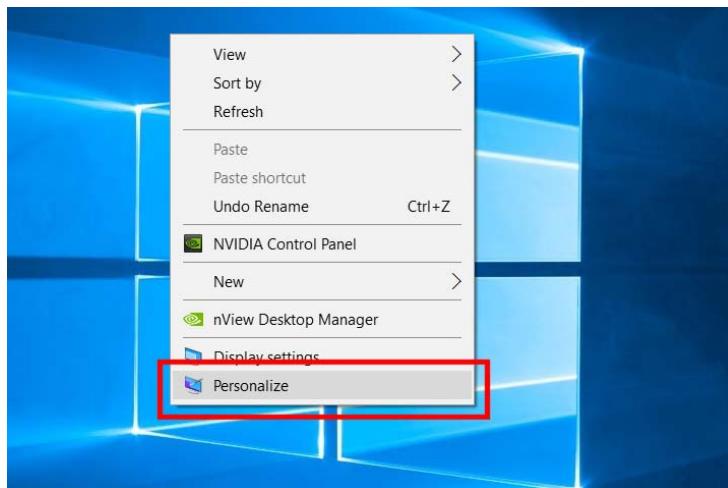
- Clicking on the time display will display a calendar, as illustrated.



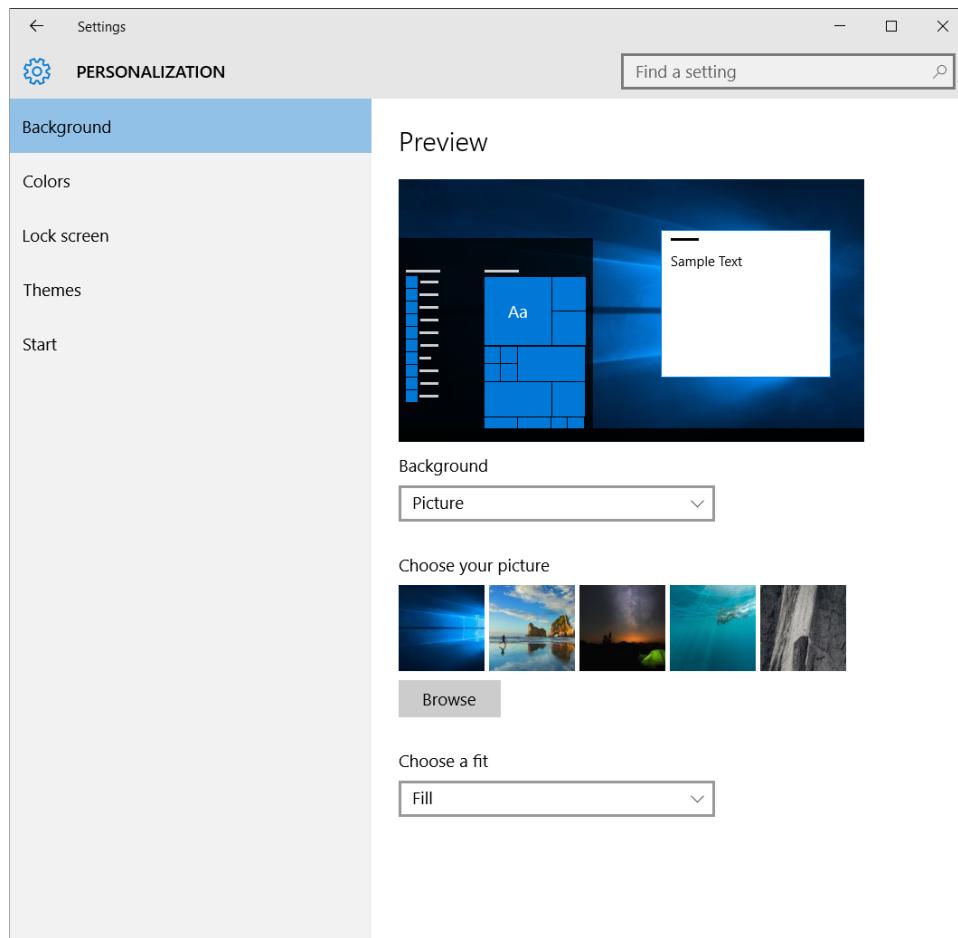
## Customizing your Desktop

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- Right click on an empty part of the Desktop and you will see a pop-up menu, as illustrated.



- From the pop-up menu click on the **Personalize** command. This will display a dialog box, as illustrated below.

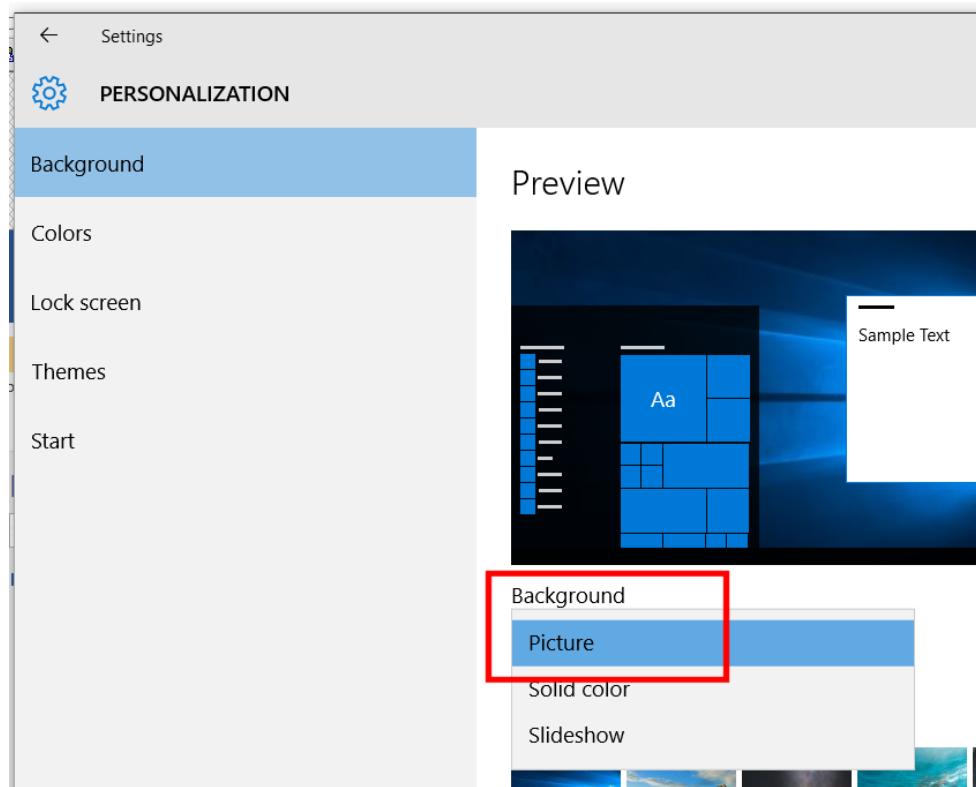


- You can use this dialog box to customize elements of your computer system.
- Take a few moments to investigate some of the options displayed on this page.

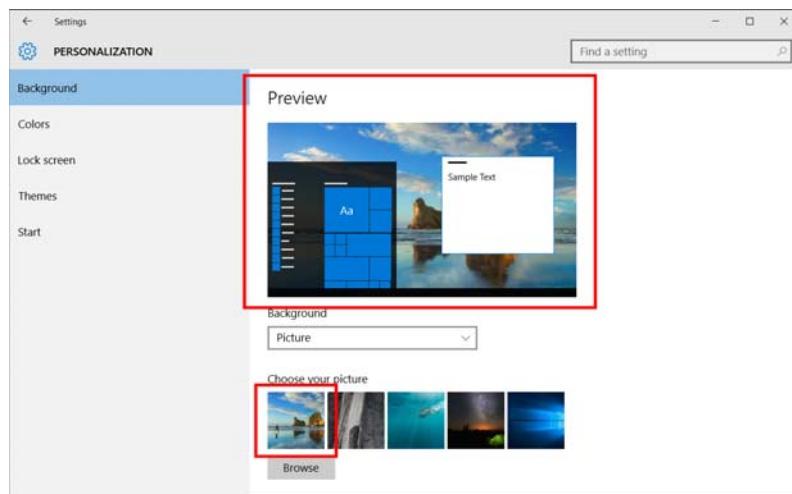
### Customizing the Desktop background wallpaper picture

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- Click on the **Background** button. To see some pictures, click on the down arrow next to the **Picture** section of the dialog box.



- Select a picture of your choice. Remember that you can scroll down to see more pictures.



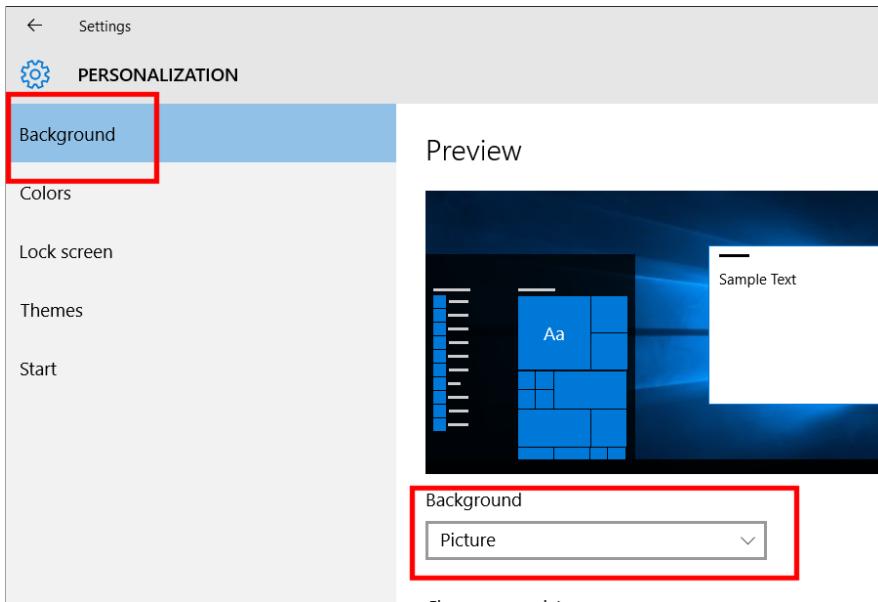
- Close any open windows.

## **Customizing the Desktop background color**

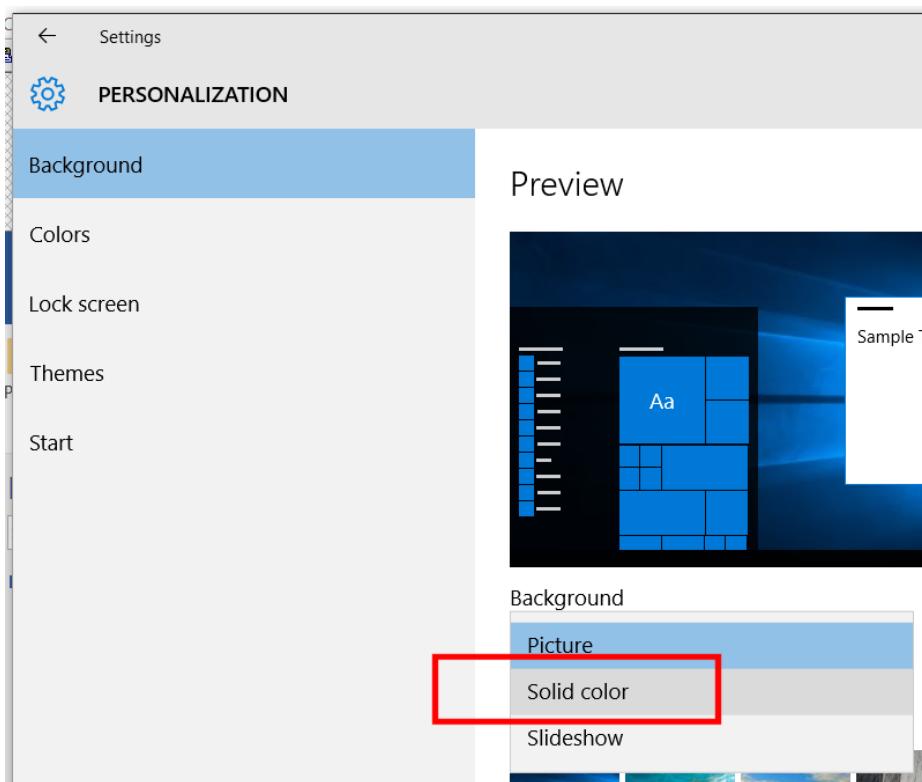
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- Display the Personalization window.
-

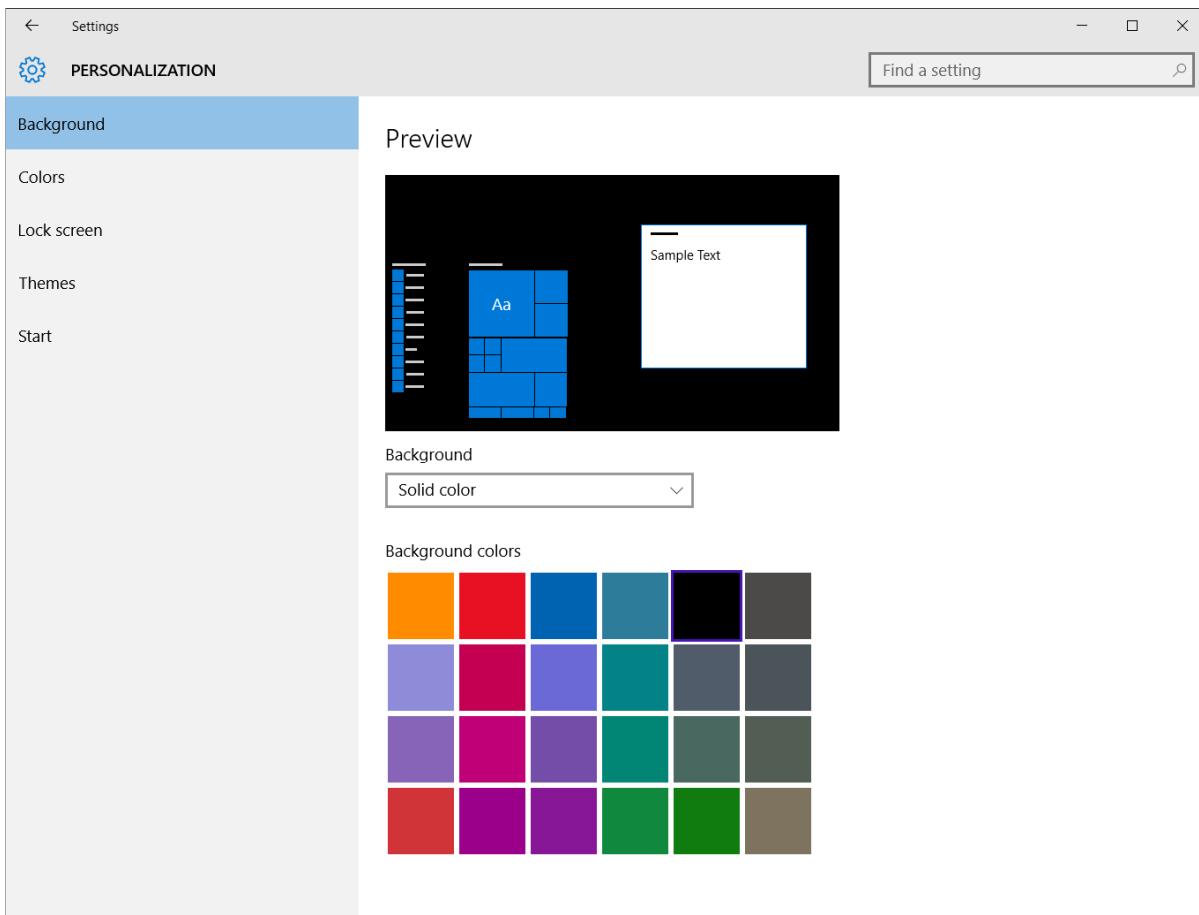
- Click on the **Background** item.



- You will see the following dialog box displayed. Click on the **down arrow** to the right of the **Picture** section. You will see a drop down list displayed. Click on **Solid Colors**.



- The dialog box will then change to display a range of colors, rather than pictures.



- Click on a color to select a color.

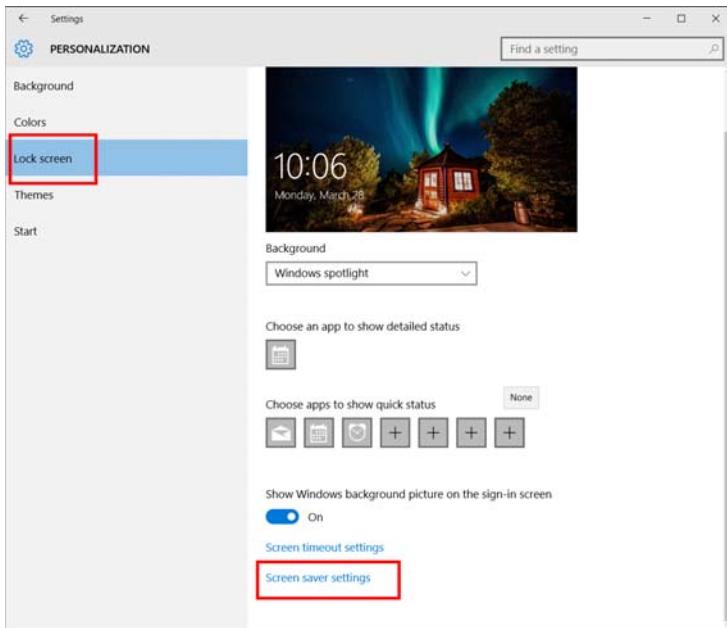
**TIP:** When you click on a color you will see a preview of that color applied to your background.

- Close the Personalization window.

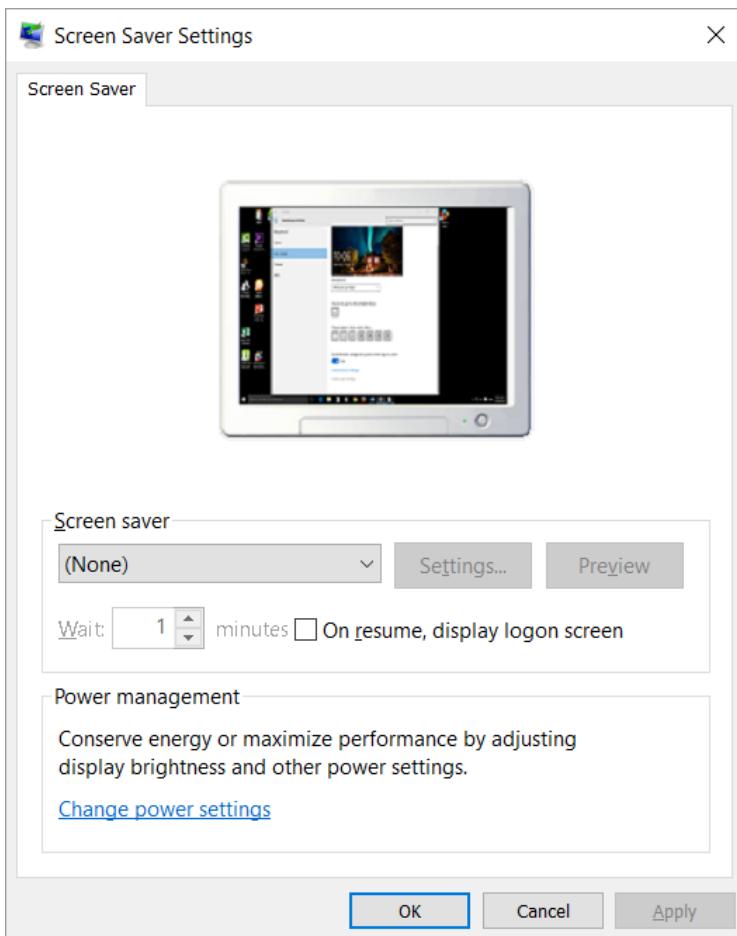
## Setting a screen saver

---

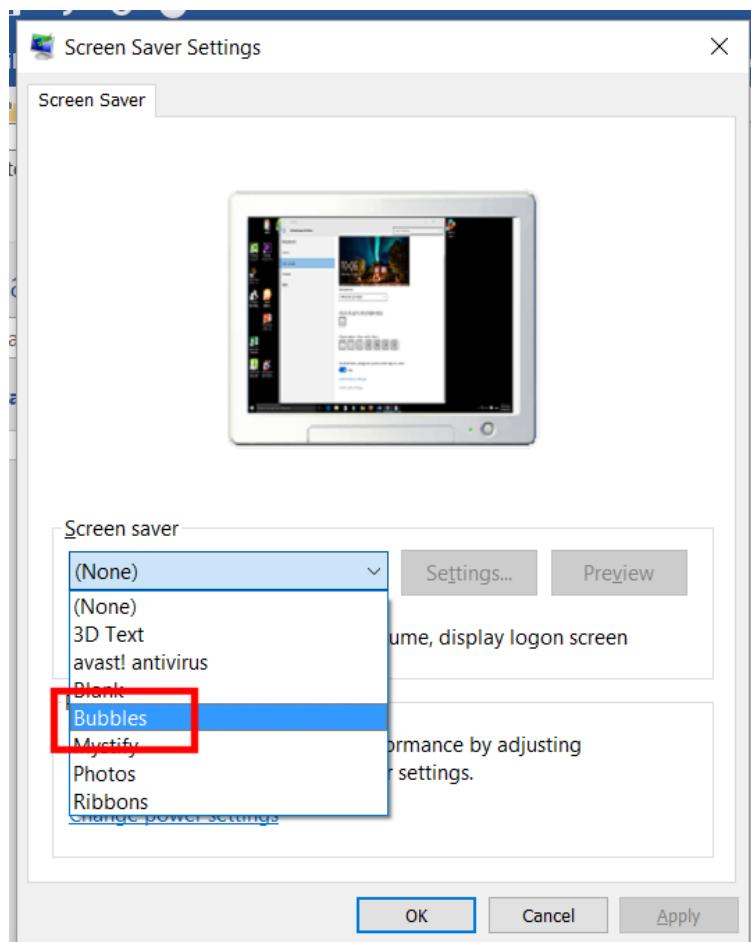
- Display the **Personalization** window.
- Click on the **Lock Screen** item.



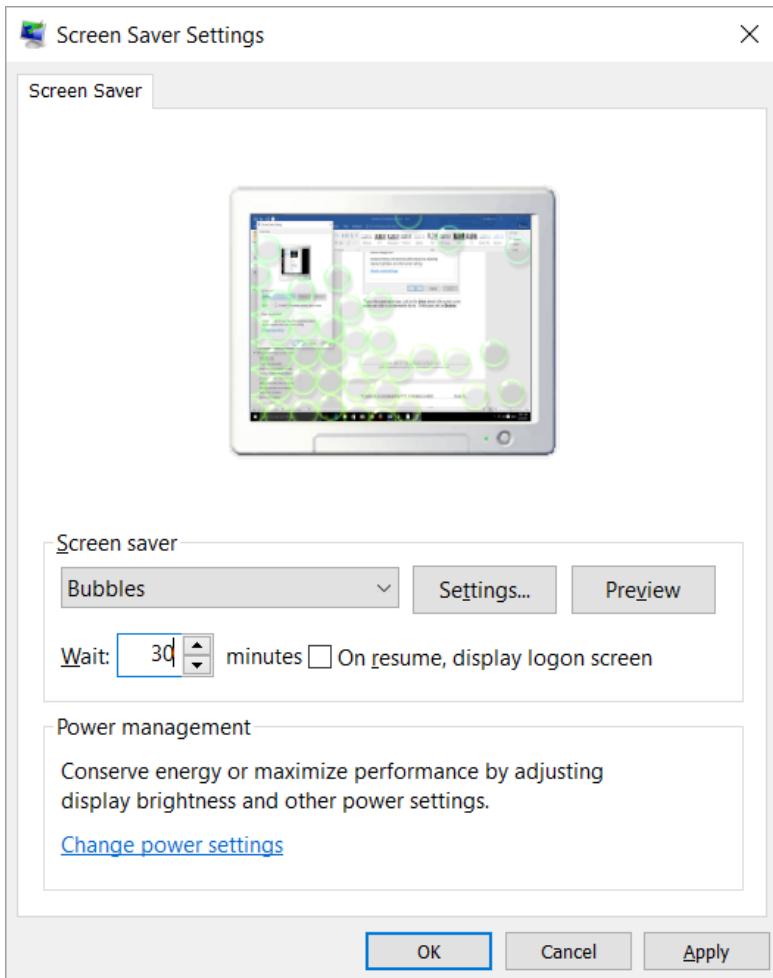
- You will see the **Screen Saver Settings** link towards the bottom of the screen. Click on the **Screen Saver** link.



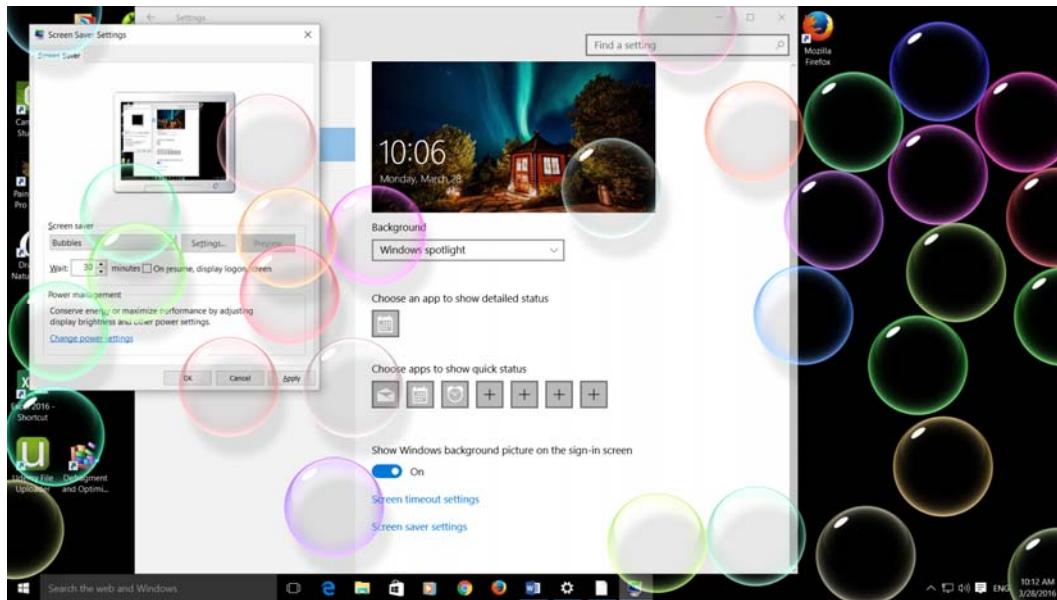
- To pick the screen saver type, click on the **down arrow** in the screen saver section and click on an item within the list. In this case click on **Bubbles**.



- Within the **Wait** section, click on the **up** or **down** arrows to set the time interval of inactivity before the screen saver kicks in.



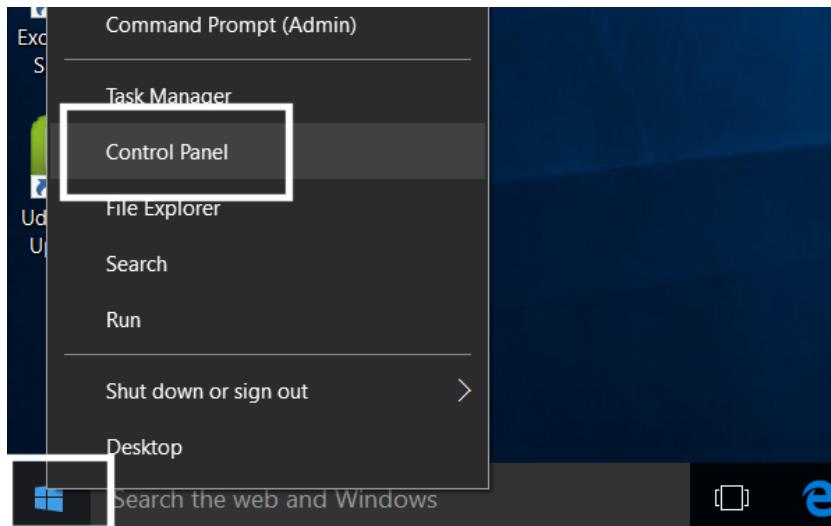
- Click on the **Preview** button to preview the effect of the screen saver. You will see an interesting bubbles effect.



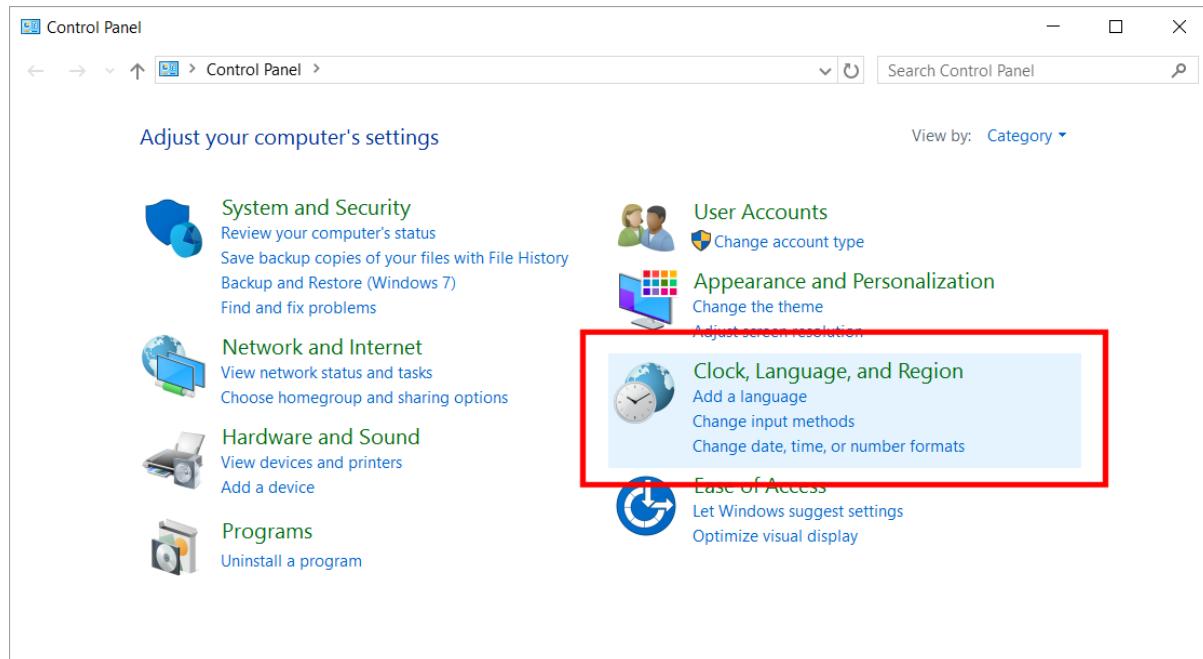
- Click on the **OK** button to apply the effects and close the dialog box.
- Close the **Personalization** window.

## Modifying the computer date and time

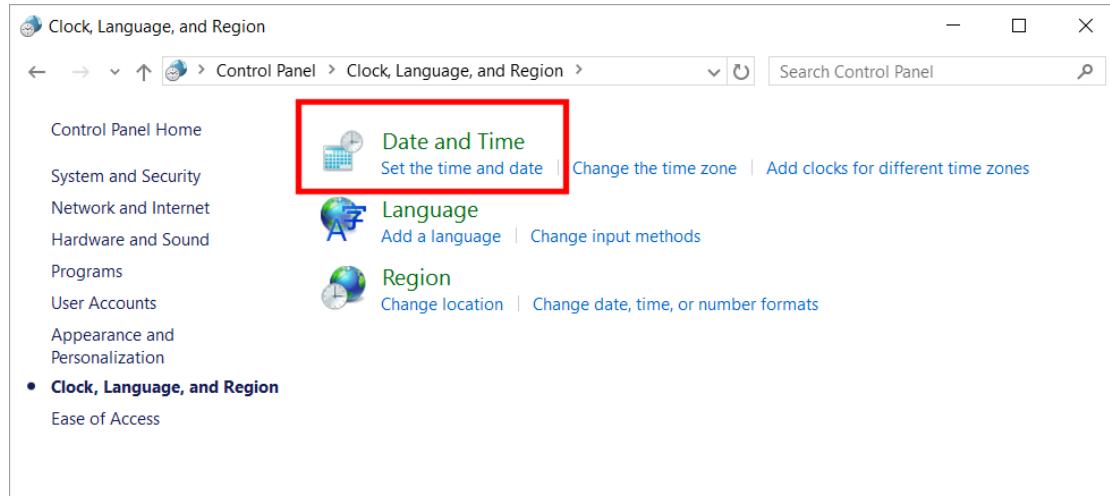
- Right click on the **Start** button and from the popup menu displayed click on **Control Panel**.



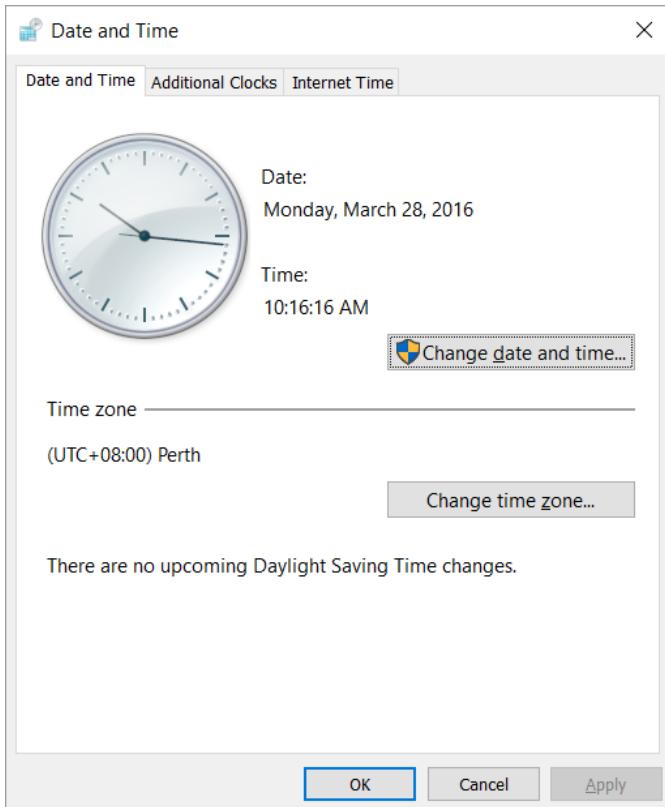
- The **Control Panel** will look like this.



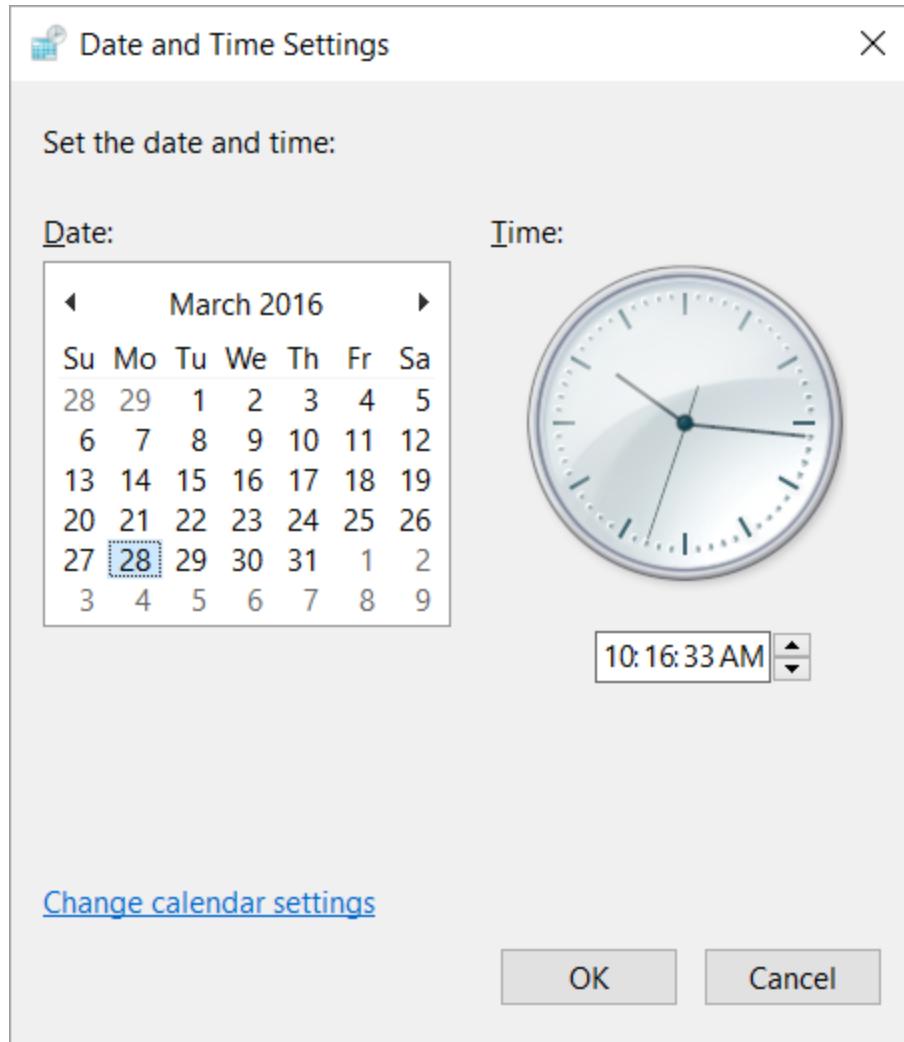
- Click on the **Clock, Language, and Region** command. You will see the following.



- To set the date and time, click on the **Date and Time** command. This will display the **Date and Time** dialog box, allowing you to change the date or time.



- Click on the **Change date and time** button. You can use the controls to change the date and time as required.



- Click on the **OK** button to close the dialog box.

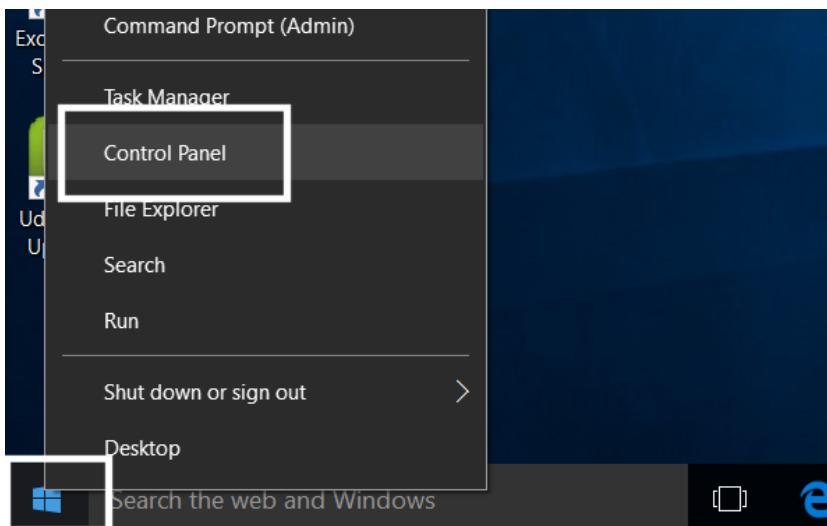
**TIP:** Once changed, the new date and time will be remembered by the computer. In most areas of the world Windows will change the time automatically if the time is moved forward or backward as a result of daylight saving time adjustments.

- Click on the **OK** button to close the **Date and Time** dialog box.
- If still open, close the Control Panel.

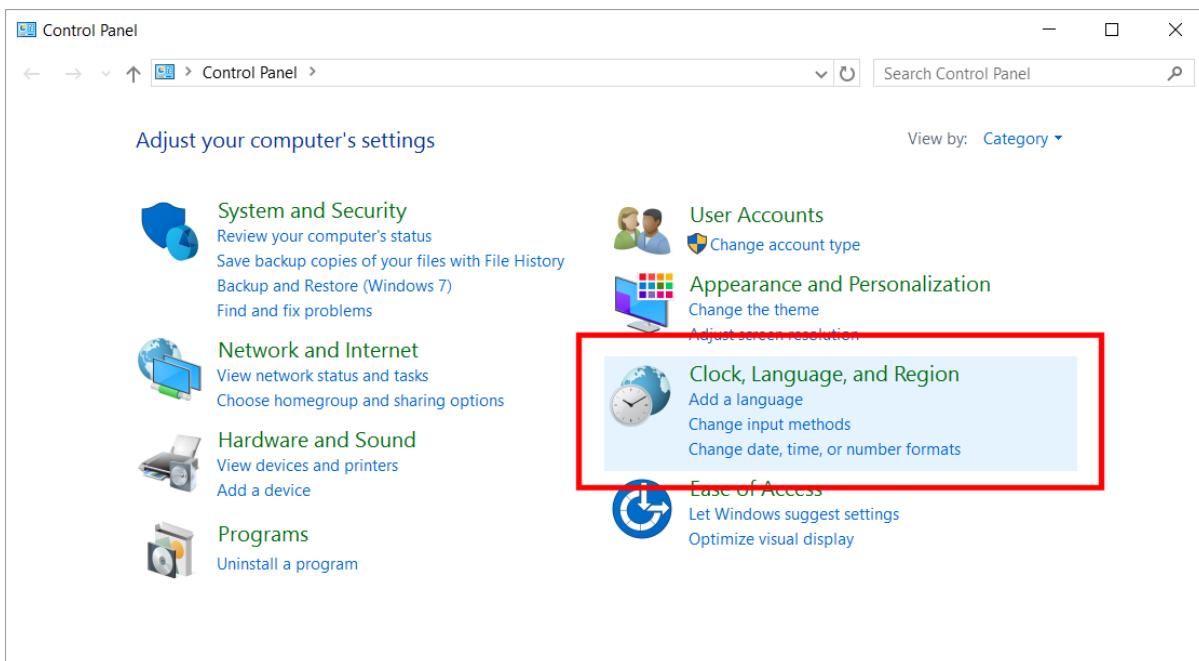
### **Setting the keyboard language and other regional settings**

---

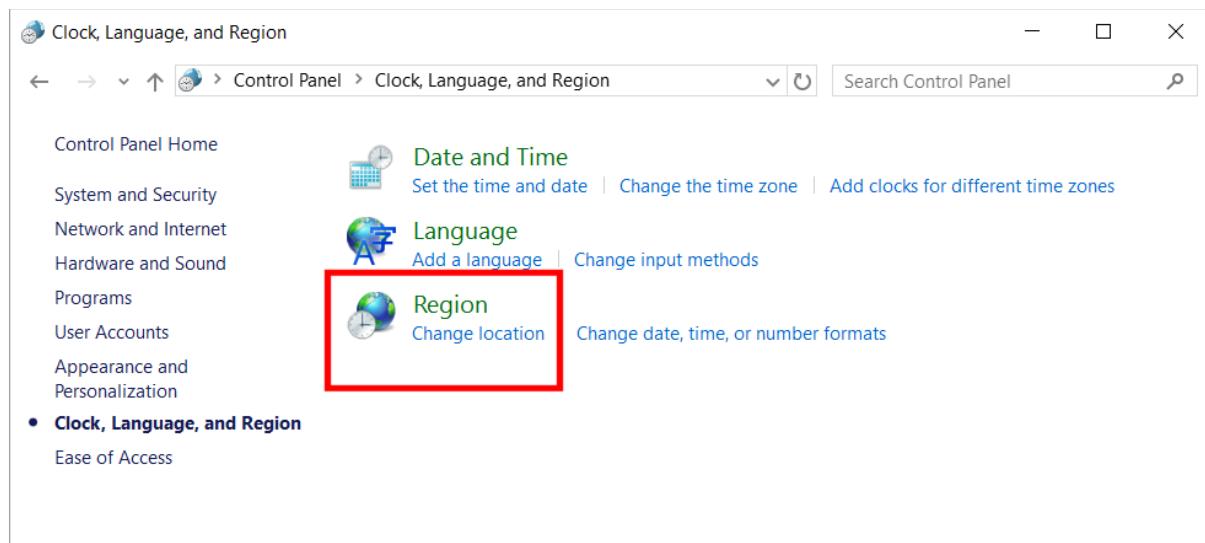
- Right click on the **Start** button and from the popup menu displayed click on **Control Panel**.



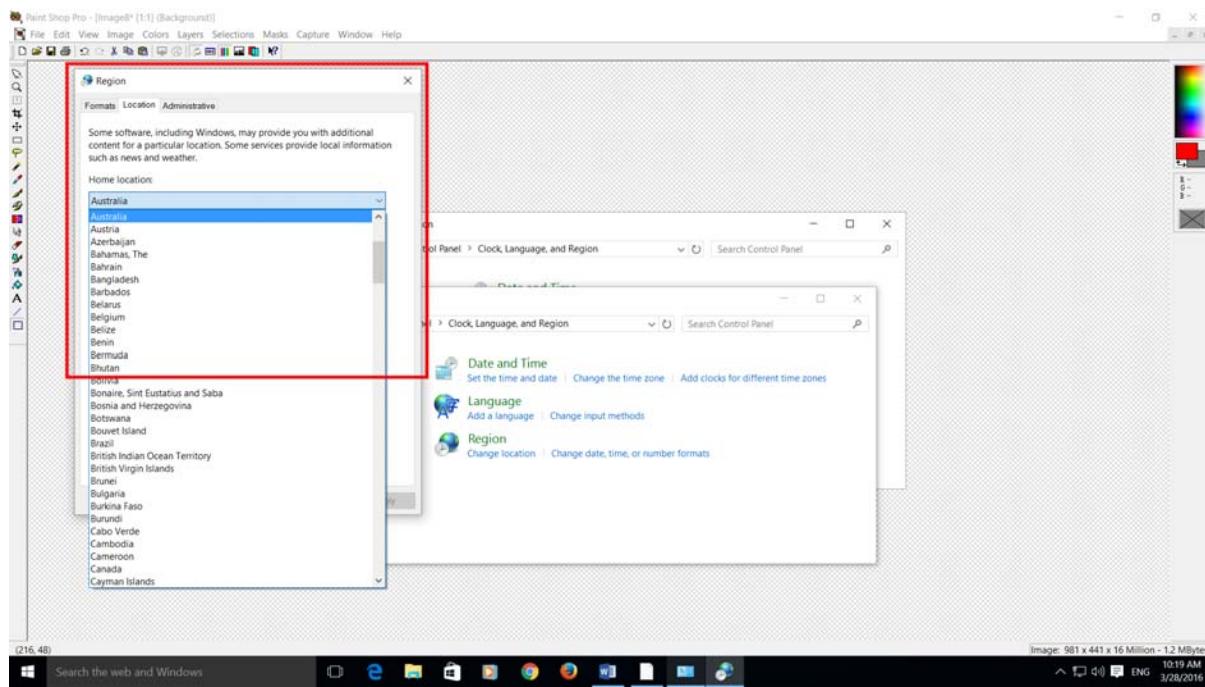
- The **Control Panel** will look like this. Click on the **Clock, Language, and Region** link.



- The **Clock, Language, and Region** dialog box will be displayed.



- Click on the **Change location** link. If necessary you can click on the **down arrow** to display a list of countries, from which you can pick your particular country.



- Close any open dialog boxes or windows.

# Manipulating Desktop Windows

## Drag and drop

- The concept of selecting an item (such as a window's Title Bar), and then moving it while keeping the mouse button pressed is often called 'dragging' or 'drag and drop'. It is called this because you drag an item to a new location, and then drop it at the new location.

## Select, then manipulate

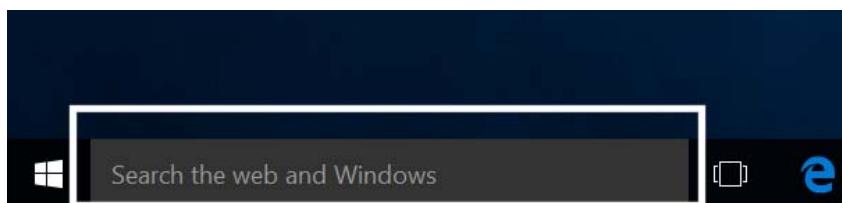
- When doing something within Windows 10, you normally have to select an item (such as the Title Bar within a window) and once selected you can manipulate whatever it was you selected. This is a very important concept to remember. You need to select an item to tell Windows 10 what item you are interested in, before you can manipulate it. This idea is fundamental to using Windows 10. For instance, later we will see that if you wish to format your text, you need to select a portion of text and then apply the formatting. In a different context later on when you want to move a file on your hard disk from one place to another, you need to select the file first, and then move it.

## Single clicking vs. double clicking

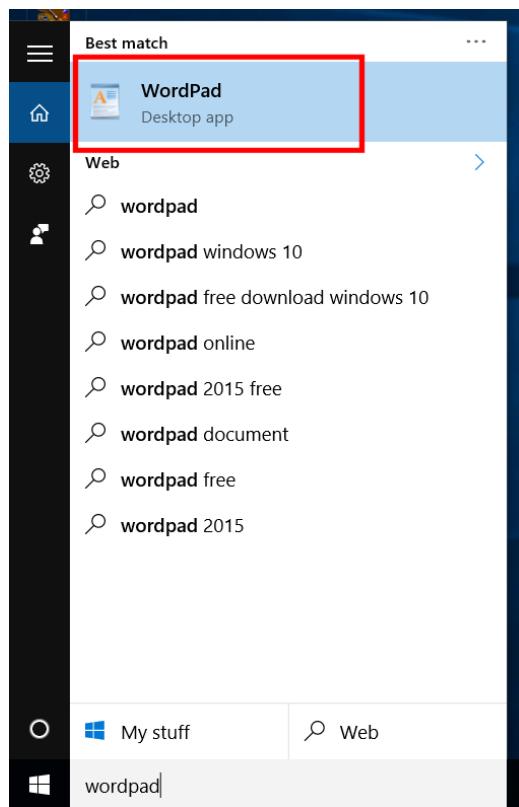
- Normally you click on an item to select it. This is a single click using the left mouse button. Once selected you can often double click on the selected item to open or run the item that was selected.

## Moving a window on the Desktop

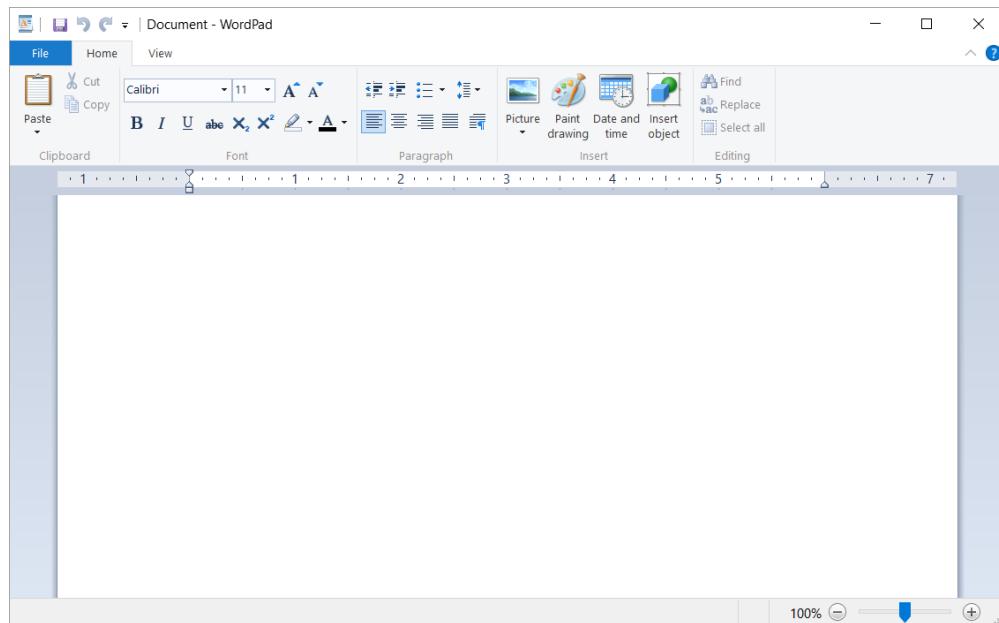
- Display the Windows Desktop.
- You need to open a program window so that you can get some practice manipulating a window on the Desktop. To do this click within the search box, (bottom-left of your screen).



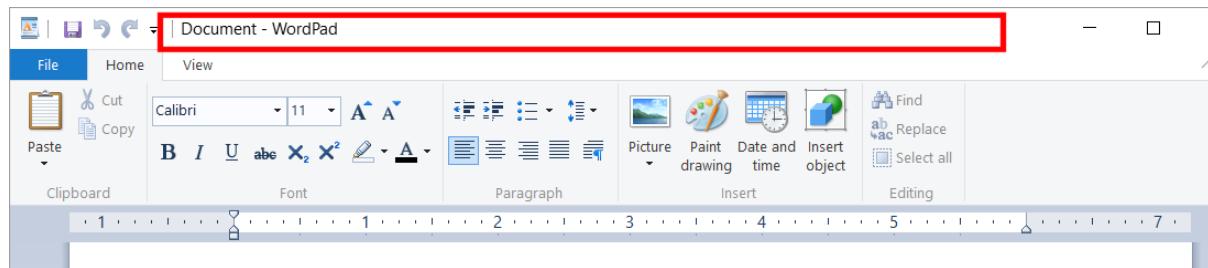
- Type in the word **WordPad**. You will see the following.



- Click on the **WordPad Desktop app**. The WordPad program will be displayed within a window on the Windows Desktop.



- Move the mouse pointer to an empty area towards the top of the window. This area is called the **Title Bar**.
-



Press down the left hand mouse button, and while keeping it pressed down, move the mouse pointer on the screen. When you release the mouse button, the window will have moved. Experiment with moving this window a few times until you get the hang of it.

### Resizing a window, narrower or wider

- Move the mouse pointer to the left hand edge of the **Getting Started** window. You will see that the mouse pointer changes shape to become a horizontal line with an arrow on each end. Press down the left hand mouse button and while keeping it pressed, move the mouse pointer left or right. When you release the mouse button the window will be narrower or wider, depending on which direction you move the mouse pointer. Experiment with resizing the window to make it wider or narrower.

Also experiment using the right edge of the window.

**TIP:** Remember that this dragging action with the mouse button pressed is called '**'Drag and drop'**'.

### Resizing a window, taller or shorter

- Move the mouse pointer to the upper edge of the **Getting Started** window. You will see that the mouse pointer changes shape to become a vertical line with an arrow on each end. Press down the left hand mouse button and while keeping it pressed, move the mouse pointer up or down. When you release the mouse button the window will be taller or shorter, depending on which direction you move the mouse pointer. Experiment with resizing the window to make it taller or shorter.

Also experiment using the bottom edge of the window.

### Resizing a window in two directions at once

- Move the mouse pointer to one of the corner edges of the **Getting Started** window. You will see that the mouse pointer changes shape to become a diagonal line with an arrow on each end. Press down the left hand mouse button and while keeping it

pressed, move the mouse pointer up or down and left or right. When you release the mouse button the window will be resized both vertically and horizontally, depending on which direction you move the mouse pointer. Experiment with resizing the window.

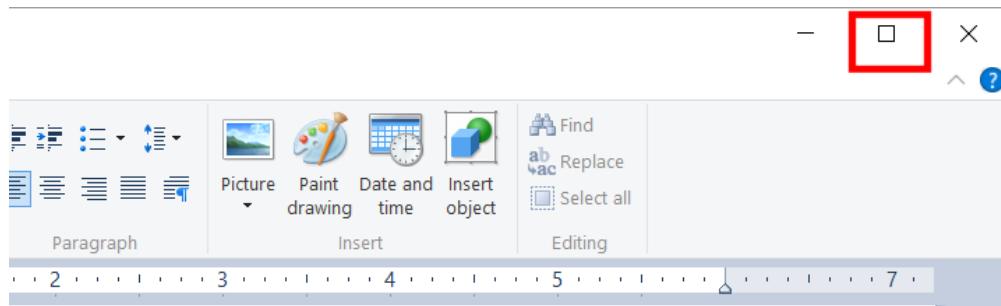
Also experiment using the other corners of the window to resize the window.

- Before continuing try and resize the **Getting Started** window to its approximate original size and position. You should be able to see other items on the screen behind the window.

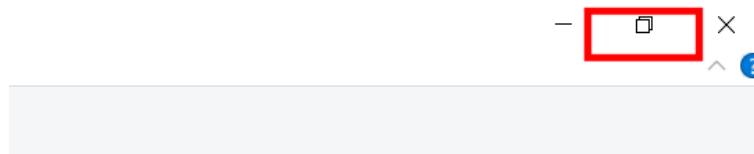
## Maximizing a window

---

- If you look at the top-right of the **WordPad** window you will see three icons. As illustrated below. Move the mouse pointer over the middle of the three icons and after a short time you will see a pop-up explaining the function of the middle icon.



- As you can see the icon is called the **Maximize** icon. Click on the **Maximize** icon and you will see that the **WordPad** window maximizes, to fill the screen.
- Move the mouse pointer over the middle icon and wait for the pop-up to explain the function of the icon (which has changed slightly if you look closely).



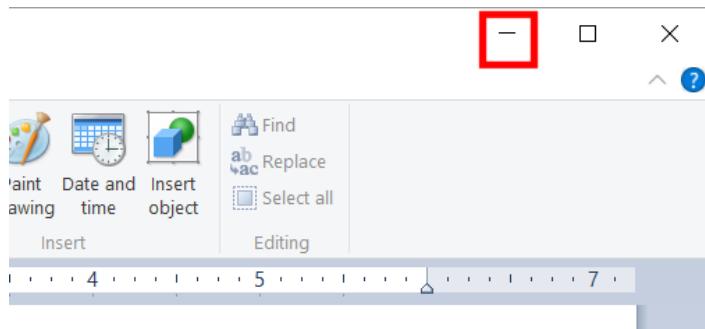
**TIP:** The reason for the middle icon changing its appearance (and its name), is that having already maximized the window to fill the screen, you cannot maximize any further. Thus you are offered a **Restore** icon that will restore the program window to its original size. This is an example of Windows being clever!

Click on the **Restore Down** icon and you should see that the **Getting Started** window is displayed within a window (i.e. not full screen). You should find that the window is the same size and position, prior to maximizing the window.

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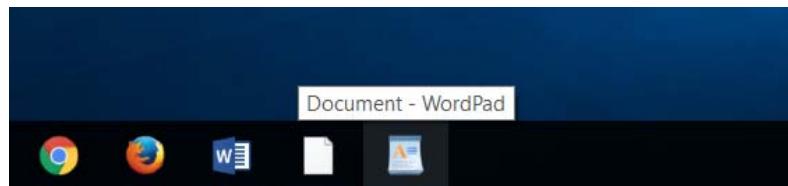
## Minimizing a window

- If you move the mouse pointer over the first of these three buttons, you will see it is called the **Minimize** icon.



- Click on the **Minimize** icon and you will see that the window disappears. It is minimized down to the Windows **Taskbar**, which is the name of the bar across the bottom of your screen.

Move the mouse pointer to this minimized icon within the Windows Taskbar and you will see the following pop-up, which displays a ‘thumbnail’ picture of the minimized program.

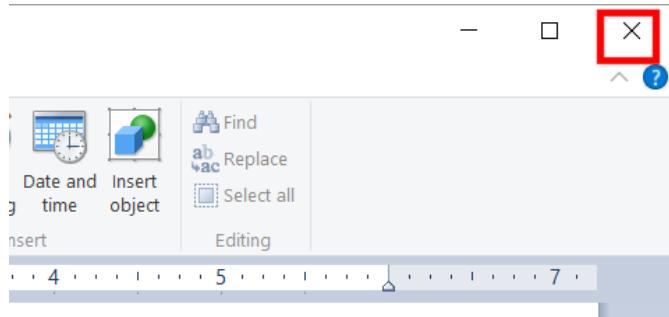


- Click on the minimized icon and the program will be displayed within a window once again, on your screen.

**NOTE:** Minimizing a program is not the same as closing a program. When you minimize a program, it is still running in your computer's memory, it is simply minimized in size, down to the Windows Taskbar. Closing a program means that the program is closed and no longer running in memory.

## Closing a window

- Move your mouse pointer to the last of the three icons. After a short delay you will see a pop-up explaining that this is the **Close** icon.

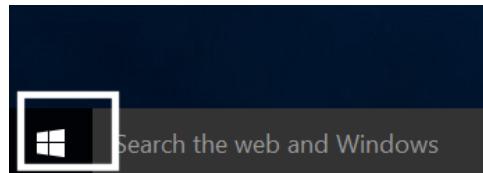


- Click on the **Close** icon and the program will close. It is not displayed within the Taskbar as a minimized icon. The program is no longer in your RAM (Random Access Memory). RAM is where all your active programs are stored when they are running. If you close a program the program is removed from RAM but you still have a copy of the program stored on your hard disk. To re-run the program you will need to open the program from disk.

## The Start button

---

- Clicking on the **Start** button at the bottom-left of the screen toggles between the Windows Start Page and the Windows Desktop. Try clicking on it a few times and see what happens.

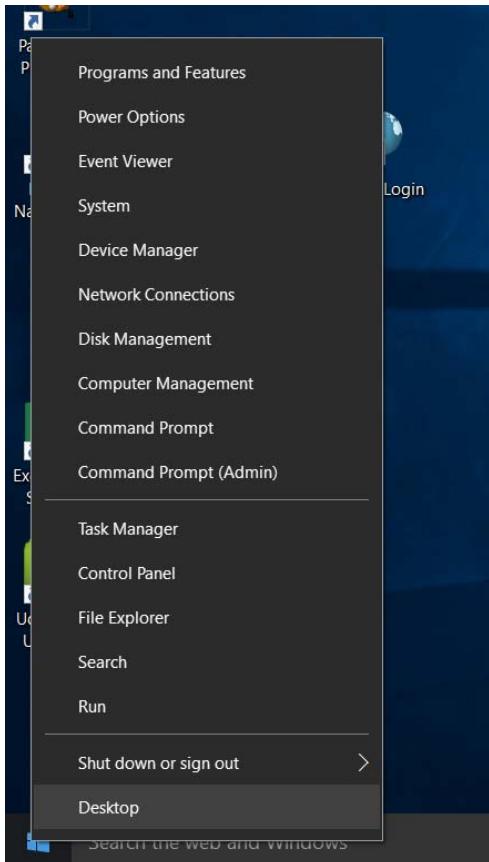


**TIP:** If you cannot see the Start button display move the mouse pointer to the extreme bottom-left of your screen and wait for a second or so.

## The Start menu

---

- If necessary, switch to the Desktop view.
- Right click on the **Start** button and you will see a popup menu displayed.



- Take some time to examine the items within the popup menu. This is an easy way of accessing many items that you will want to display when you start using Windows, especially if you want to start customizing the way Windows works.
- Items we will investigate during this course include the **File Explorer** and the **Control Panel**.

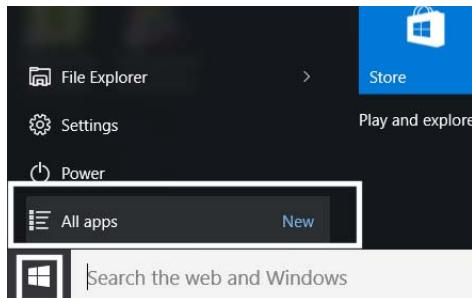
# Applications & the Desktop

## Multitasking

- Windows 10 is a ‘multitasking’ operating system. This means that it can run lots of programs at the same time. For instance, you can be receiving emails, printing and writing a letter, all at the same time. You can run lots of different programs simultaneously, such as a word processor, a spreadsheet, a database and a picture editing program.

## Starting Applications

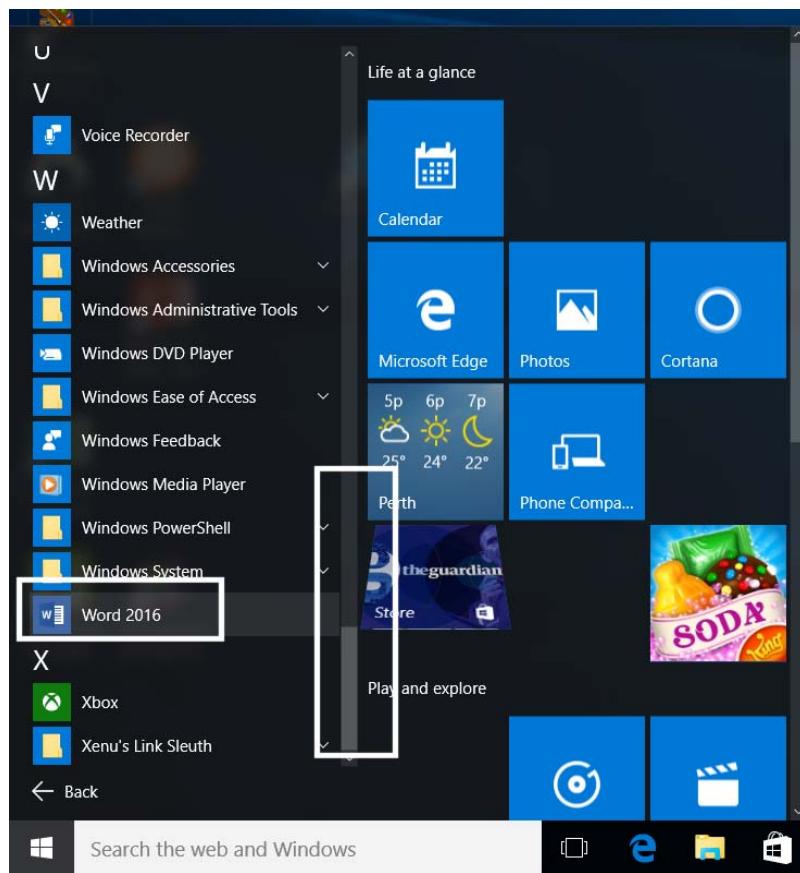
- Display the Windows Desktop.
- Click on the **Start** button and then click on **All Apps**.



- Your screen will now look like this.



- If you have Microsoft Office installed on your computer, use the vertical scroll bars to scroll down until you see **Word 2016** (or similar).

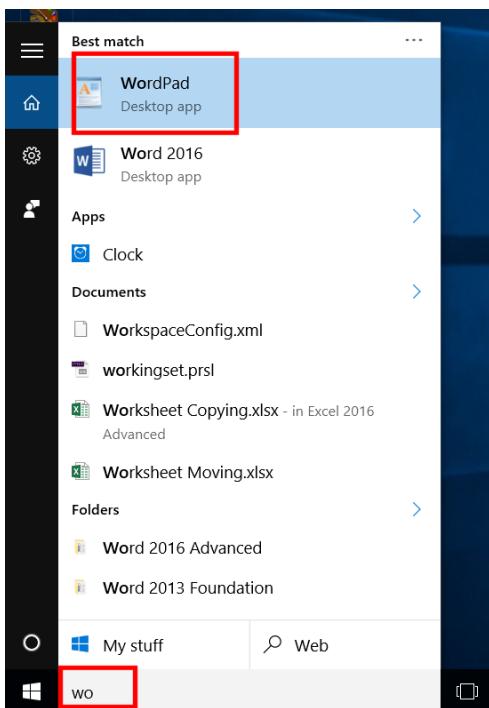


- Open a few other programs if you have them on your computer, such as Microsoft Excel and Microsoft PowerPoint.
- Once you have opened more programs you can then use the **Alt+F4** keyboard shortcuts to close the applications.

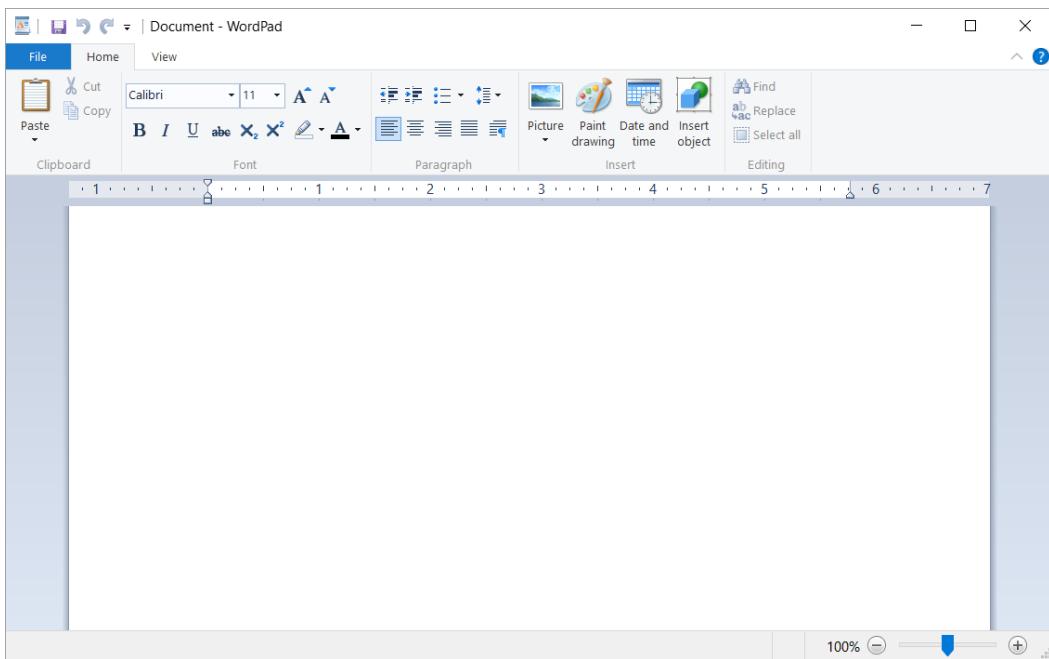
### Finding Applications such as WordPad

---

- If necessary, display the Windows Desktop.
- We want to find a program called **WordPad**.
- Type in the letters **Wo** into the search section, at the bottom-left of the screen.



- As you can see the **WordPad** program is displayed.
- Click on **WordPad** and the program will open.



## Using Print Screen within WordPad

---

- Pressing the **Print Screen** key takes a picture of your screen and copies it to a special area of memory called the Windows Clipboard. Press the **Print Screen** key now. Nothing appears to have happened, but you now have a picture of the screen in the Clipboard.
- Click within the WordPad window.
- Press **Ctrl+V** which is the keyboard shortcut for pasting information from the Clipboard. You should now see a picture displayed within your WordPad program.

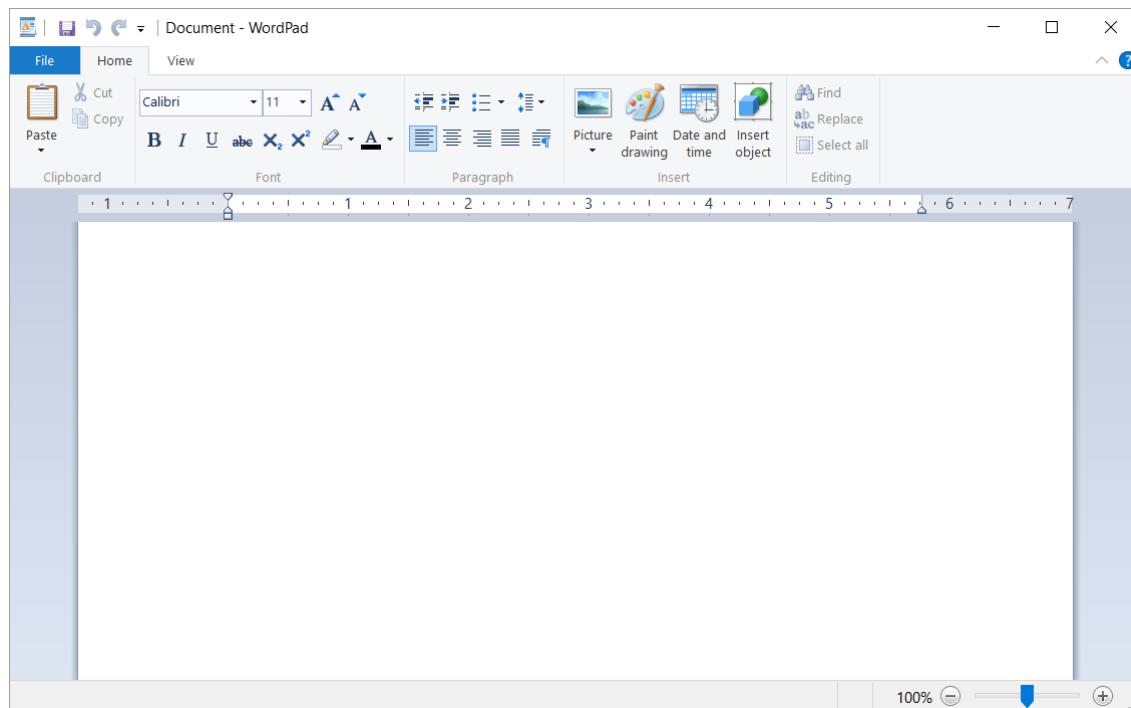
**NOTE:** Pressing the **Print Screen** key copies the entire screen contents to the Clipboard. If you just want to copy the active window, then after selecting the active window, press the **Alt** key while pressing the **Print Screen** key. Then release the **Alt** key.

- Leave the program window open.

## Identifying the parts of an application window

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- The WordPad window is typical of an application window.



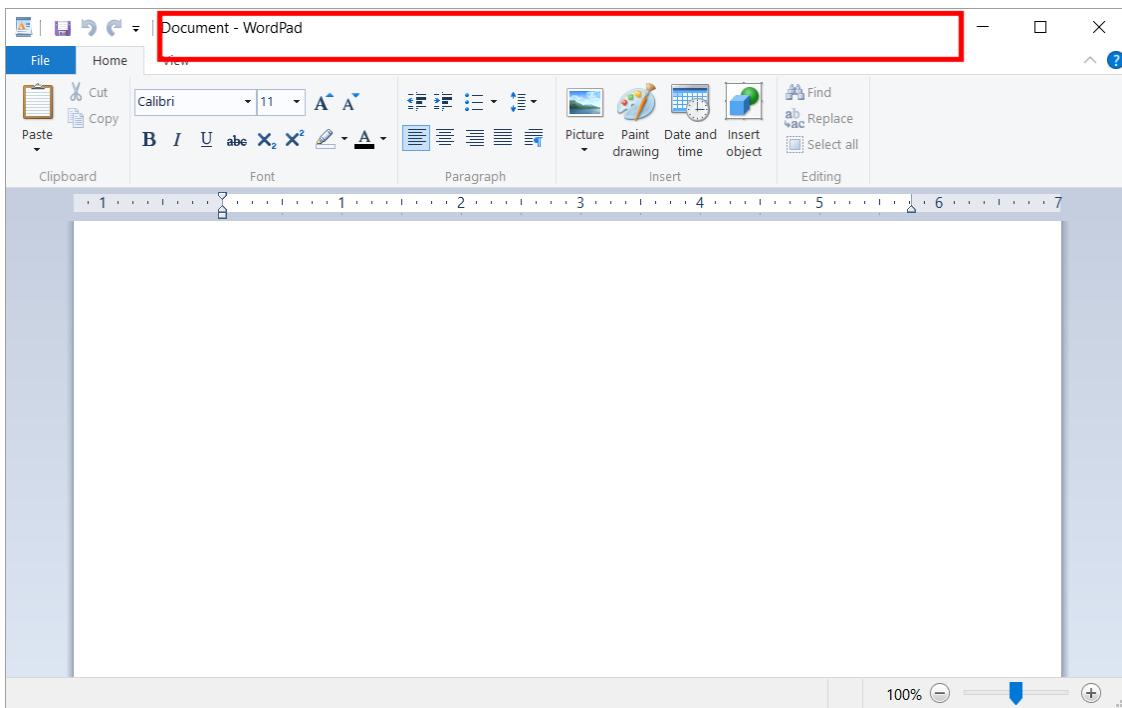
There are a number of items that you need to be familiar with.

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## Title Bar

---

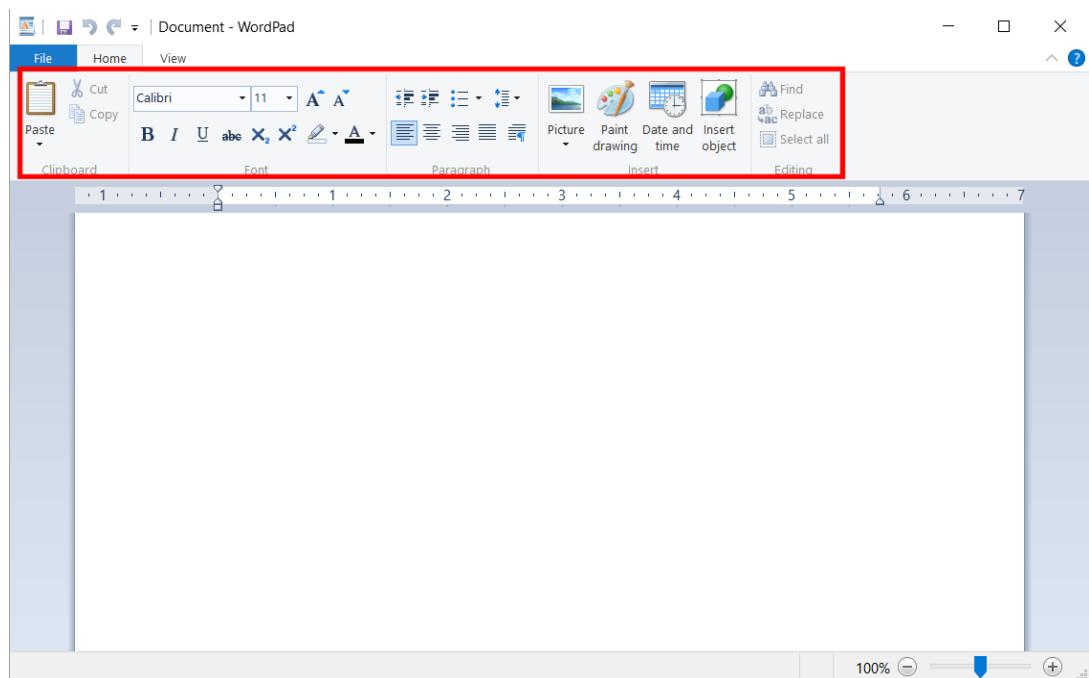
- This is the bar running across the top of the application window and normally displays the title of the program window.



## The Ribbon

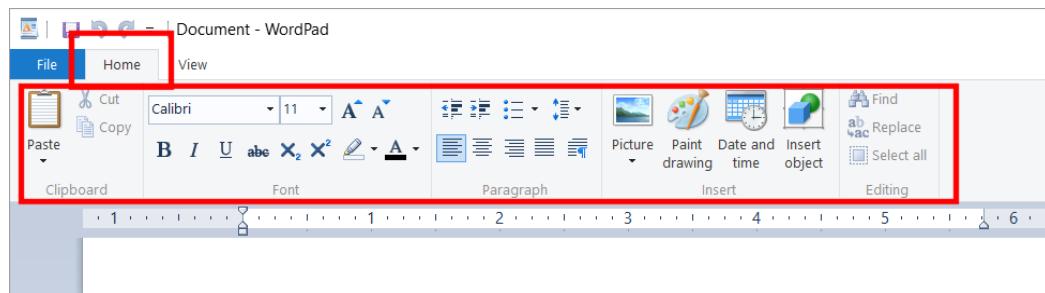
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- The ribbon normally contains tabs, which in turn contain buttons and other controls allowing you to interact with the program.

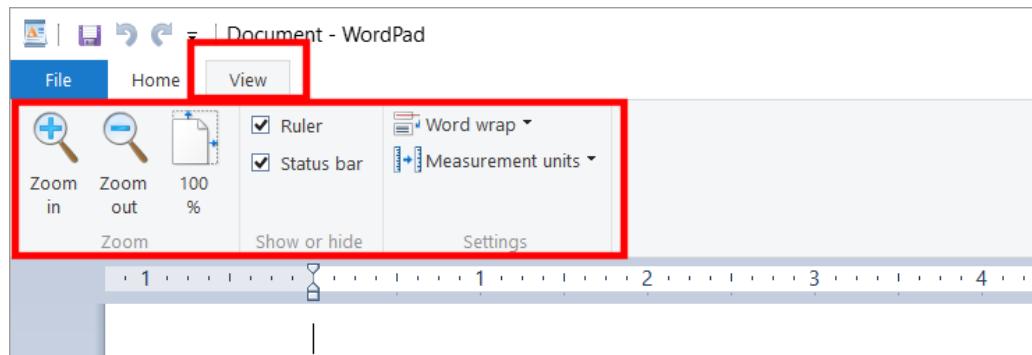


## Ribbon Tabs

- The Ribbon normally contains a number of tabs. Clicking on a different tab will display specialized controls.
- For instance, within the WordPad Ribbon the **Home** tab looks like this.



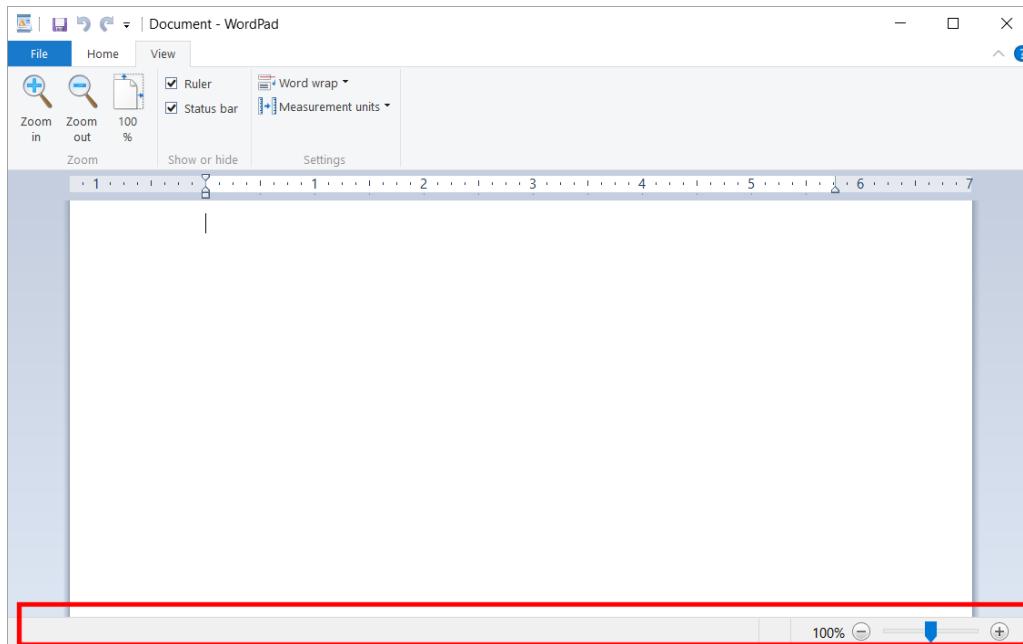
- If you click on the **View** tab the ribbon will now look like this.



## Status Bar

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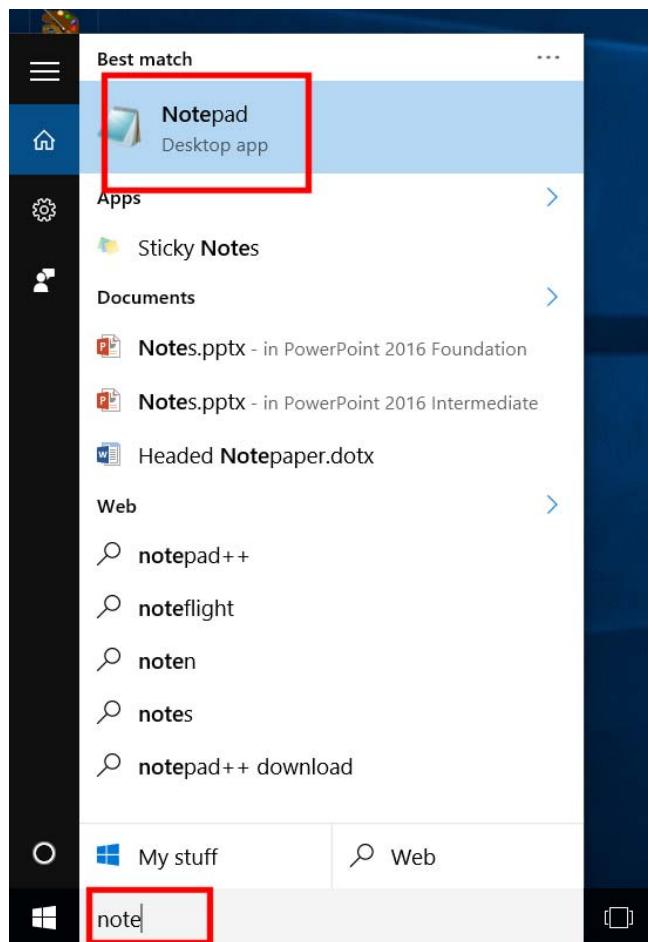
- The Status bar is normally displayed along the bottom edge of the application window. It can display status information, such as the number of pages contained within a document.



## Notepad

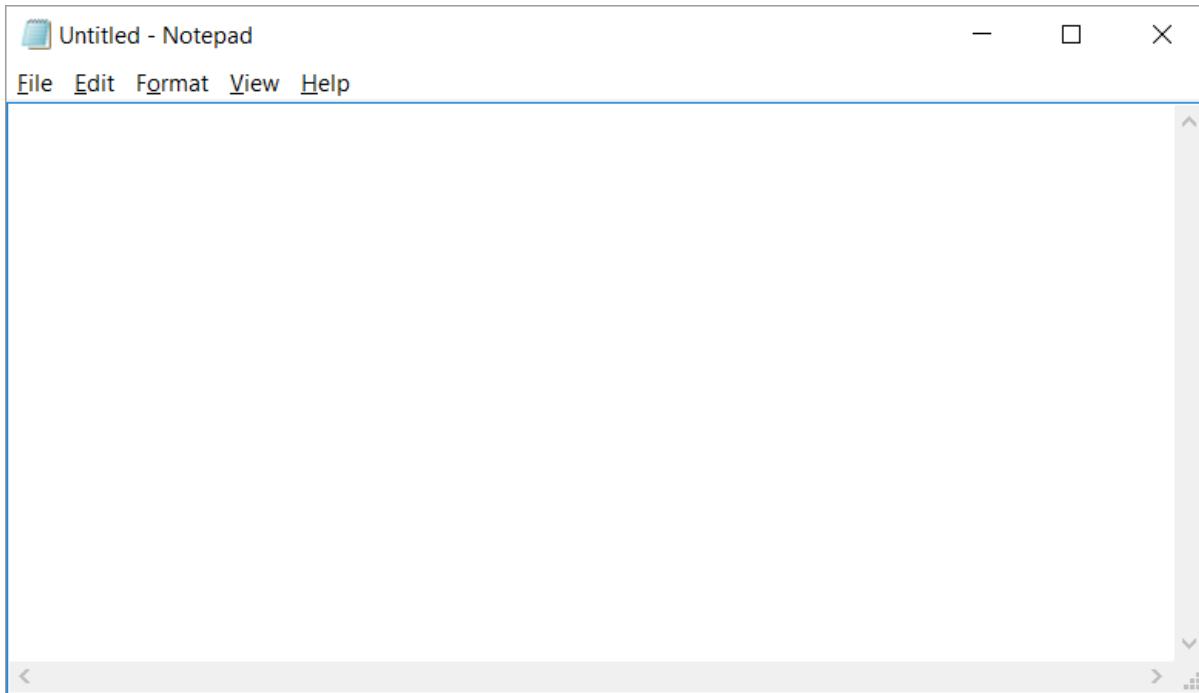
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- To open the Notepad program, with the search box at the bottom-left of the screen, type in the word **Notepad**.



**TIP:** Notepad is a 'text only' editor. WordPad on the other hand is like a very cut-down word-processor into which you can insert text and pictures. In addition, in WordPad you can format the text. Remember that in Notepad it is just text, with no pictures and no text formatting.

- Click on the **Notepad** button and the program will open within a window, as illustrated.

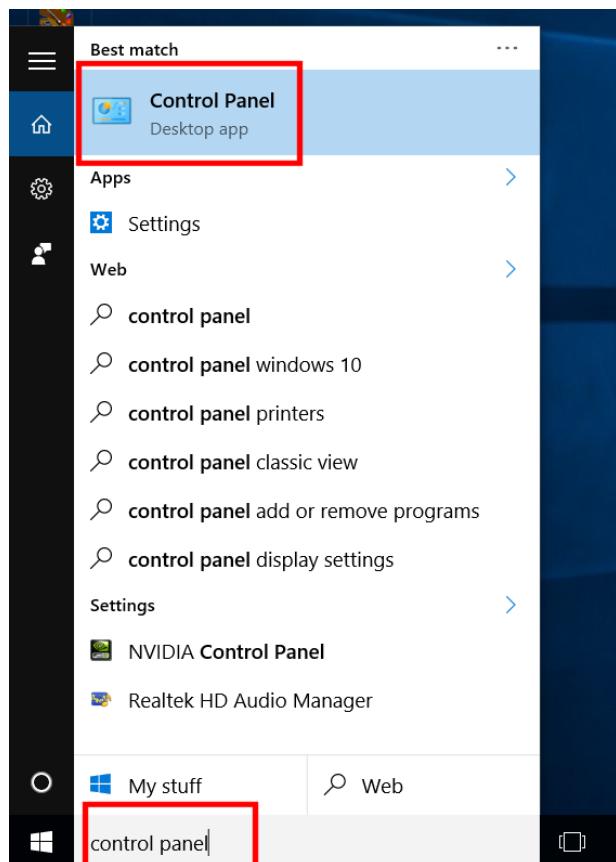


- This is a text-only editor. Unlike a modern word processor, you cannot insert pictures into the Notepad window.
- Leave the program window open.

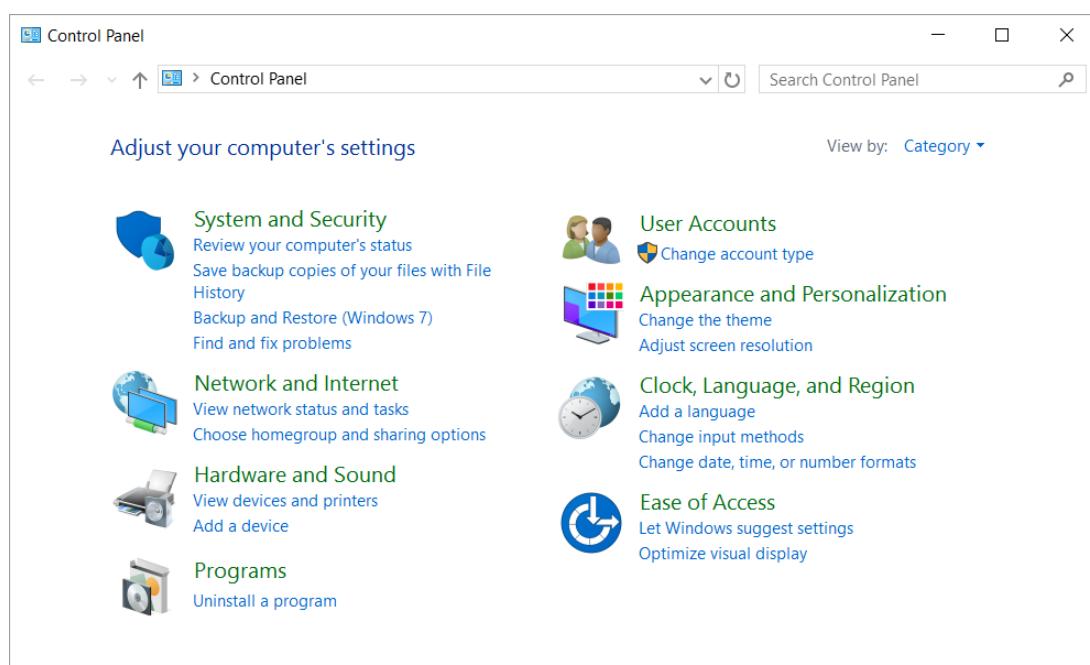
## Control Panel

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- To open the **Control Panel** window, type in the word **Control Panel** into the search box, at the bottom-left of the screen.



- Click on the Control Panel item. The Control Panel window will be displayed as illustrated.

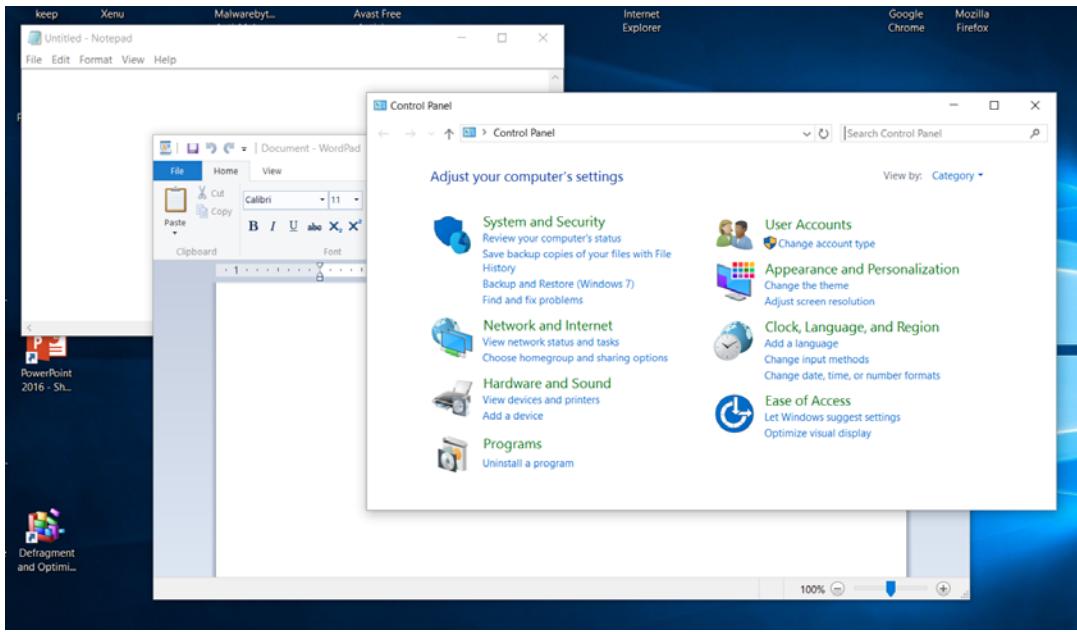


- Leave the program window open.

## Switching between program windows

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- You should see a number of programs displayed on the screen, as illustrated.



- To switch from one program to another press down the **Alt** key (and keep it pressed). Press the **Tab** key once and you will see a bar displayed across the middle of the screen.

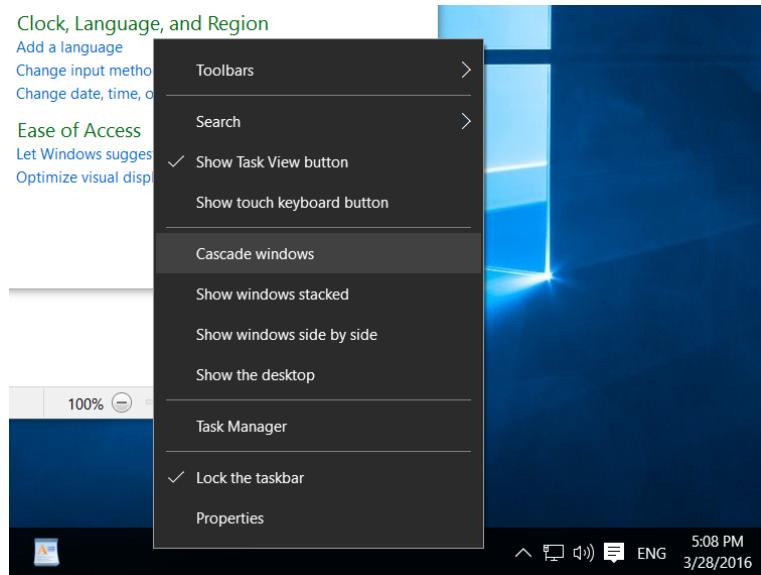
Press the **Tab** key a few more times and you will sequence around the programs displayed within the bar. When you release the **Alt** key the program that was highlighted within the bar is displayed on your screen. Practice this technique a few times to switch from one program to another.

- Leave the windows open and continue to the next exercise.

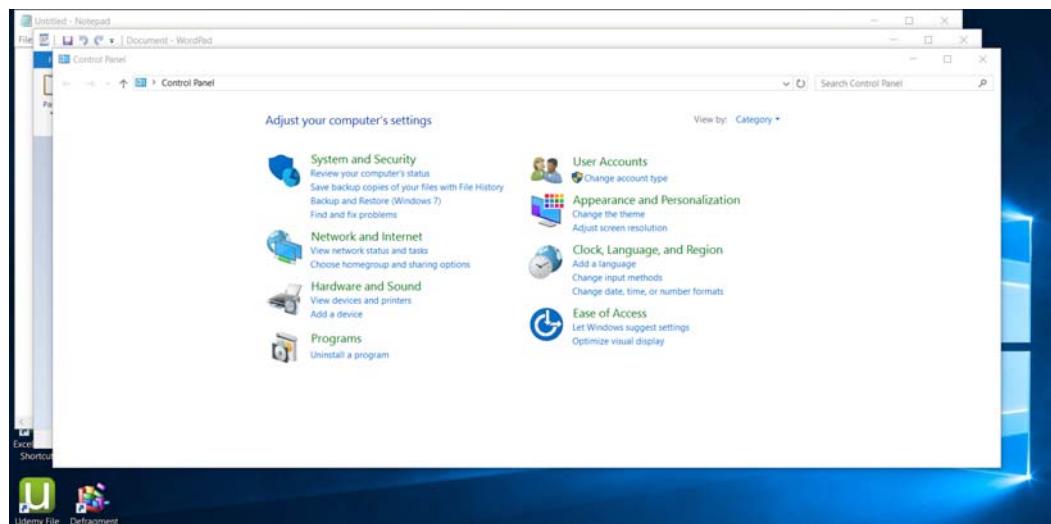
## Cascading windows

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- Right click on an empty part of the Windows **Status Bar** (this is the bar that is normally displayed across the bottom of the Windows screen). From the pop-up menu displayed, click on the **Cascade Windows** command.



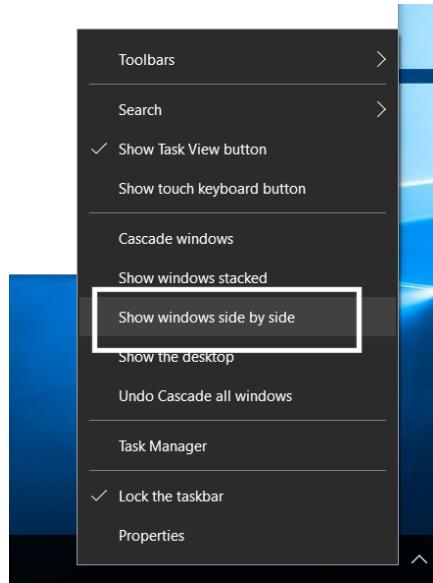
The program windows will be displayed cascaded across the screen.



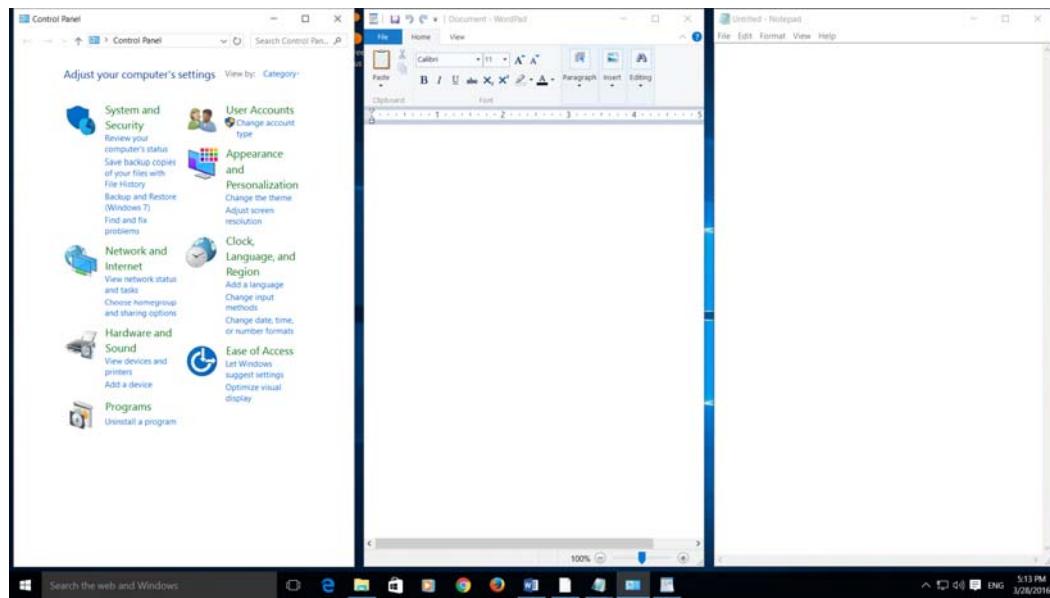
## Displaying windows side by side

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- Right click on an empty part of the Windows **Taskbar** (this is the bar that is normally displayed across the bottom of the Windows screen). From the pop-up menu displayed, click on the **Show Windows side by side** command.



- The program windows will be displayed, tiled side by side.



- Close all the open programs before continuing.

**TIP:** To close a program click on the **Close** icon displayed at the top right of each program window.

**TIP:** The keyboard shortcut to close the active window is **Alt+F4**.

## Installing programs

- Within large organizations it is normally the IT support staff that installs or removes programs. In many cases it is a disciplinary offence to install programs onto computers without specific permission. This is because of the risk of accidentally infecting a computer with a computer virus or similar program.
- With small organizations or home use then it may be up to you to install new programs. Always check so that you do not get yourself in trouble!
- Programs are normally supplied on CD or DVD and these disks, once inserted into the CD/DVD drive should start automatically and display instructions on-screen covering the installation procedure. If you need to install software, read the onscreen instructions **VERY** carefully at each stage. If help is available and you get stuck always ask rather than assuming the installation will be OK. If in doubt, ask!

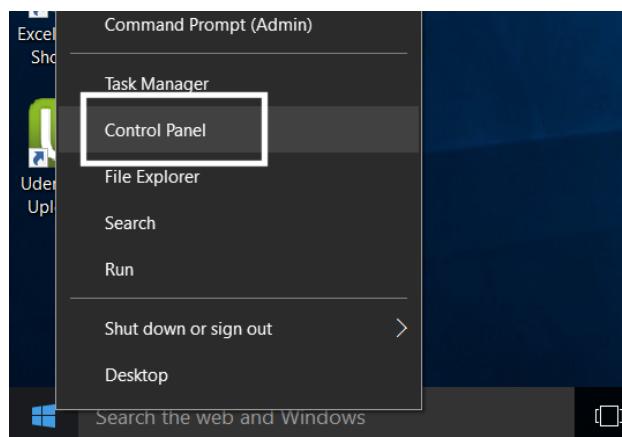
**TIP:** You can find lots of free programs when surfing the web. Be **VERY** careful about installing programs unless you are absolutely sure that the programs are supplied by a reliable source.

## Removing a program

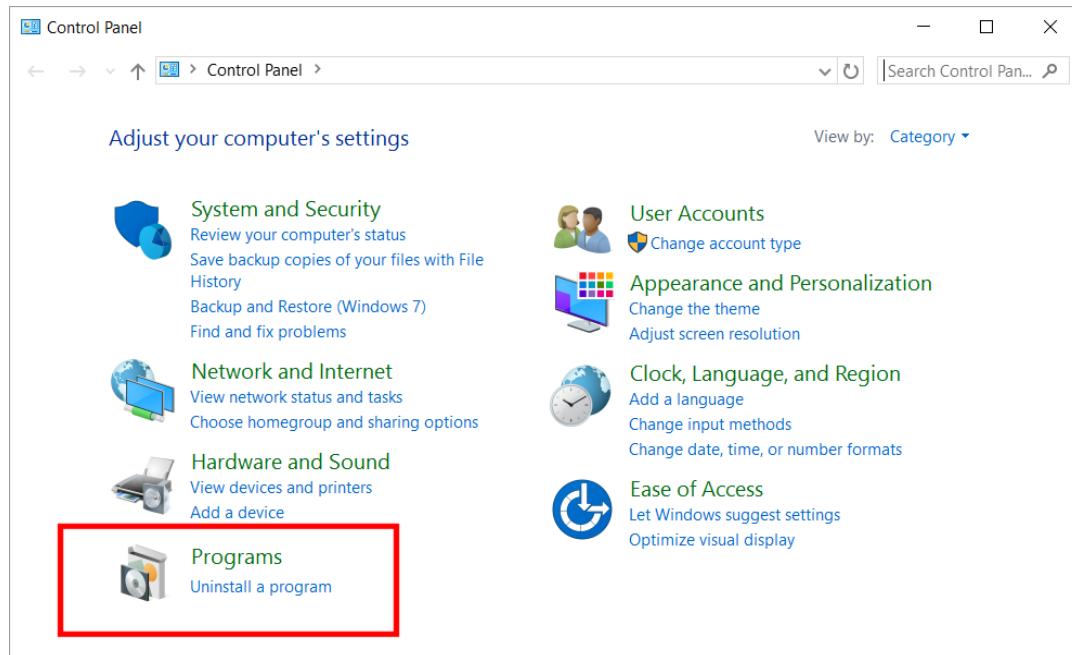
- **WARNING: This section is just for reference. Do not remove any programs during this training course.**

As with installing programs only do this if you have been given specific authority within your company to remove a program. If in doubt, ask! You use the Control panel to remove programs.

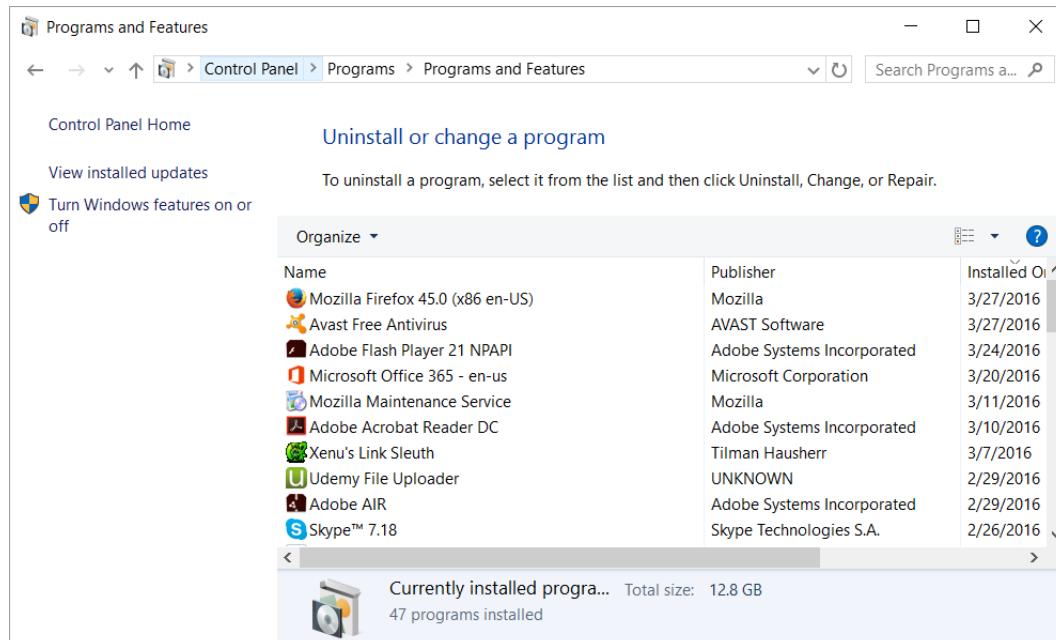
- Right click on the **Start** button and from the popup menu displayed, click on **Control Panel**.



- The Control Panel will be displayed as illustrated.



- Within the **Programs** section click on the **Uninstall a program** command. This will display a list of programs that you can uninstall.



- Double click on the program that you wish to uninstall. You may see some warning screens, in which case read them very carefully before deciding whether to proceed or not.

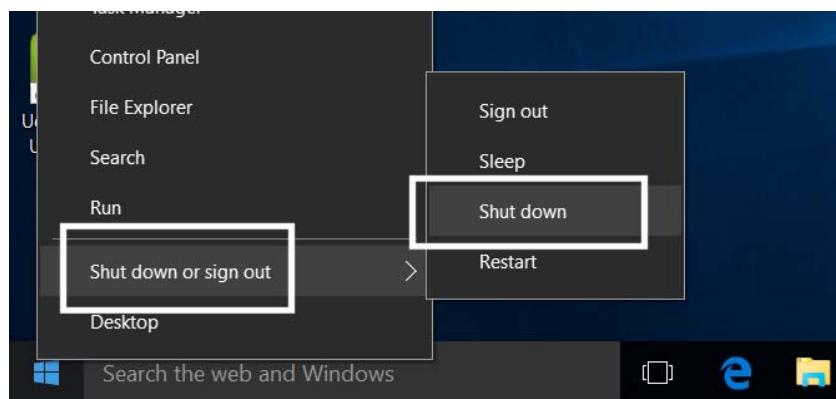
If in doubt, do not remove a program as it can cause problems if you delete programs that should not be deleted.

- Close any open windows before continuing.

## Shutting down the computer

---

- Right click on the Start button and from the popup menu displayed click on **Shutdown or Sign Out**.
- From the sub-menu displayed select **Shutdown**.



- The computer will shut down.
- Restart the computer.

## Restarting the computer

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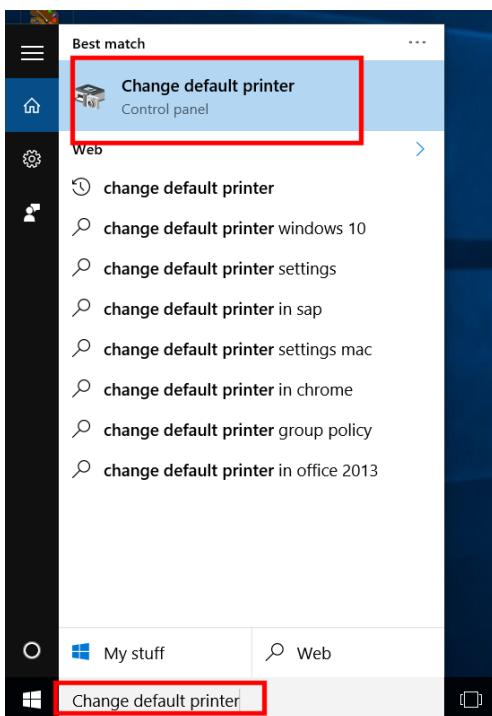
- Right click on the Start button and from the popup menu displayed click on **Restart**.



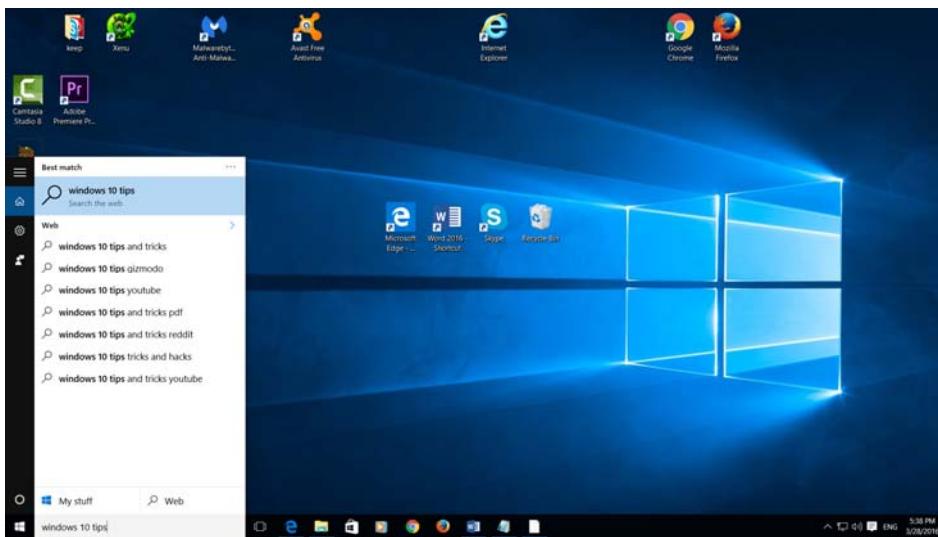
# Help in Windows 10

## Using the Search for Help box

- Experiment with typing in an item you want help with. For instance, you could type in the words **Change default printer**.



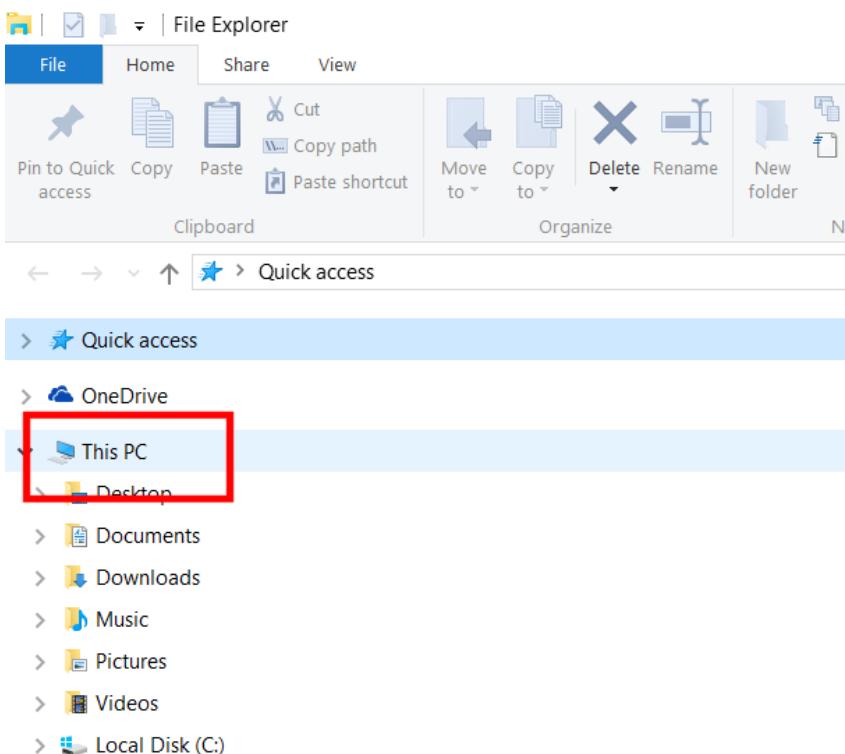
- Click on the item in the **Best Match** section and you will be taken to the Control Panel, from where you can change the default printer.
- Spend a little time experimenting with finding out more about Windows 10. For instance, search for **Windows 10 Tips**.



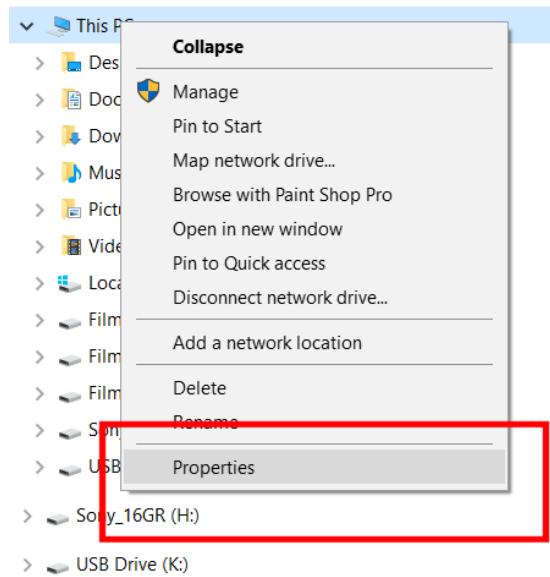
## Displaying basic information about your PC

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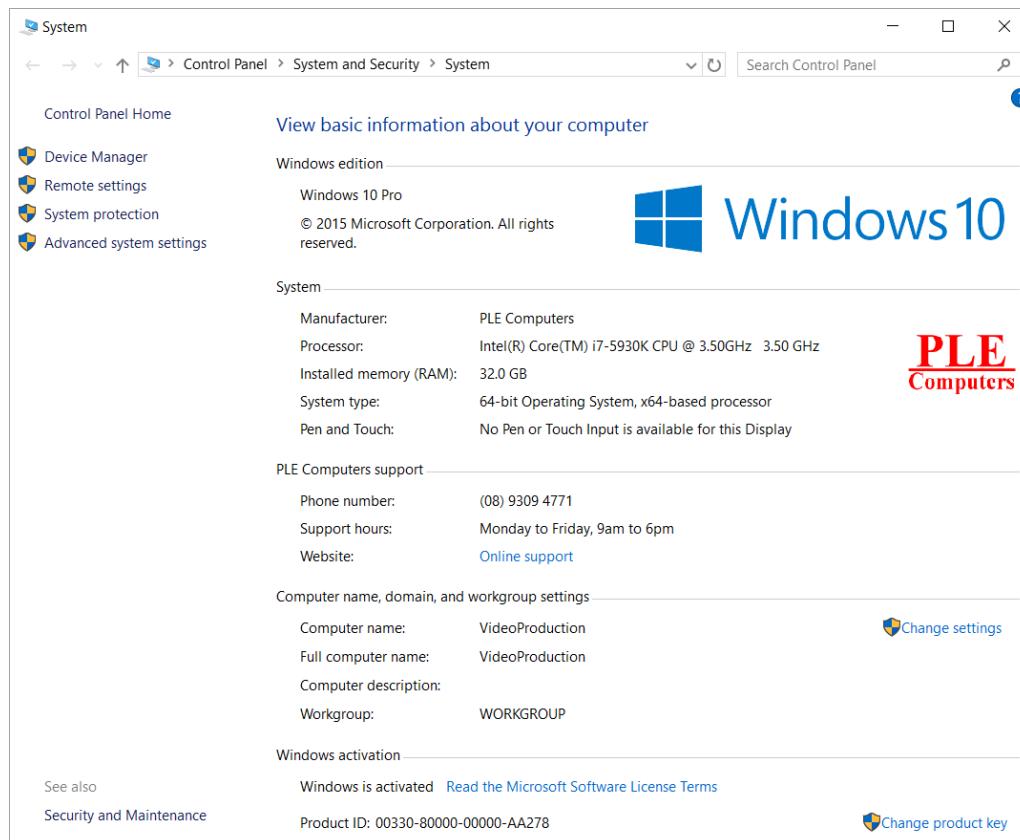
- Right click over the **This PC** icon within the File Explorer display.



- From the popup menu displayed click on the **Properties** command.
-



- This will display the **System** dialog box.



- This screen tells you useful information about your copy of Windows. You can see the exact version number, plus more information about your computer such as the speed of your CPU and how much memory you have installed.

Information about your network is also displayed.

# File Explorer

## What are files?

- When you load a program such as a word processor this means that you copy the files containing the word processor program from your hard disk into your RAM memory. RAM is short for Random Access Memory and is simply a term to describe the memory chips contained within your computer. Once the word processor is loaded into RAM you can use it to create a document. When you have finished editing the document, you may want to save a copy of the document to your hard disk as a file.

Basically there are two types of file that you need to concern yourself with, the program files (such as word processor, spreadsheet, databases etc.) and the data files that you create and save to disk. Once saved to disk you can later re-open that file and make further changes, or print the data file.

In many ways you can think of data files as physical sheets of paper, containing your data. You then place these sheets within a folder so that you keep all similar documents together.

## What are folders?

- Files are stored on a disk in folders. This concept is very familiar to anyone used to working within an office. Think of a 3-draw filing cabinet. When you wish to file a document within the filing cabinet you first need to decide in which draw to file a particular document. When you open a filing cabinet draw it often contains hanging dividers allowing you to group similar document together.

## Types of drive and drive letters

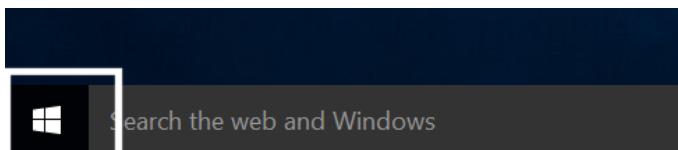
- When you save a data file you normally save it to your hard disk. This disk is contained within your computer and you cannot normally see it. By convention the hard drive is called 'Drive C'. If you have two hard disks within a single computer, they will normally be described as drive 'C' and drive 'D'.
- There are other types of drive, such as a CD or DVD drive. You can plug a 'removable hard disk' into your computer. You can also plug so called 'memory sticks' into the USB sockets on your computer. Don't worry what USB stands for (Universal Serial Bus); they are just sockets that allow you to plug things into your computer. There are many different names for these USB memory sticks, such as 'flash drives' or 'USB drives'.

- As you add more drives to the computer, Windows assigns a drive letter to them. The hard disk is usually called drive C. The next disk that is added (probably the CD/DVD drive) will be called drive D, the next drive would be Drive E and so on.
- If you are connected to a network, your network administrator may have set you up with additional ‘network drives’. These are actually located within a different computer on your network and can have any free drive letter that the network administrator thinks is appropriate (such as Drive T).

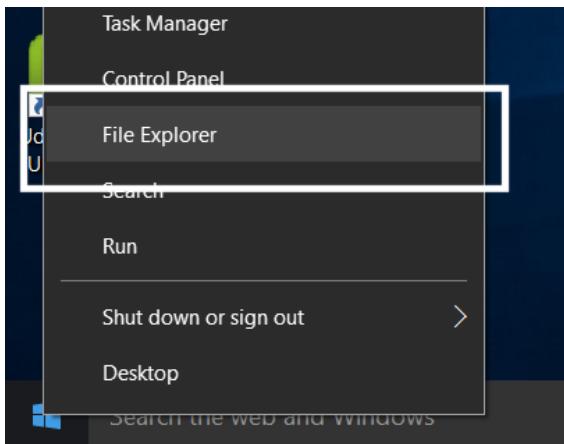
## Opening the Windows File Explorer program

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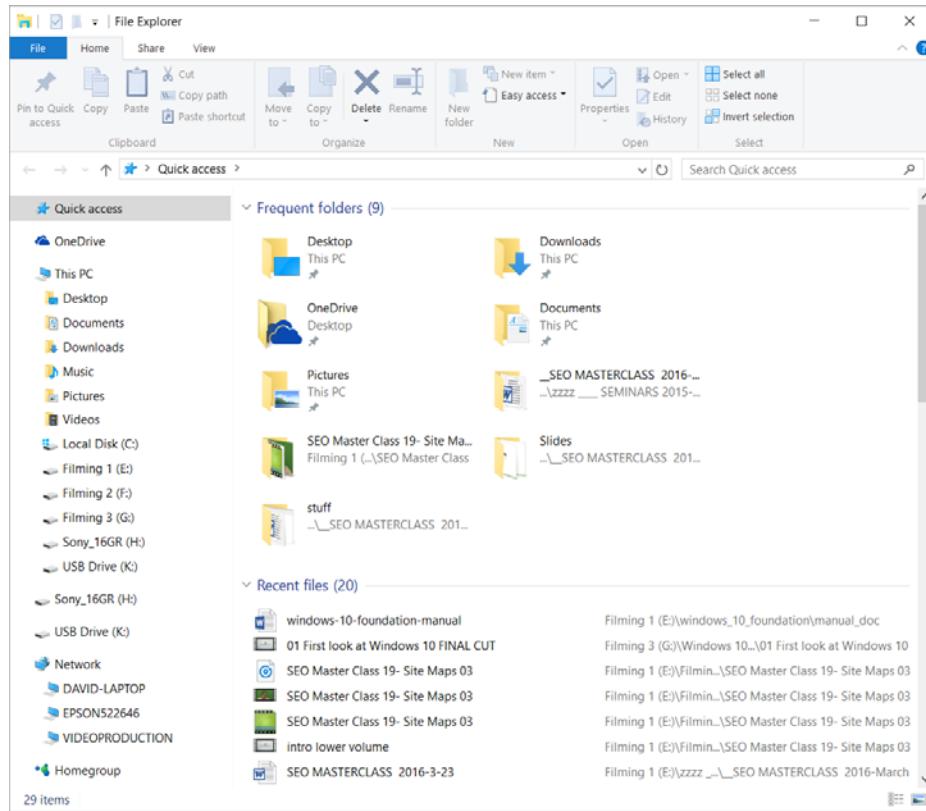
- Right click on the Start button.



- From the popup menu displayed click on the **File Explorer** command,



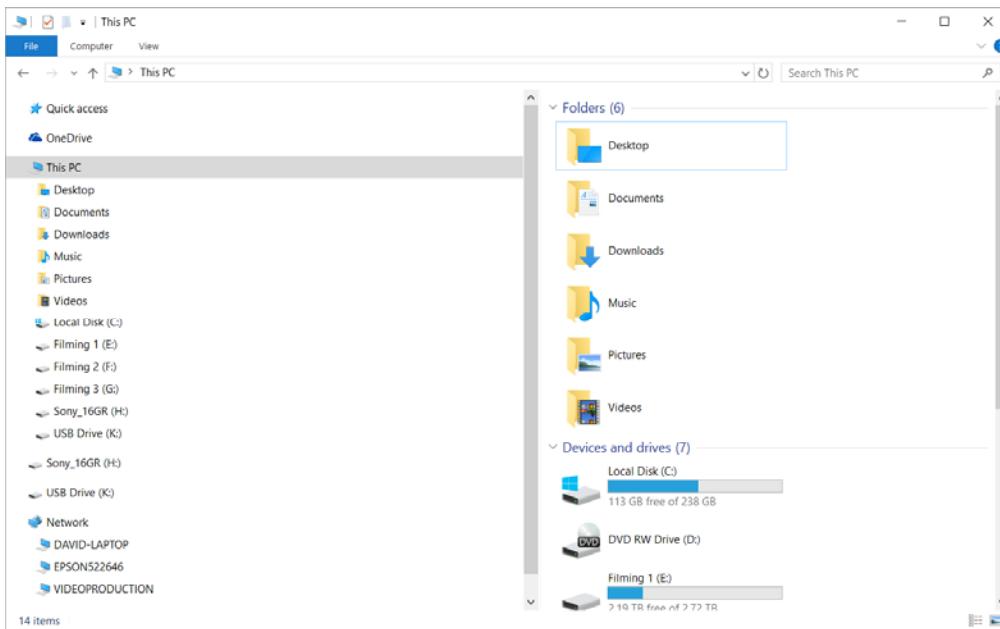
- This will display the File Explorer window.



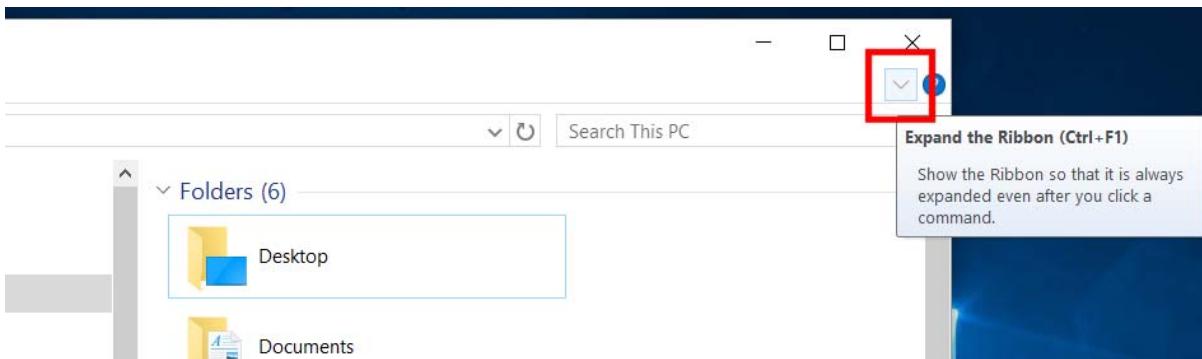
**TIP:** Do not confuse the **File Explorer** (which is generally used for exploring your computer disks, folders and files) with the **Internet Explorer** (which is used for exploring the Internet and surfing the Web). They are two entirely separate programs with very different functions.

## Displaying or hiding the Ribbon

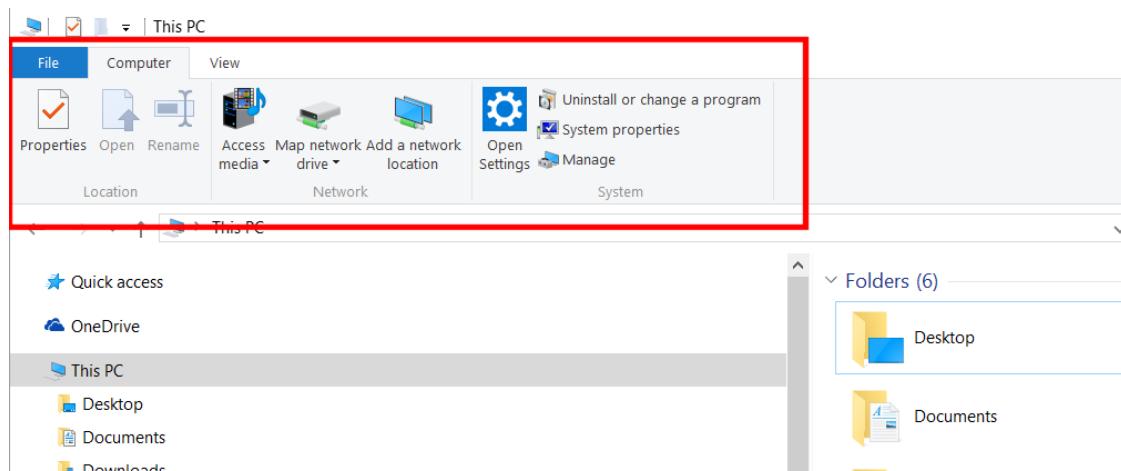
- Often, the File Explorer windows will look like the illustration below.



- Click on the **Expand the Ribbon** button.



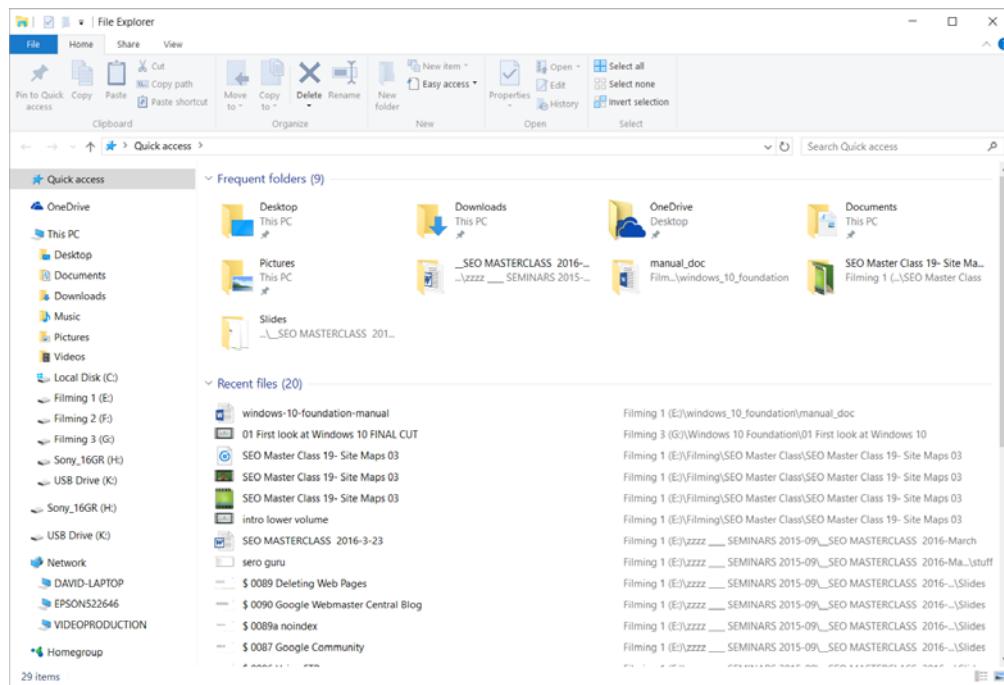
- The Ribbon will then be displayed across the top of the program window.



**TIP:** If you wanted to remove the Ribbon, you could click on the control and the Ribbon will be minimized.

## The File Explorer window

- The File Explorer windows will normally look something like the illustration below.



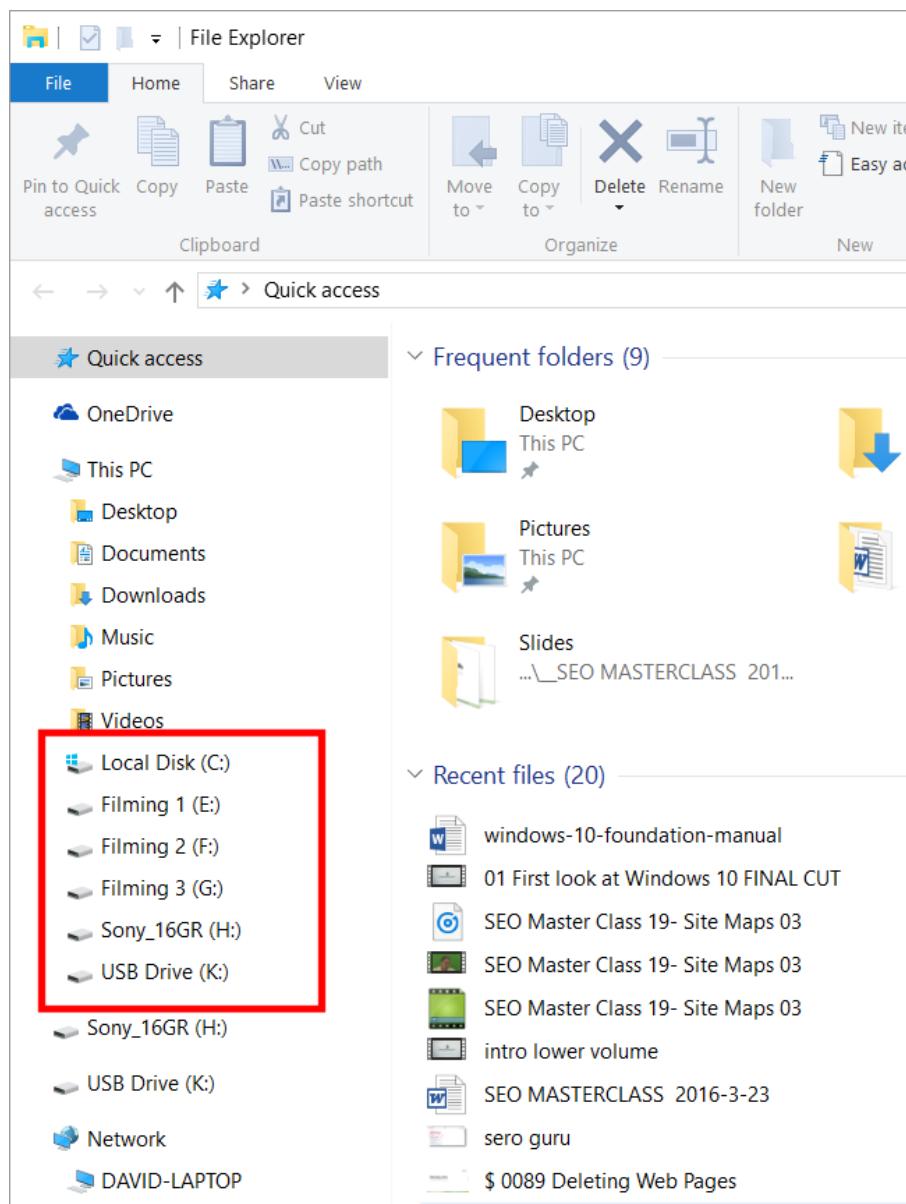
- You need to be able to find your way around the program and to understand the terminology.

## File Explorer - Folders

- Folders are containers that you can store files in. By default, Windows creates a number of folders for its own purposes. You can also create, rename, move and delete new folders manually.

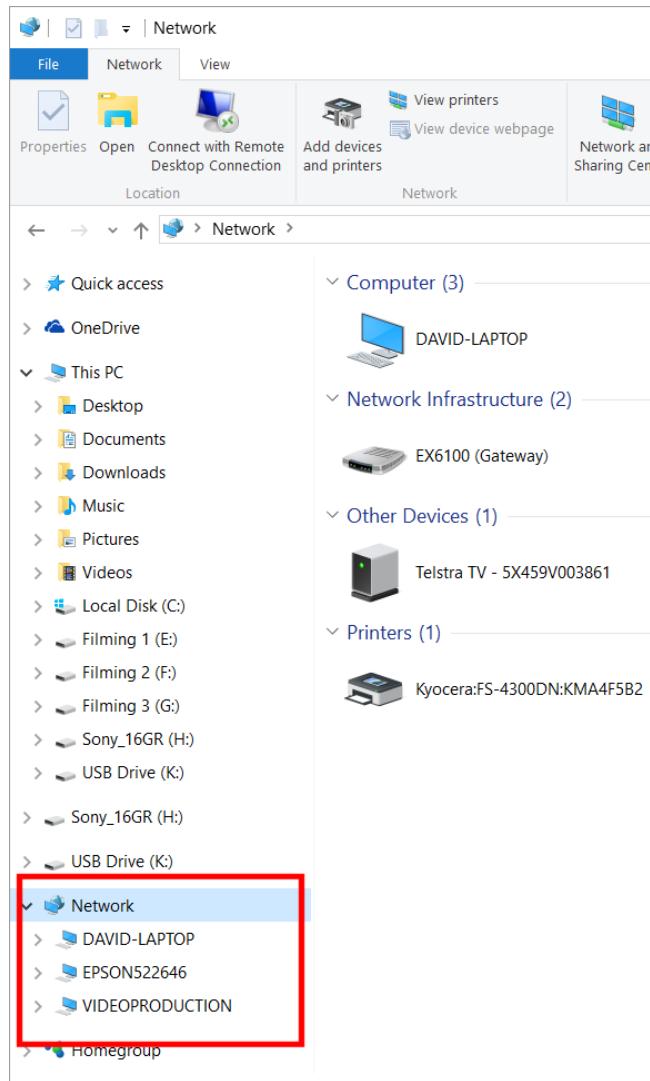
## File Explorer - Devices

- These are the storage devices you have access to such as your local hard disk, DVDs, Flash drives etc.



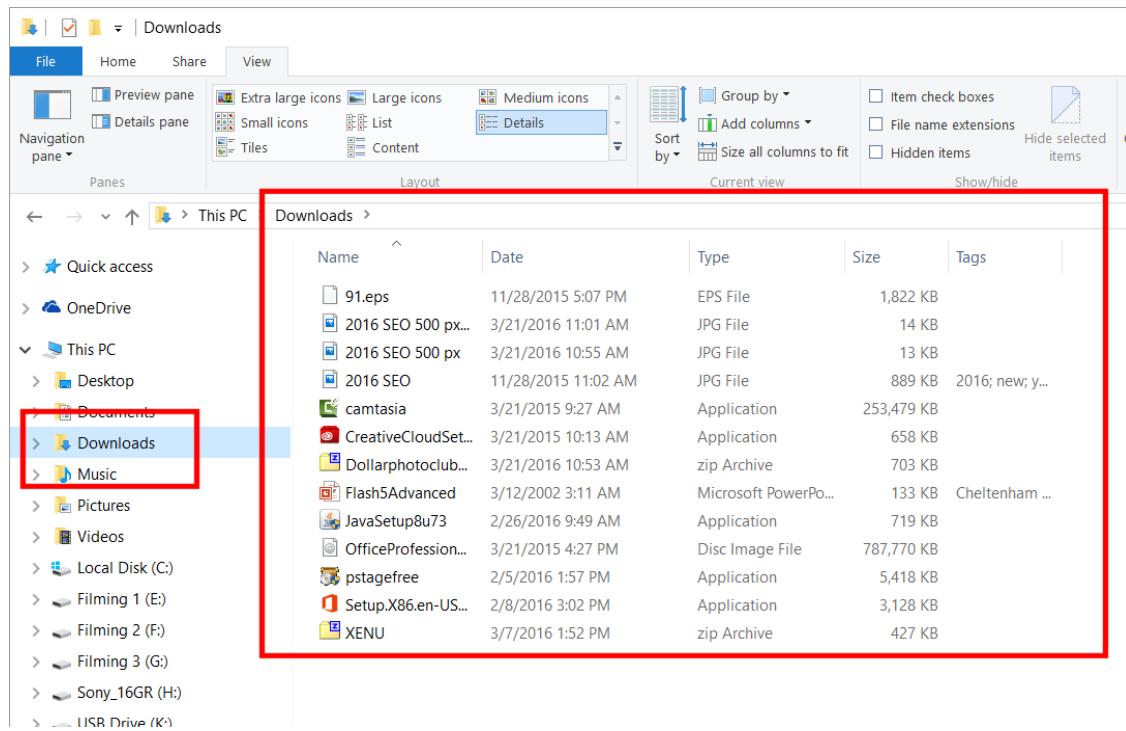
## File Explorer – Network Locations

- As the name implies, Network Connections are the places on the network that you have access to.



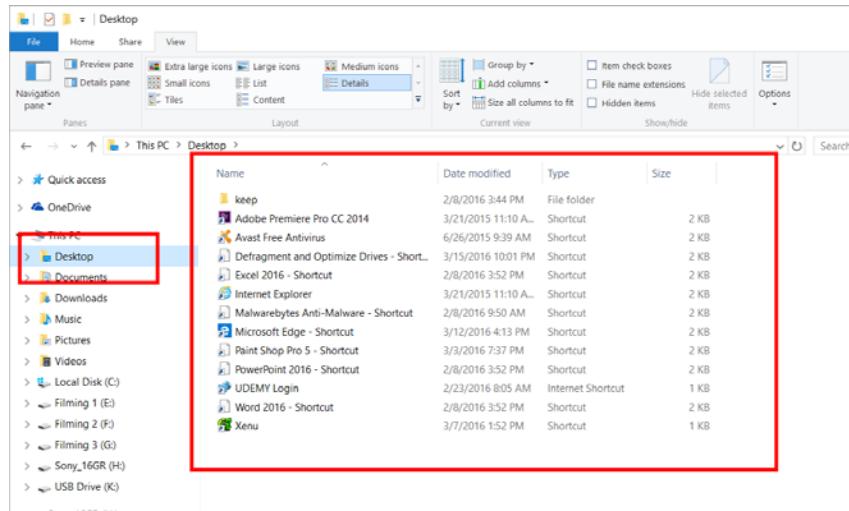
## File Explorer - Downloads

- When you download files from the Internet, by default the files will be downloaded to the **Downloads** folder.



## File Explorer - Desktop

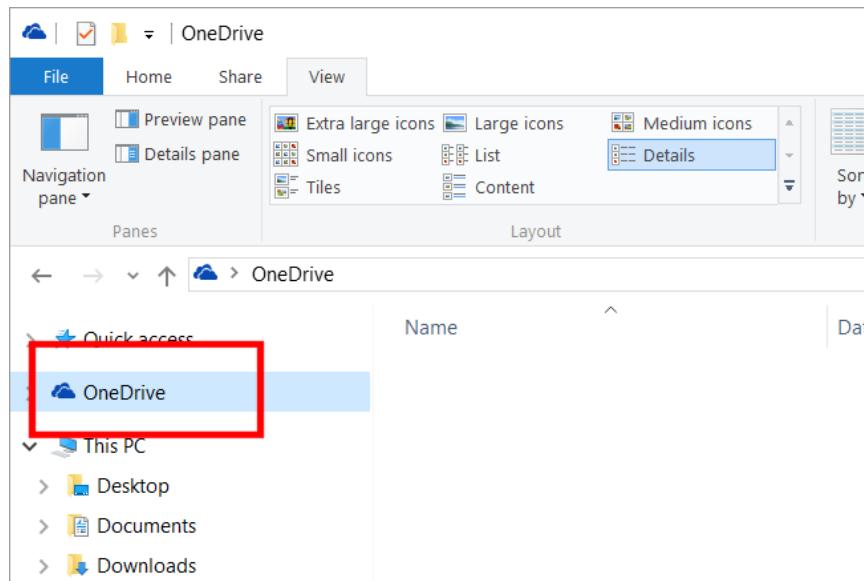
- Files or folders that are copied or moved to the Desktop folder will also be displayed on the Windows Desktop screen. A typical Desktop screen is shown below.



## File Explorer – OneDrive

- The OneDrive is simply a storage location in the 'cloud'. This is actually held on Microsoft servers and has the advantage that you can access this information from

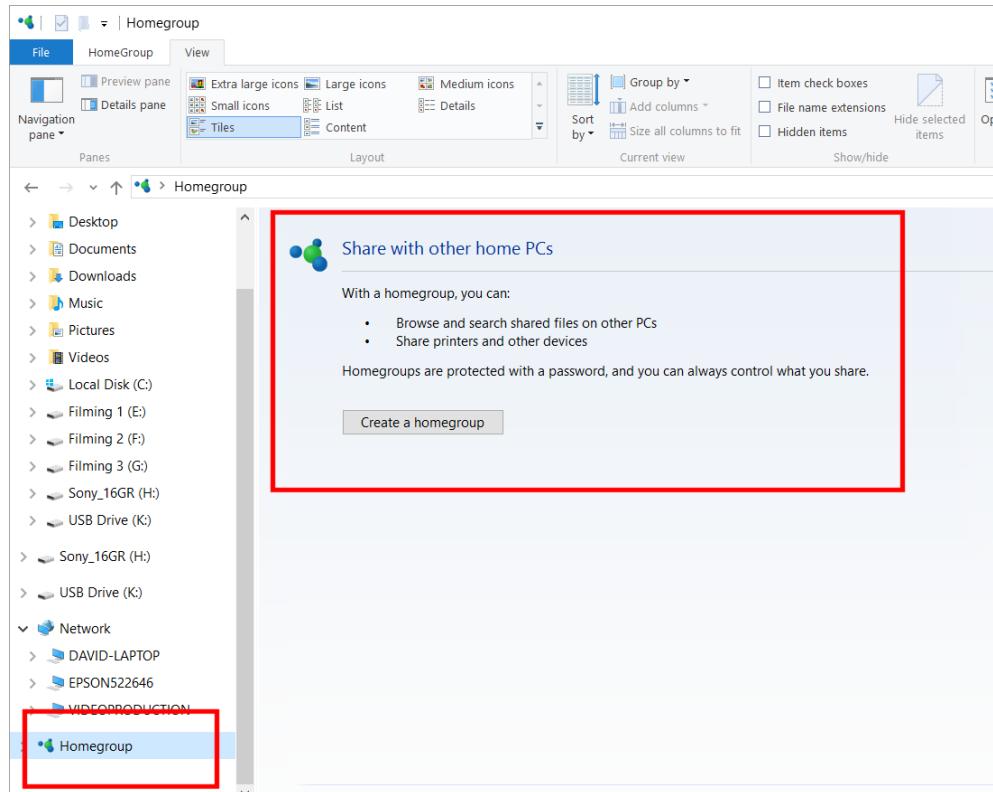
any computer within your company. The disadvantage with cloud storage is that this data is also available to spy agencies such as the NSA and GCHQ.



## File Explorer – Homegroup

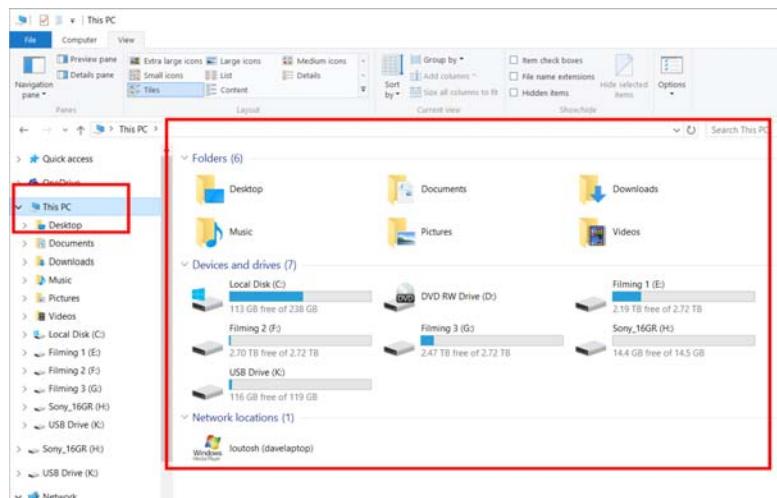
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- The Homegroup is the local area network group that you have access to. Within the home, you can link up individual computers, printers and other devices. Within the office your computer will normally have been configured for you so that you can communicate with the people you need to talk to and in most cases you will be able to swap files and share devices.



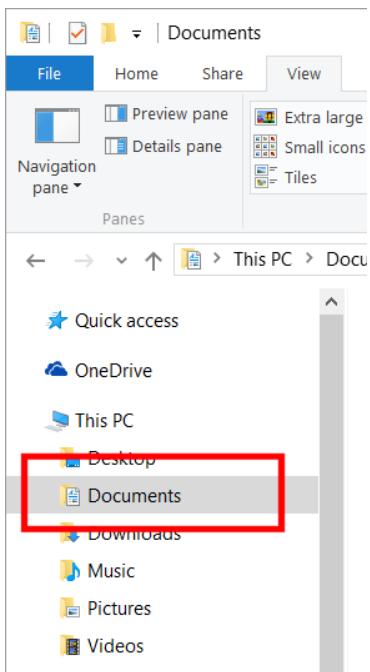
## File Explorer – This PC

- This section of the window summarizes all the resources that you have access to on your local PC.

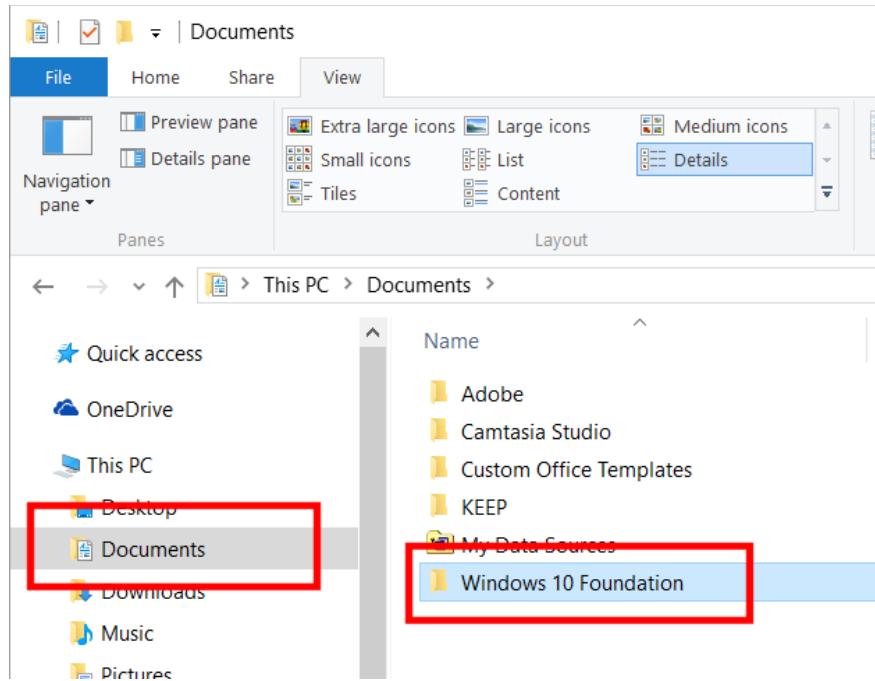


## Displaying the contents of a particular folder

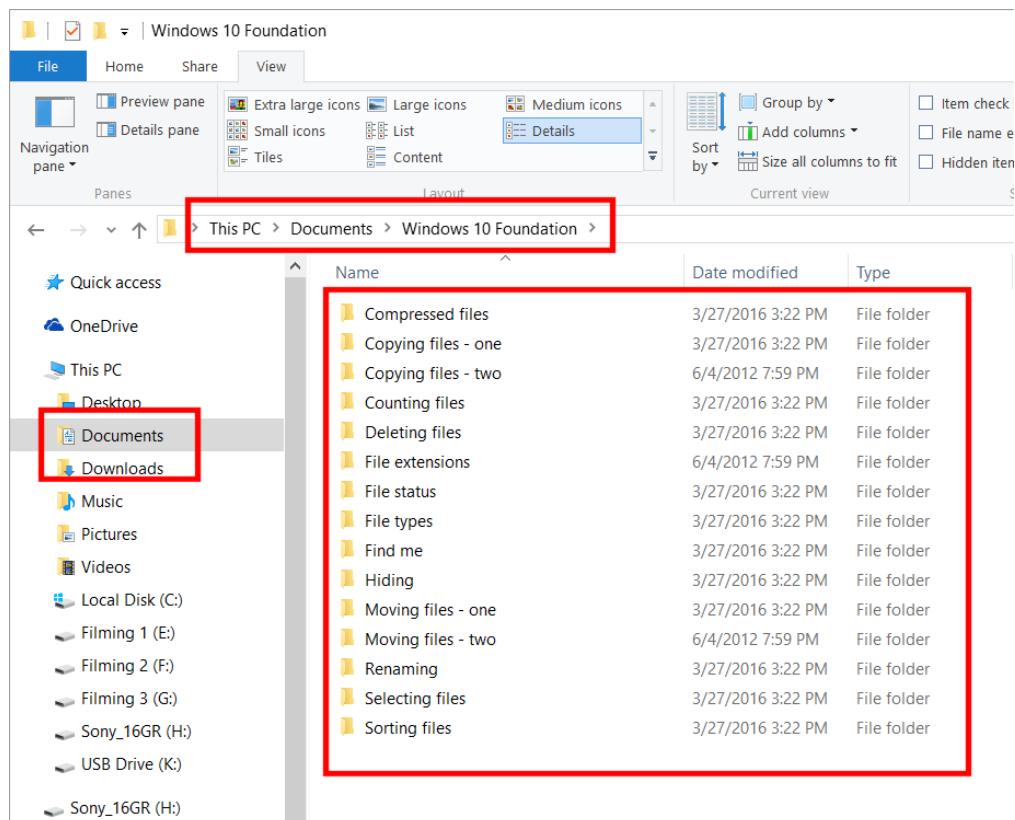
- During this course you will use some sample files that have been created for you. These sample files are stored in a folder called **Windows 10 Foundation**, which in turn is stored under a folder called **Documents**.
- To display the contents of the **Documents** folder, click on the **Documents** folder, as illustrated.



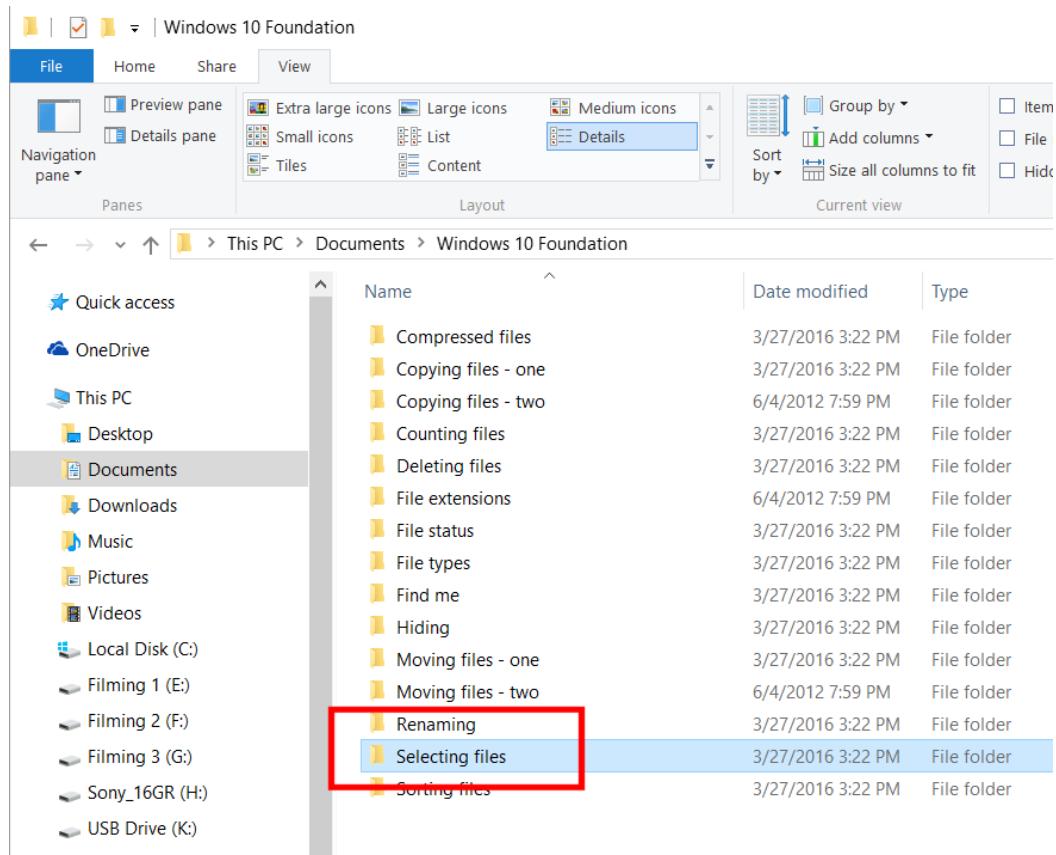
- If you look at the right hand section of the window you will see the **Windows 10 Foundation** folder. In some cases, you may have to scroll down to see this.



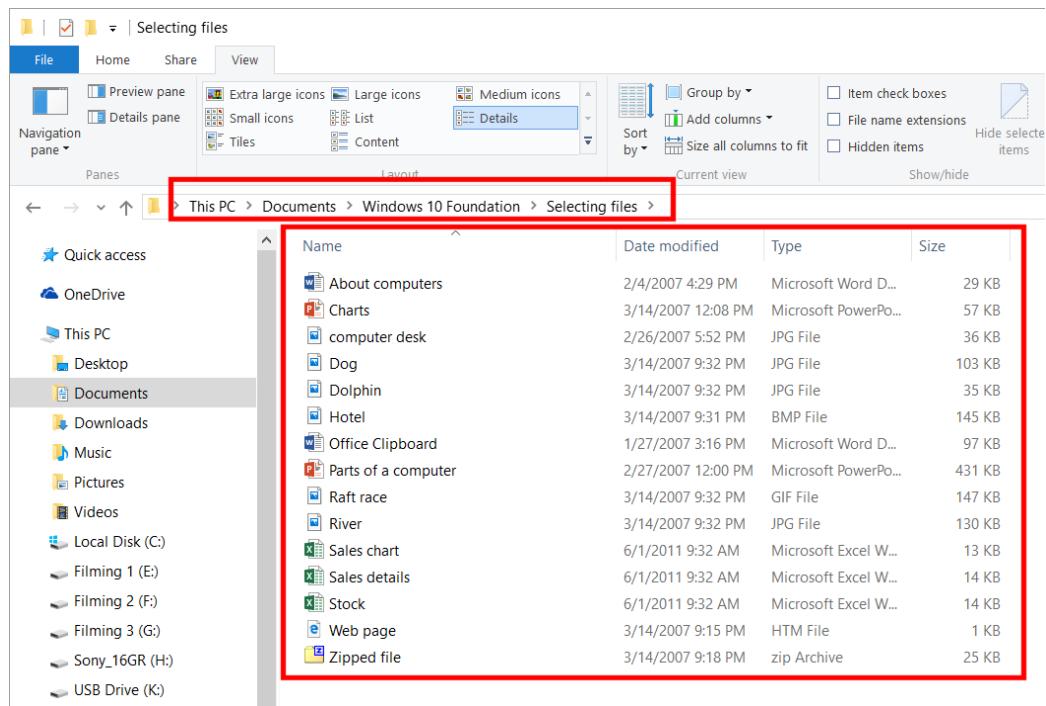
- Double click on the **Windows 10 Foundation** folder to display the contents of that folder.



- As you can see this folder contains more sub-folders which in turn contains files of further sub-folders.
- Double click on the folder called **Selecting Files**.

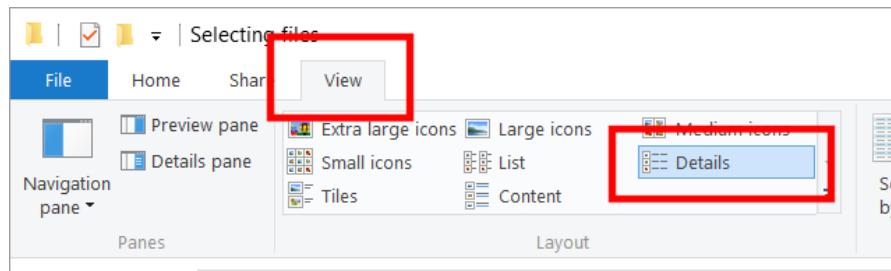


- You will see the files contained within this folder.

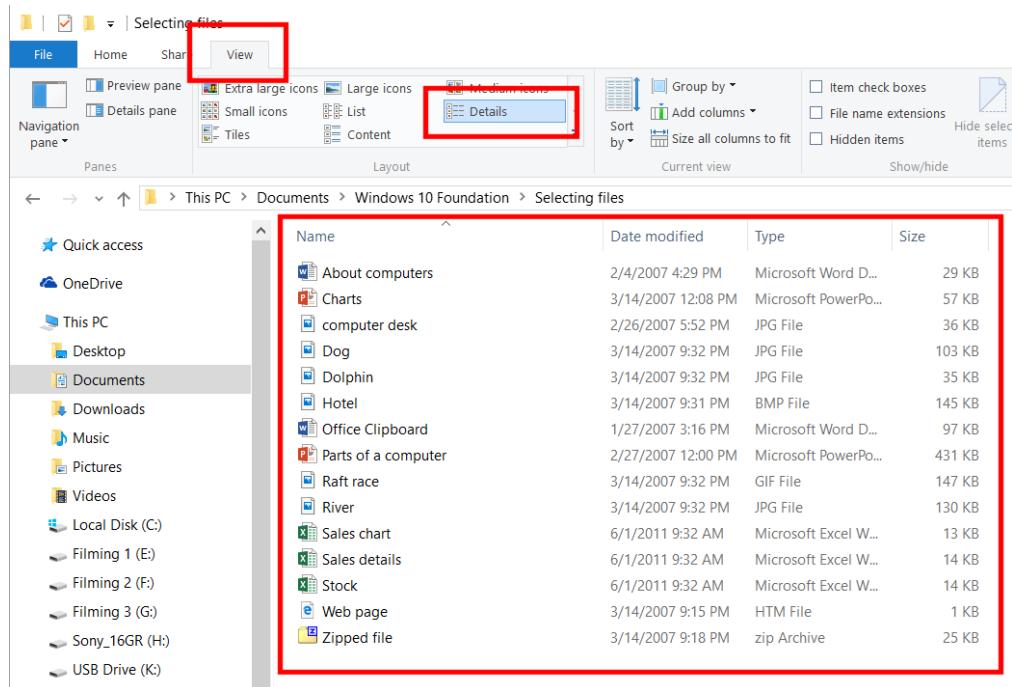


## Changing the View within the File Explorer

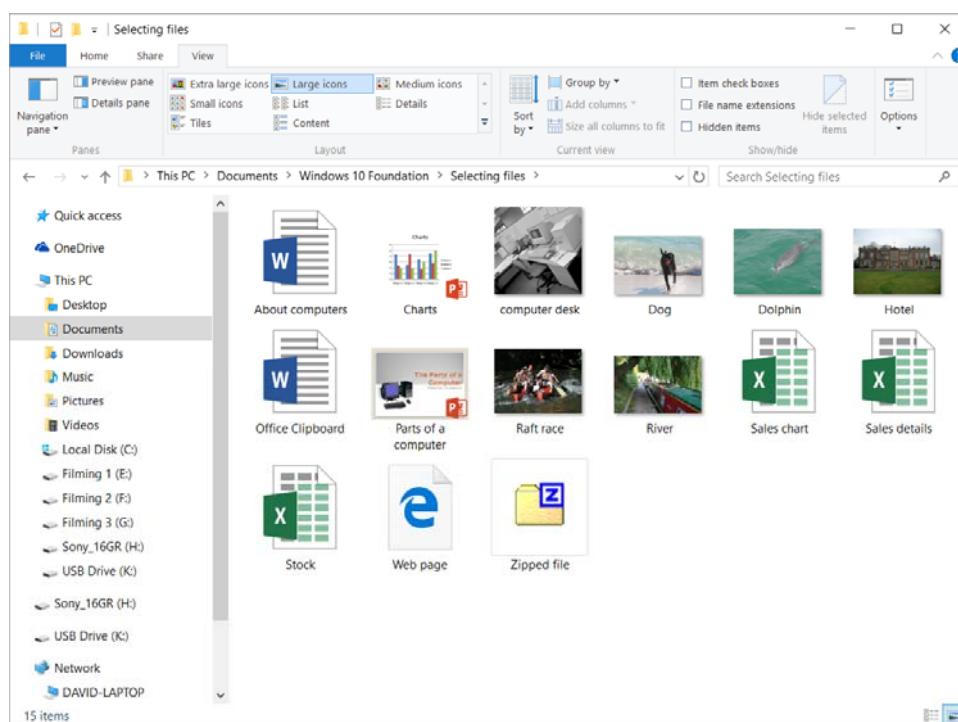
- Make sure that the Ribbon is displayed.
- Click on the **View** tab within the Ribbon and take a look at the **Layout** section of the Ribbon.



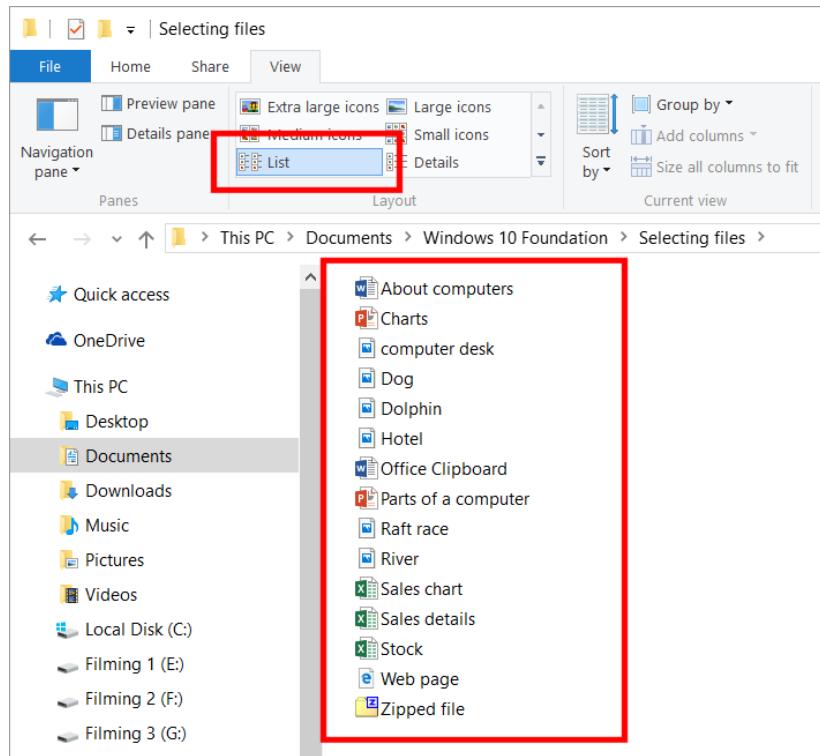
- Click on the **Details** button within the Ribbon. The files will look like this.



- As you can see details about each file are displayed in columns next to each file. Information such as the File modification date, file type and file size are displayed.
- Click on the **Large Icons** button within the Ribbon. The files will look like this.



- This view is useful when sifting through picture or video files.
- Click on the **List** button within the Ribbon. The files will look like this.

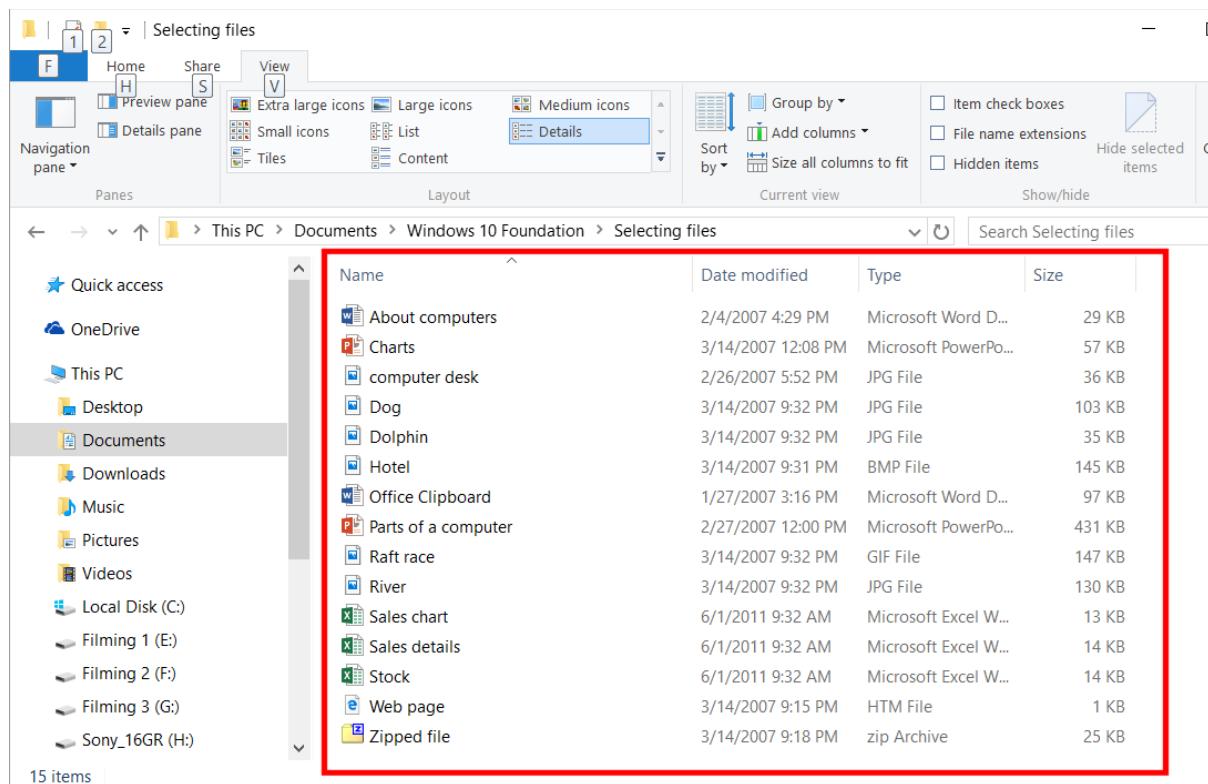


- As you can see in **List** view just the file name is displayed, nothing else.
- Before continuing set the view type to **Details**.

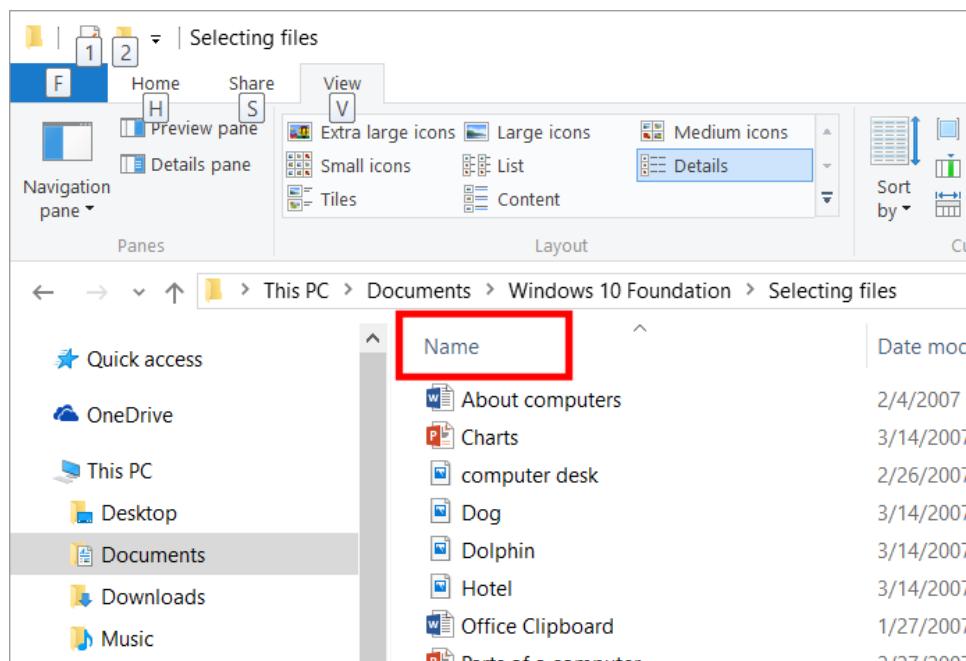
### Changing the sort order in **Details** view

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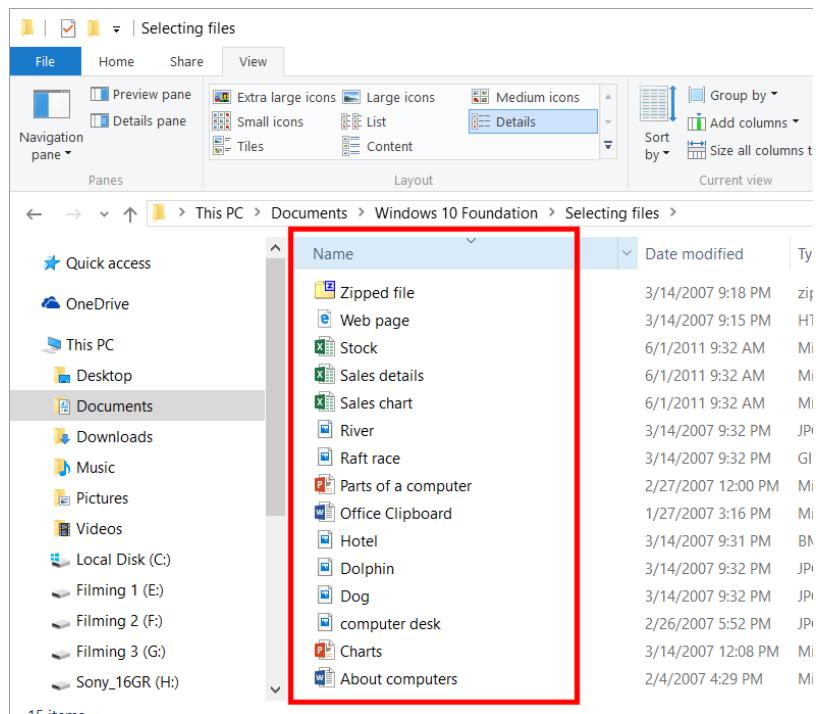
- Make sure that you are looking at files displayed in **Details** view. By default, the files are normally displayed in alphabetical file name order.



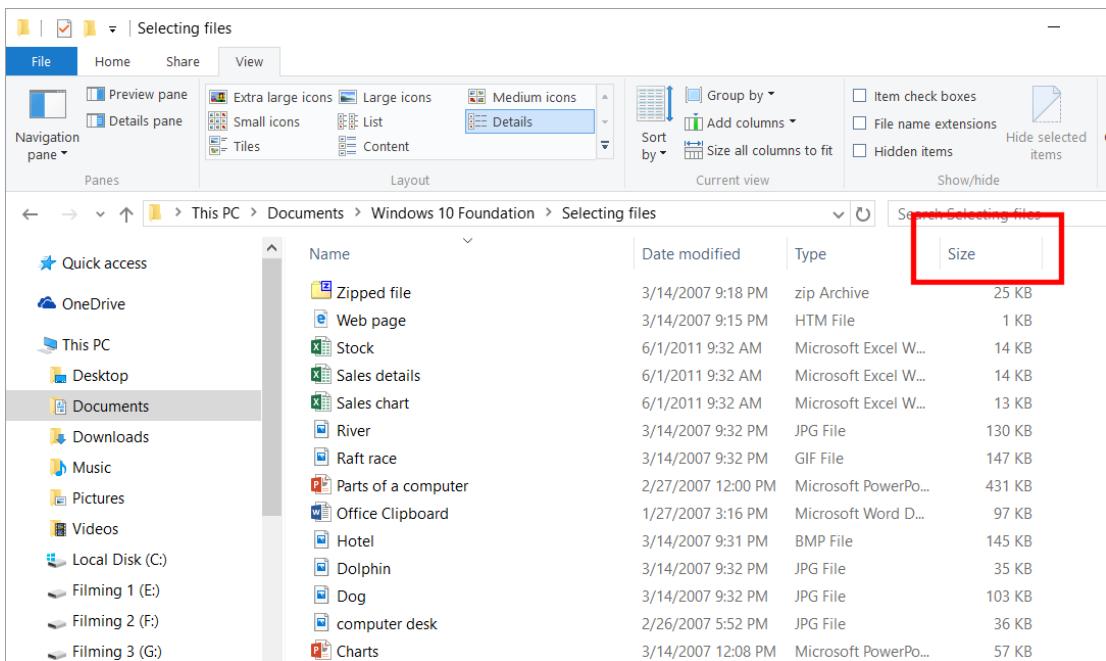
- To display the files in reverse alphabetical order, click on the **Name** header at the top of the column displaying the file name.



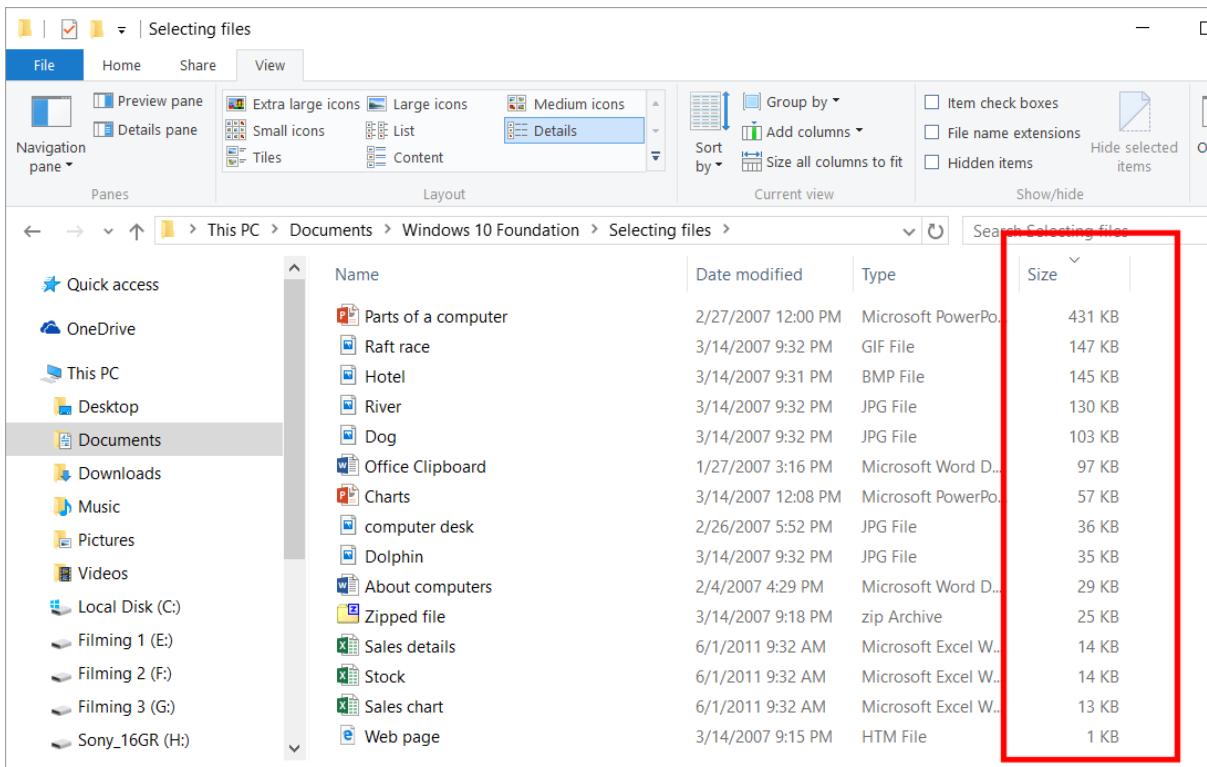
- The files will now look like this.



- To reverse this effect so that the files are once again displayed in alphabetical order, re-click on the header **Name** button.
- To display the file in ascending or reverse file size order click on the **Size** header area.



- As you can see the files are now listed by file size.



- Experiment with reordering the files by the date of the last modification and also by type.

- Before continuing, make sure that the files are listed in alphabetical name order.

## Drives, Folders and Files

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- When accessing a hard disk, whether it is local to your machine or perhaps located on a network, Windows uses a system of drive letters to serve as logical pointers to the different physical drives you have access to. From each drive letter it is possible to access all of your files stored on that particular physical drive.
- If all of the files were held together in one place on each drive, the system would be very difficult to use because of the sheer number of files involved. To help organize your files it is possible to create folders (also referred to as directories) to help divide and even sub-divide the files stored within the various logical drives available. A system of hierarchical folders within folders which represent your hard disk are often referred to as the folder (directory) tree, in the same way the very top of the file system is known as the root folder (directory).
- Finally, at the very end of this structure are the various files which we use.

## Data storage devices

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- **Hard Disk:** Stores your operating system, application programs and data. When you save data, it is normally saved to the hard disk.

**DVD:** These have largely replaced diskettes as a way of supplying programs. They can hold a lot more data.

**USB Flash Drives:** These are small, stick-like devices that plug into a USB port. They can store Gigabytes of information and are an easy way to transfer data from one computer to another. There are security considerations attached to their use as it is easy to copy large amounts of data to these devices and then take that information out of the office, for this reason many companies ban the use of these devices. When using a USB flash drive the drive is listed within the File Explorer program in exactly the same way that your hard disk is. It will have a drive letter associated with it.

**Network Drives:** Seen by your computer as a normal drive, but in reality the network drive is a folder located on another computer which is connected to the network.

## File sizes and disk storage capacities

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- Each file stored on a disk is a certain size. Some files such as those that only contain text are very small while others containing applications or videos can be enormous. The capacity of storage disks is often quoted in Gigabytes.
-

- The basic storage unit is called a bit. The relationship between storage values is illustrated below:

**Bit:**

1 or 0 level of storage is called a Bit

**Byte:**

Eight bits is called one Byte

**KB, Kilobyte:**

A Kilobyte (KB) consists of approximately one thousand Bytes

**MB, Megabyte:**

A Megabyte (MB) is approximately one million Bytes

**GB, Gigabyte:**

A Gigabyte consists of approximately one thousand Megabytes

**TB, Terabyte:**

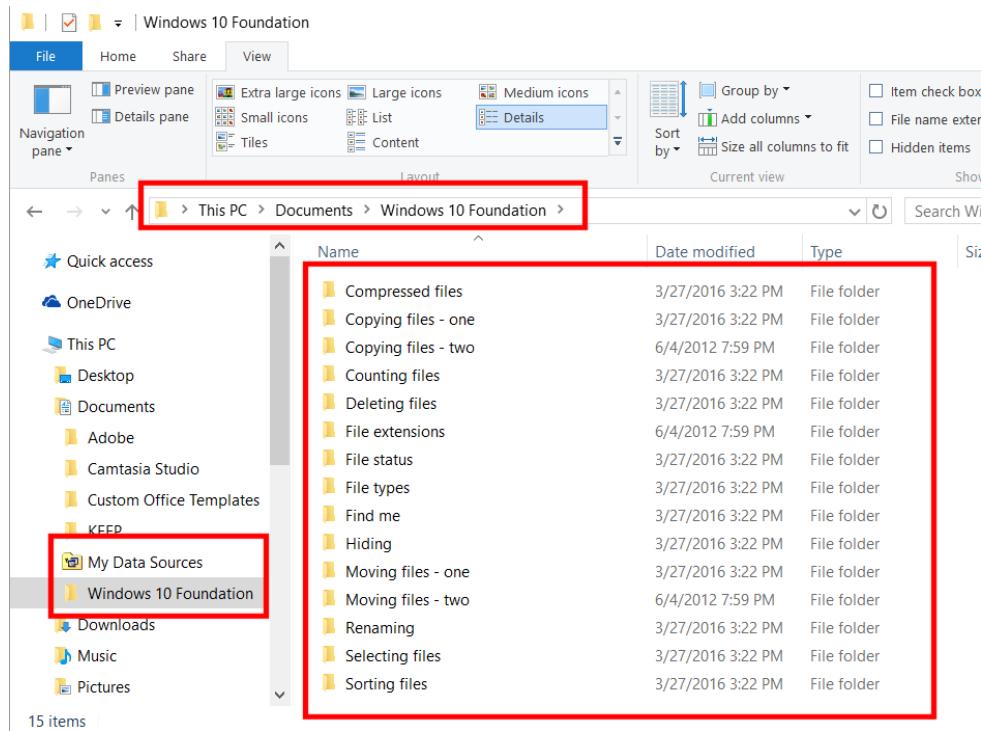
A terabyte (TB) is approximately one thousand Gigabytes

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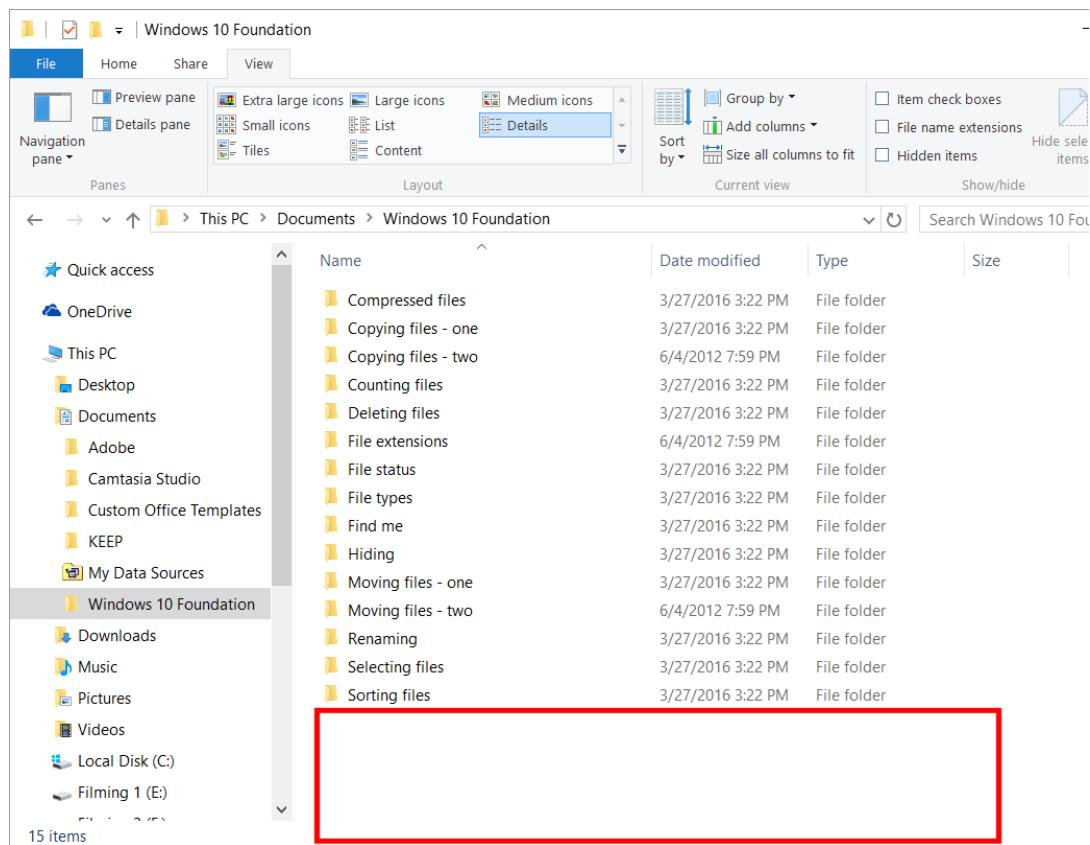
# Manipulating Folders

## Creating a folder

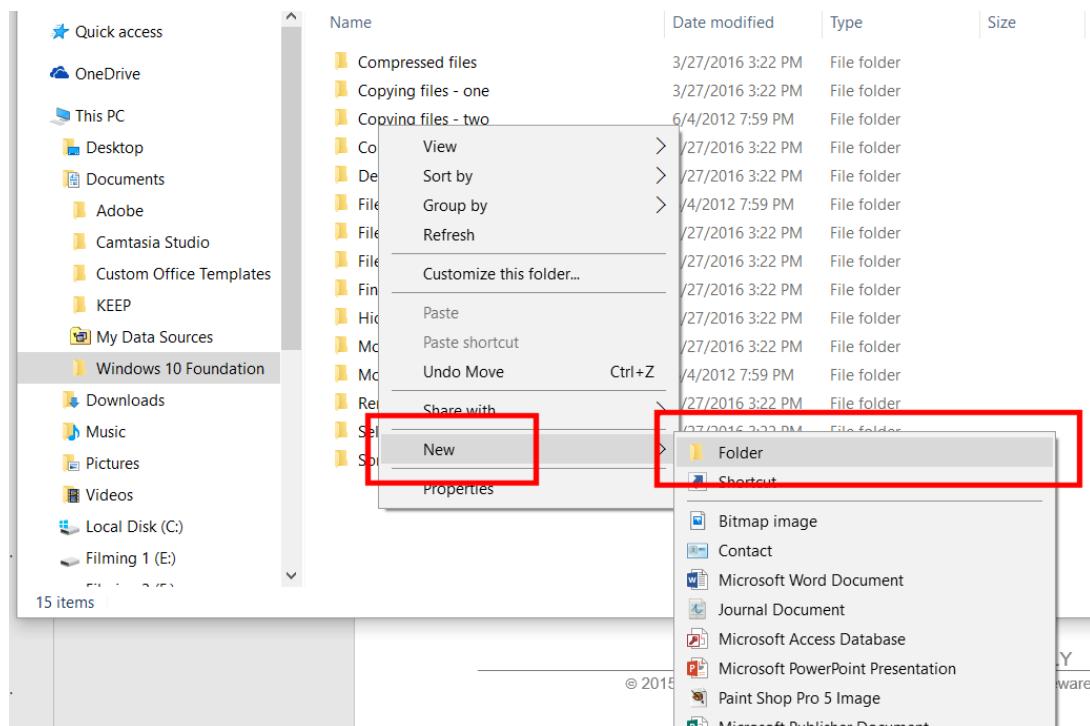
- If necessary open the **File Explorer** and navigate to the **Windows 10 Foundation** folder (located under the **Documents** folder).



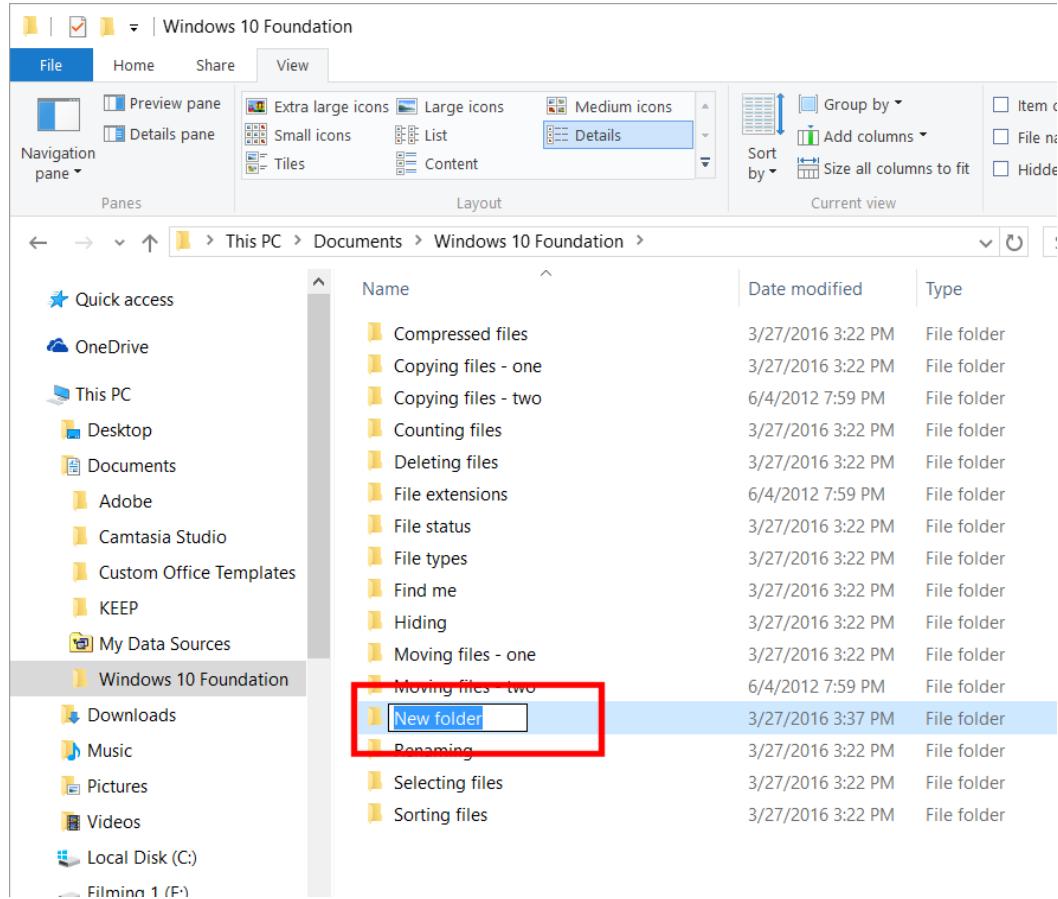
- Move the mouse pointer down to an empty part of the screen (on the right-hand side of the screen).



- Right click and from the pop-up menu displayed click on the **New** command. A sub-menu is displayed, click on the **Folder** command.



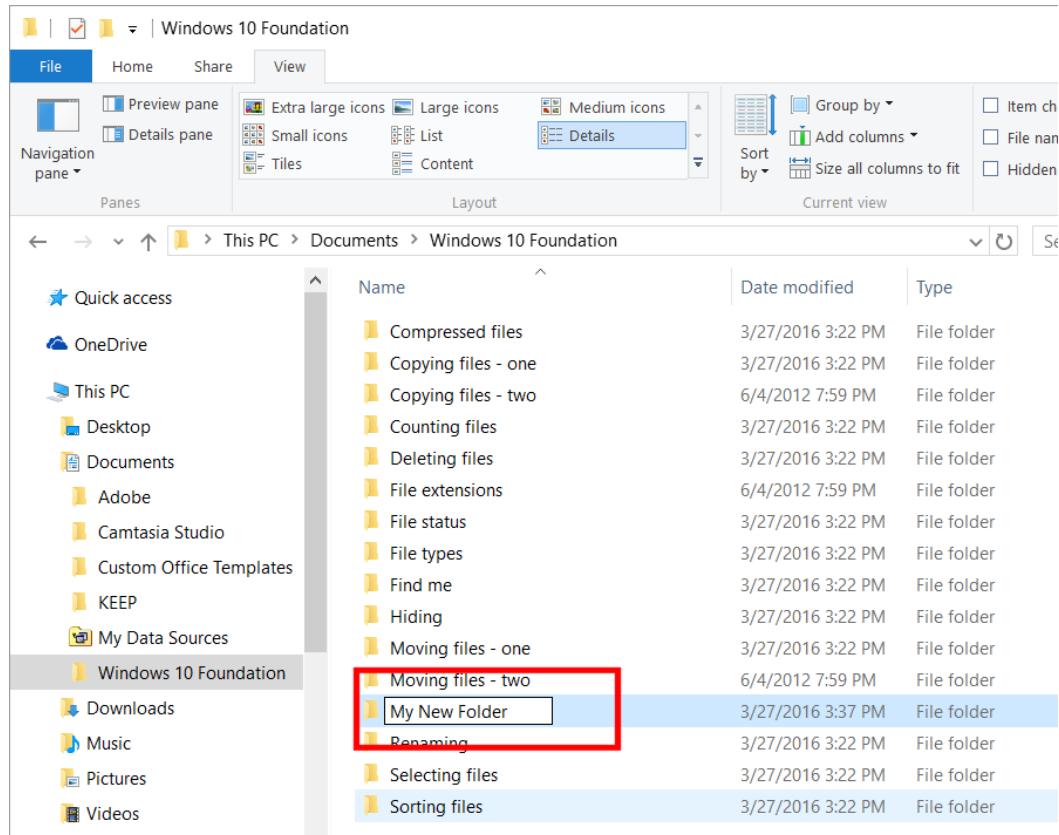
- You will see a new folder is created and displayed within the right side of the File Explorer window.



- You can type in the new name. In this case type in the name **My New Folder**.

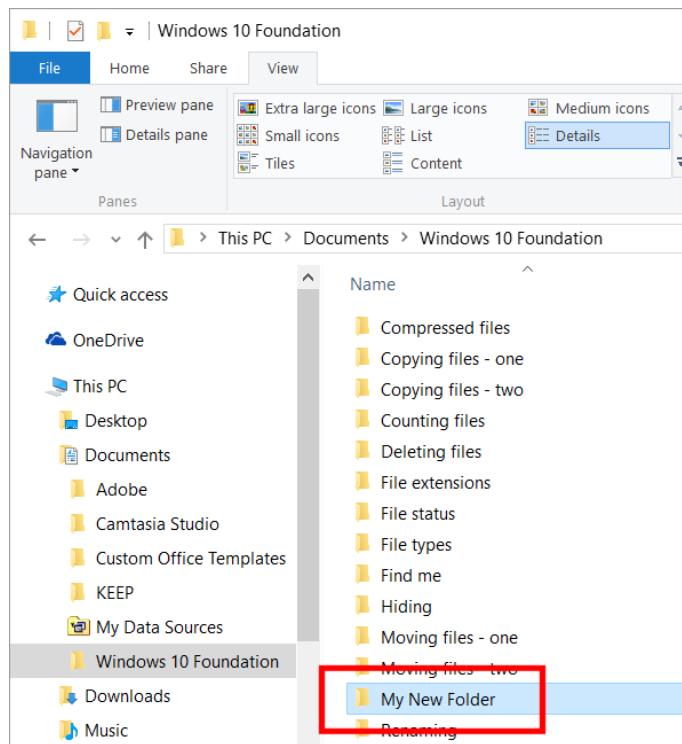
**TIP:** If you have problems renaming the folder, first select the folder and then press the **F2** key. This will allow you to change the name,

- Press the **Enter** key and your screen will now look like this.

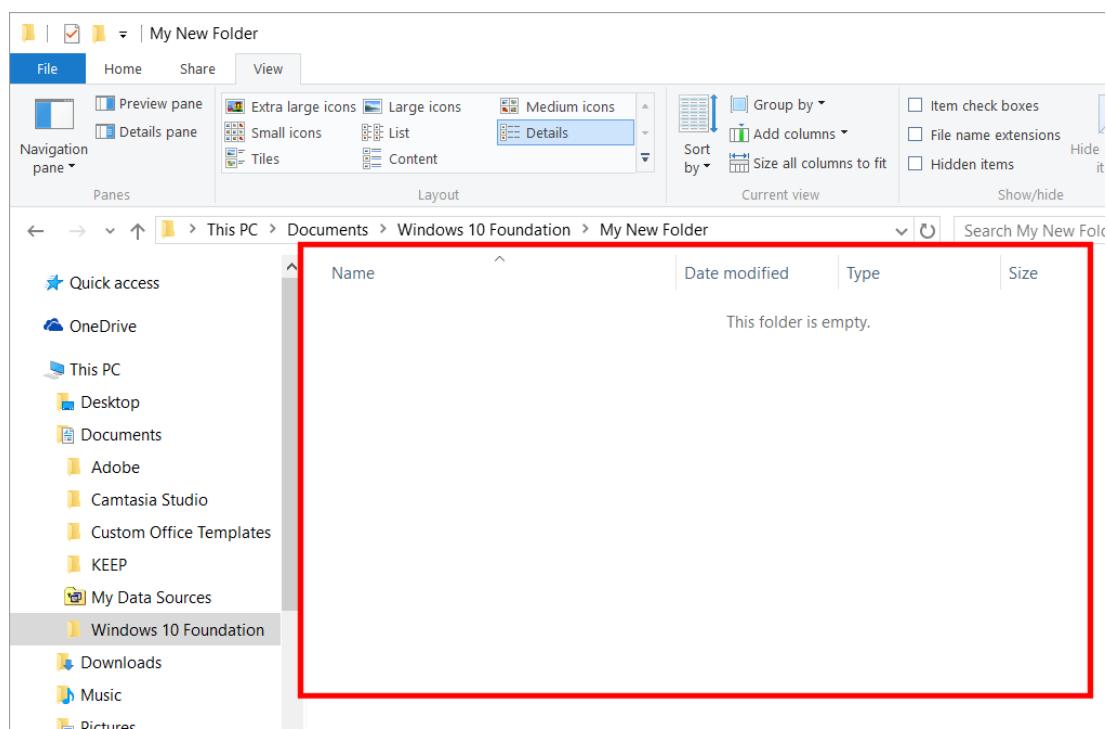


## Creating a sub-folder

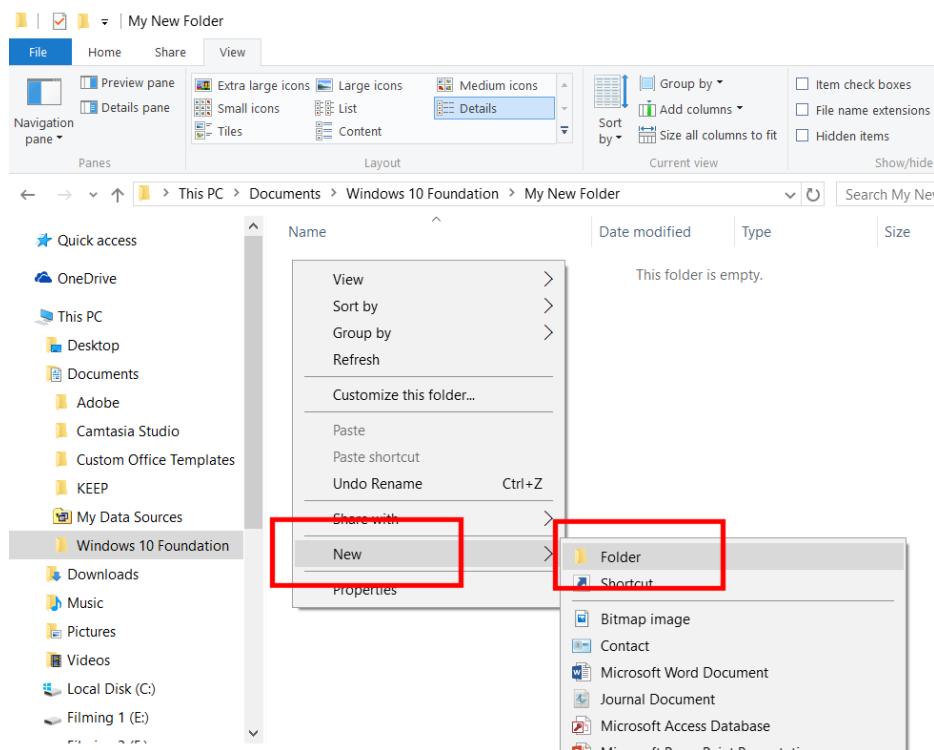
- Select the folder called **My New Folder**.



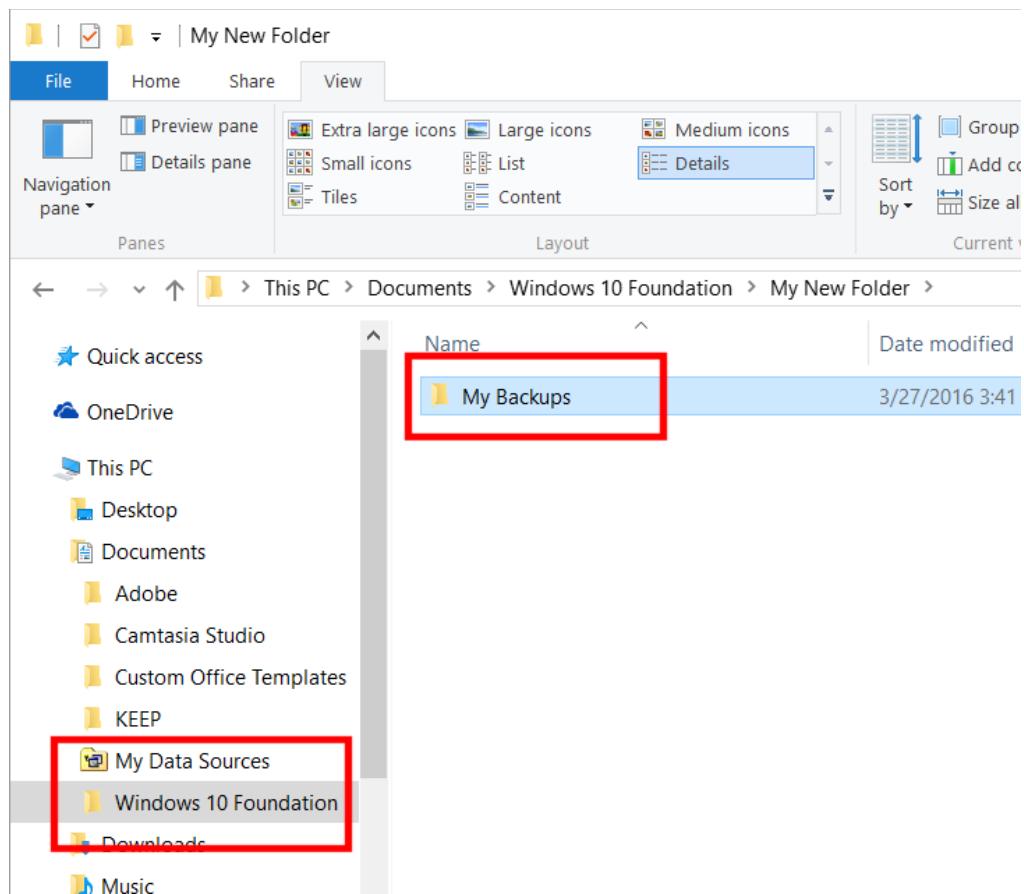
- Double click on the folder called **My New Folder** so that you move to that folder. You have just created this folder so not surprisingly the folder is empty, as illustrated below.



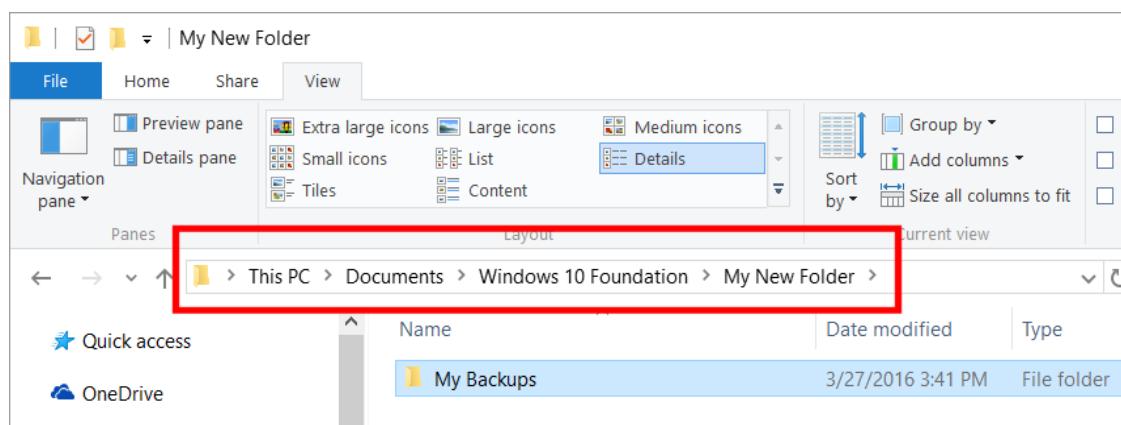
- Right click on an empty part of the right-hand windows and from the popup menu displayed click on the **New** command. From the sub-menu displayed, select **Folder**.



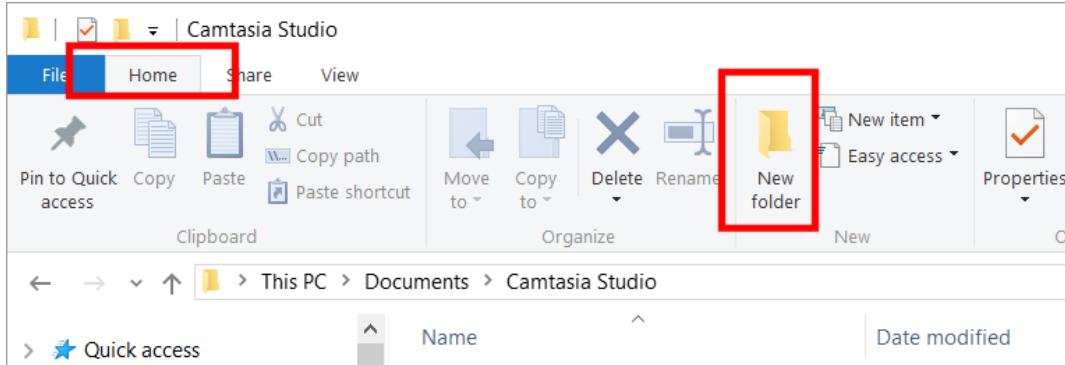
- Type in the name **My Backups** and press the **Enter** key. Your screen will now look like this.



- You have now created a folder call **My New Folder** and then created a sub-folder within this folder called **My Backups**. If you look at the bar towards the top of the windows you should see the full folder path.



**TIP:** Another way of creating folders is to use the **New Folder** button within the Ribbon (under the **Home** tab).

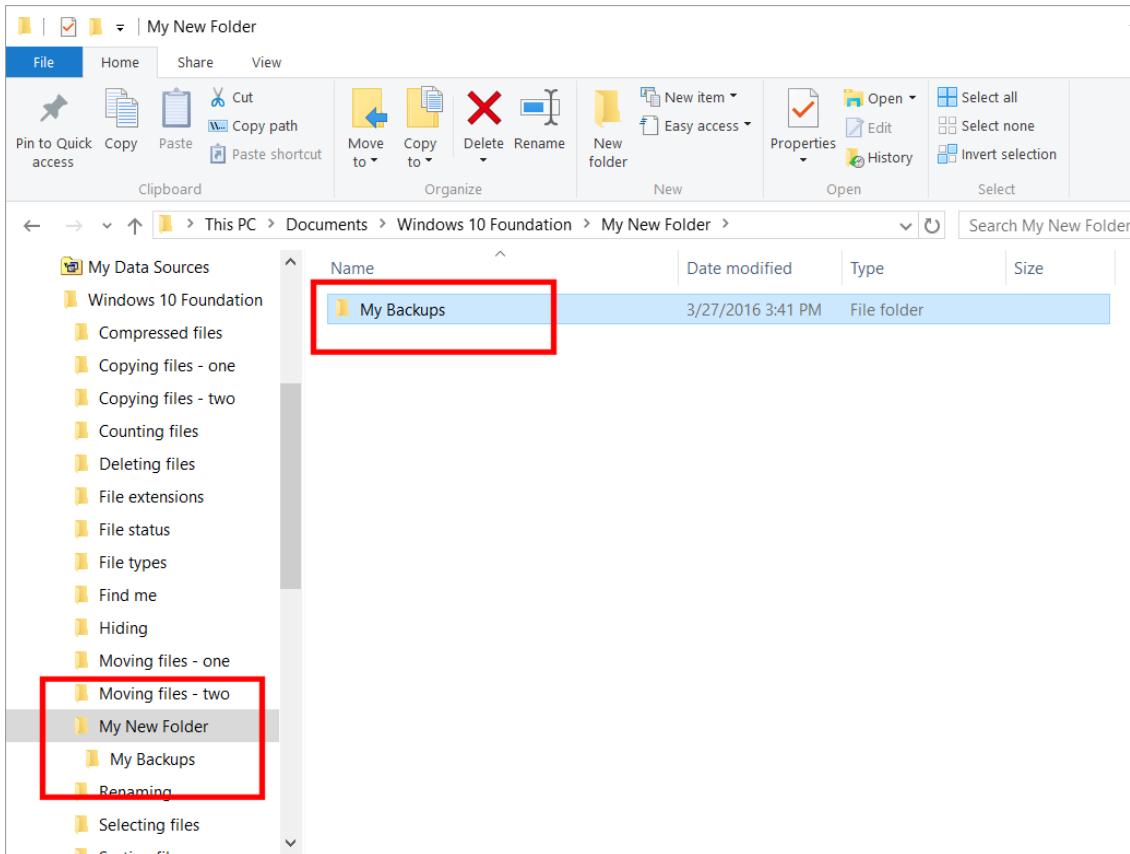


## File naming issues

- Use meaningful names for your files and folders. If you do this then when you access the file or folder at a later date, just by looking at the name you will be able to tell what the file or folder relates to.
- If a file or folder relates to a particular organization you could include the name of the organization within the name. If the file or folder relates to a particular purpose such as accounts or sales, then again you could include this information within the name.
- Sometimes it may be useful to include date or year information within the name. This is particularly useful when naming files and folders that contain photographs taken with a digital camera.

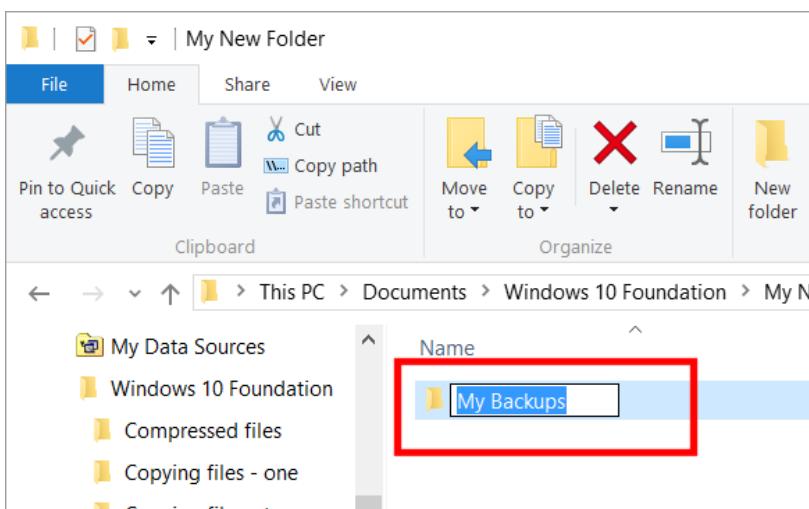
## Renaming a folder

- Select the folder called **My Backups** and you will see the selected folder displayed like this:



- Press the **F2** key and the folder will now be displayed like this.

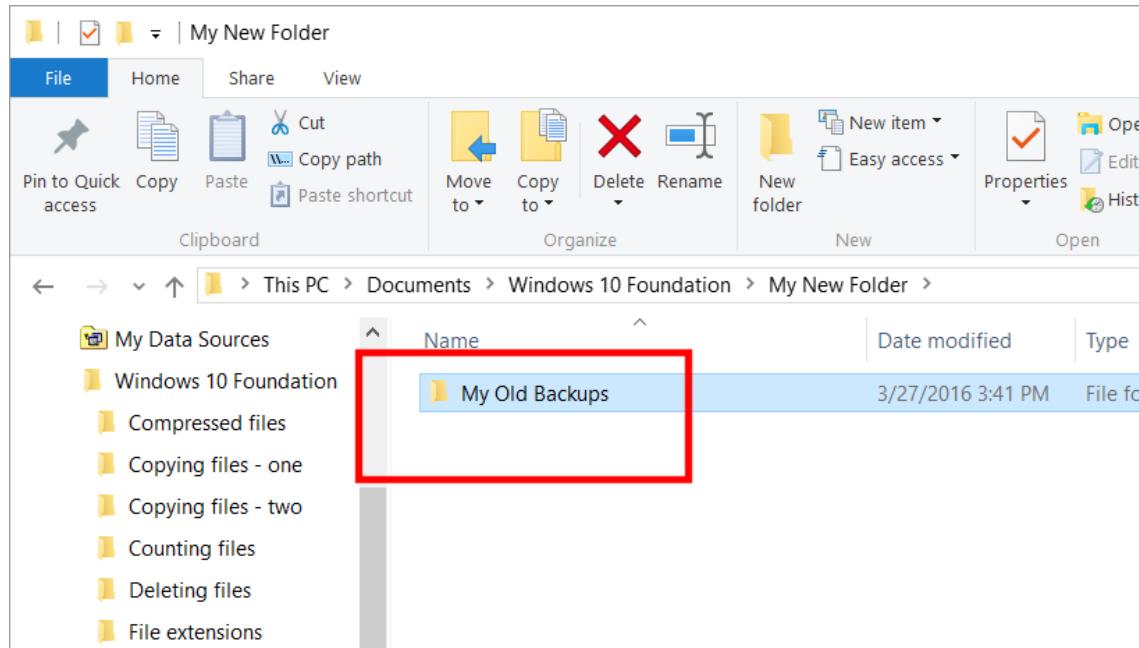
**TIP:** If this does not work, simply click on the folder to select it, wait a moment and clicking again.



**NOTE:** This is called editing mode. You can edit the file name by typing in a new

name.

- Type in **My Old Backups** for the new folder name. When you press the **Enter** key you will see the following.

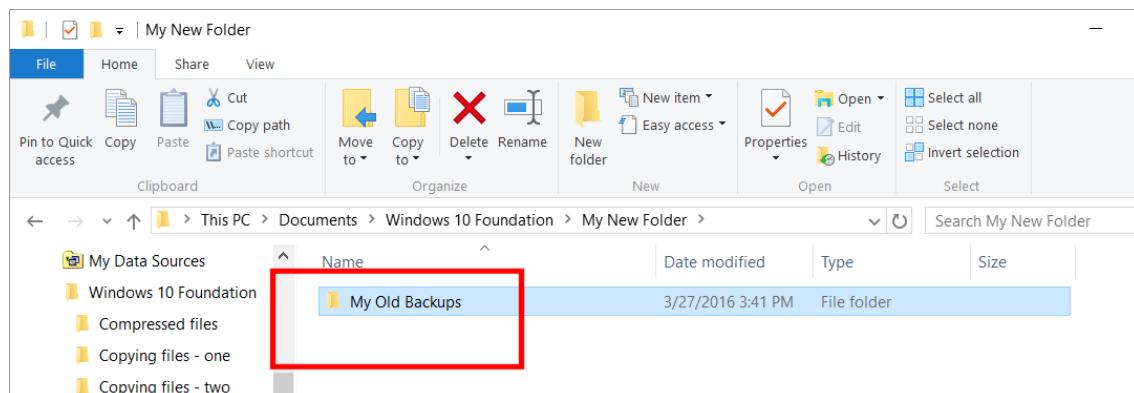


**TIP:** You can use the same technique to rename files.

## Deleting a folder

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- Select the folder called **My Old Backups**.



- Press the **Del** key and the folder will be deleted.

**TIP:** The folder is not actually deleted; it is moved to the Recycle Bin. If you realize that you have accidentally deleted the wrong folder or file, or if you simply change

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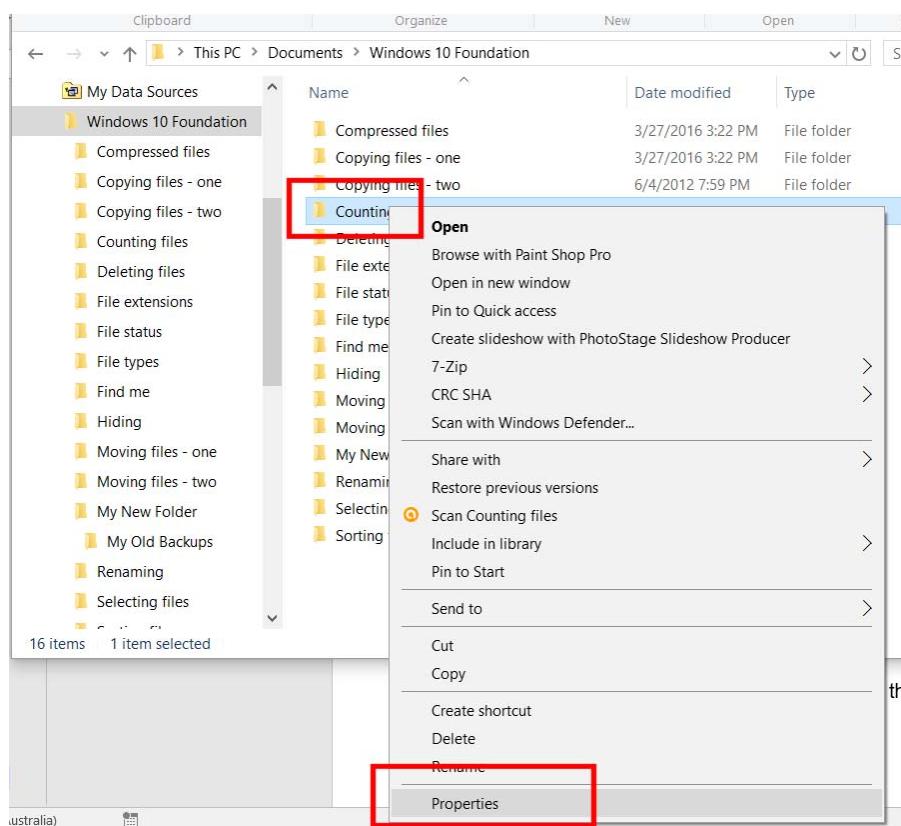
your mind, you can normally retrieve the deleted item from the Recycle Bin.

**WARNING:** Files are not held in the Recycle Bin forever and in some cases when you delete a file it may be permanently deleted and not even go to the Recycle Bin. Be very carefully about deleting folders and files. If in doubt do not delete!

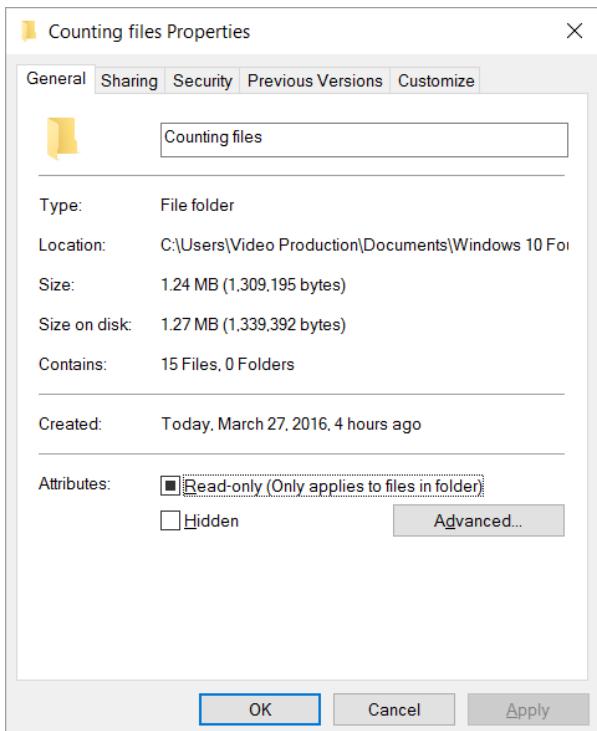
We will see more about the Recycle Bin later.

## Displaying folder details

- Move the mouse pointer over a folder called **Counting Files**.
- Right click over this folder and from the popup menu displayed click on the **Properties** command.



- This will display the **Properties** dialog box for the selected folder.

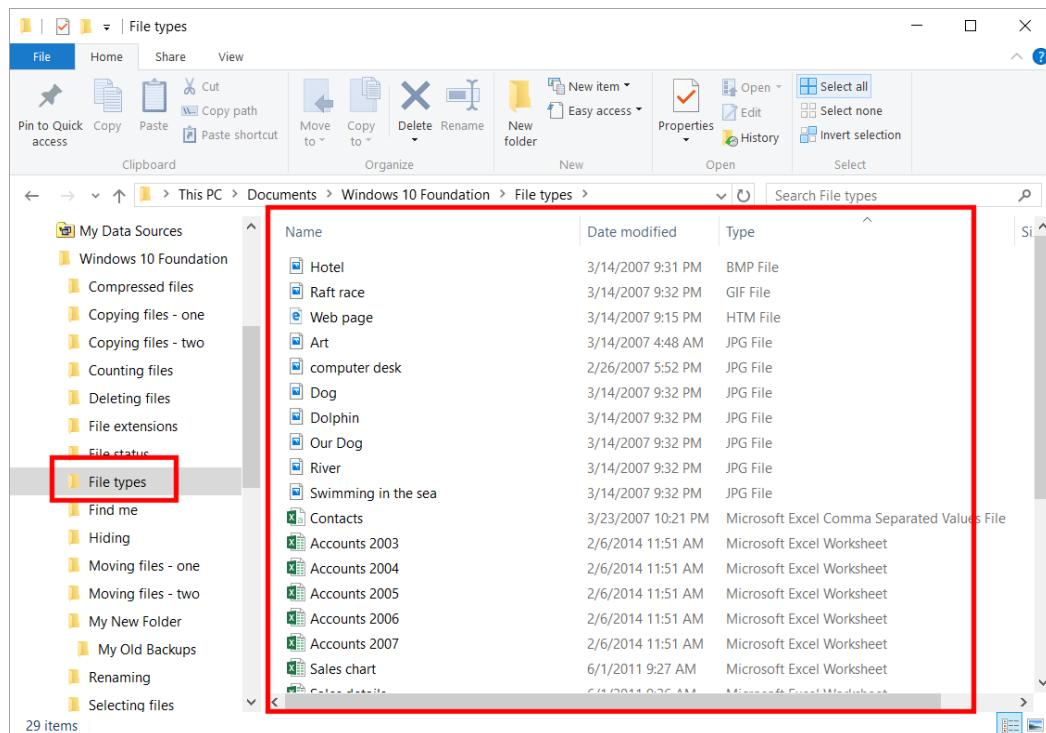


- Examine the details displayed.
- Close the dialog box before continuing.

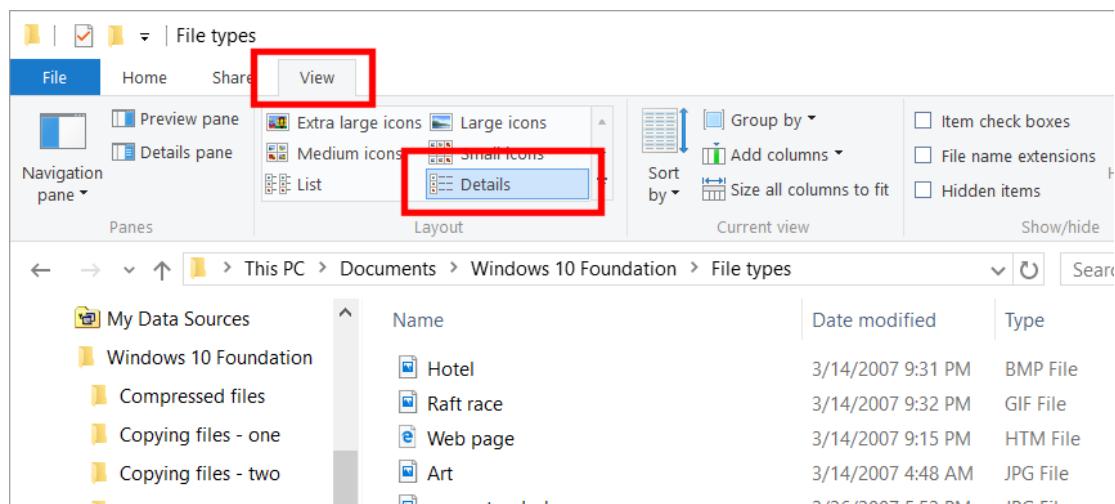
# Manipulating Files

## File Types

- Display the contents of the **File Types** folder.



- This folder contains a range of different file types.
- Make sure that the files are displayed using the **Details** view.



- Common file types include.

**Application (executable) files:**

These are files that contain programs which you can ‘run’. If you select an executable file within the File Explorer and double click on it, the program will be run. There are many different types of executable files. Mostly we will be interested in running application program files that contain our programs, such as a word processor or a spreadsheet program. Do not confuse the executable files with the data files.

**Text Documents:**

As the name suggests text documents contain only text. No pictures or formatting information can be stored in a text-only file.

**Bitmap Images:**

This is a type of picture format.

**GIF Images:**

This is a type of picture format.

**JPEG Images:**

This is a type of picture format.

**Microsoft Office Word Documents:**

These are documents created using the Microsoft Word, word processing program.

**Microsoft Office Excel Worksheet:**

These are documents created using the Microsoft Excel spreadsheet program.

**Microsoft Office PowerPoint Presentation:**

These are documents created using the Microsoft PowerPoint presentation program.

**Microsoft Office Access Database:**

These files are created using the Microsoft Access Database program.

**HTML documents:**

These are documents formatted for display on a Web site.

**Zipped (compressed) files:**

These are compressed files. You compress files to save disk space or to make them smaller when you send them as an email attachment.

**Adobe Acrobat PDF files:**

PDF is short for Portable Document Format. This format was introduced by a company called Adobe and can be created by a program called Adobe Acrobat. The

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idea of PDF files is that you can create files with your own particular make and version of software, such as a word processor or spreadsheet and then save the file as a PDF formatted file. This PDF file can then be viewed by anyone using a free PDF reader, such as the Adobe Acrobat Reader program. To put it another way, if someone produces some artwork in a program such as Adobe Photoshop, they can save the file in PDF format, send it to you and you can then view the file, without the need to have the Photoshop program installed on your computer. PDF files are a way of exchanging documents. There are many other products that will create PDF files for you as well as the full versions of the Adobe Acrobat program. Often you can create PDF files which have a much smaller files size compared to the original format. This makes PDF files ideal for storing documents on a web site, or for attaching as files to emails.

**Audio files MP3:**

There are files that store sound, normally music or speech. The icon used to display these files will vary according to what programs you have installed to play your music files.

**Video files: AVI, Video files - MPG & WMV (Windows Media Video)**

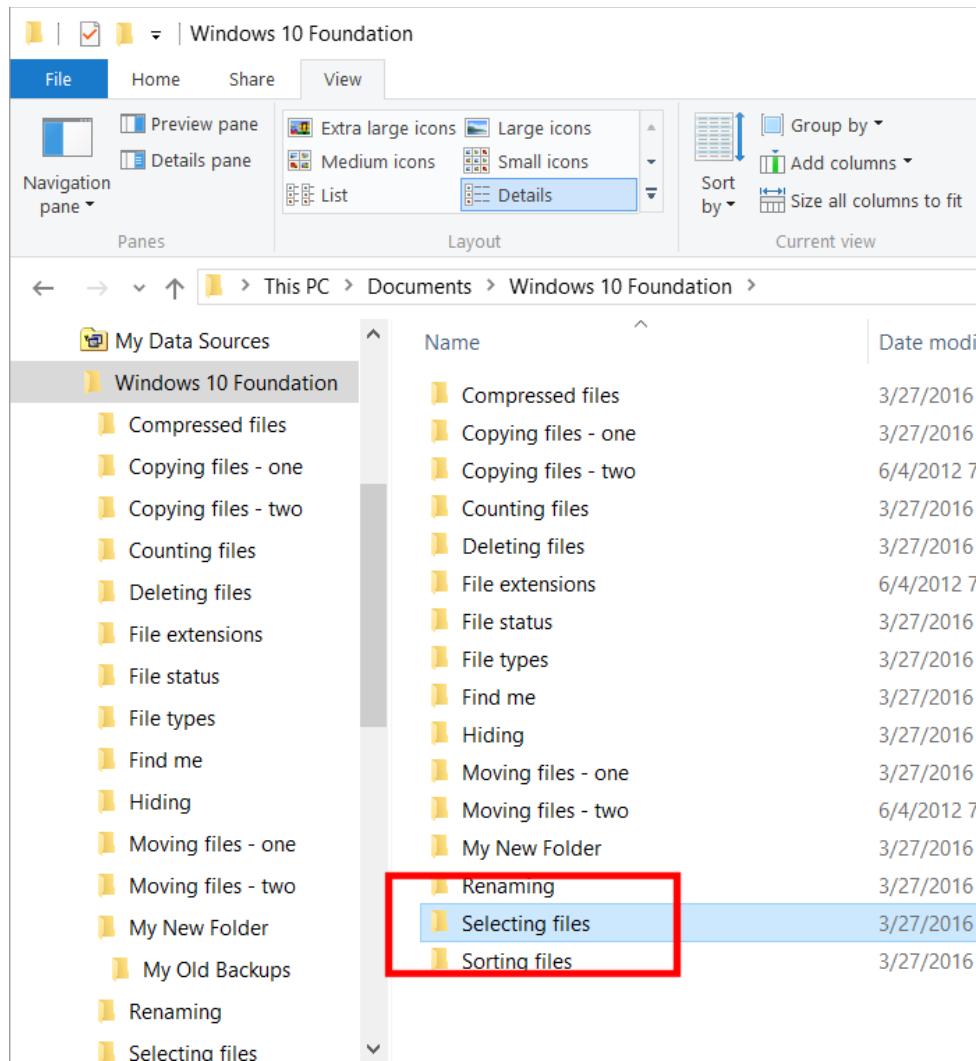
These are different types of file formats used to store Video. The icon used to display these files will vary according to what programs you have installed to play your video files.

**Temporary files:**

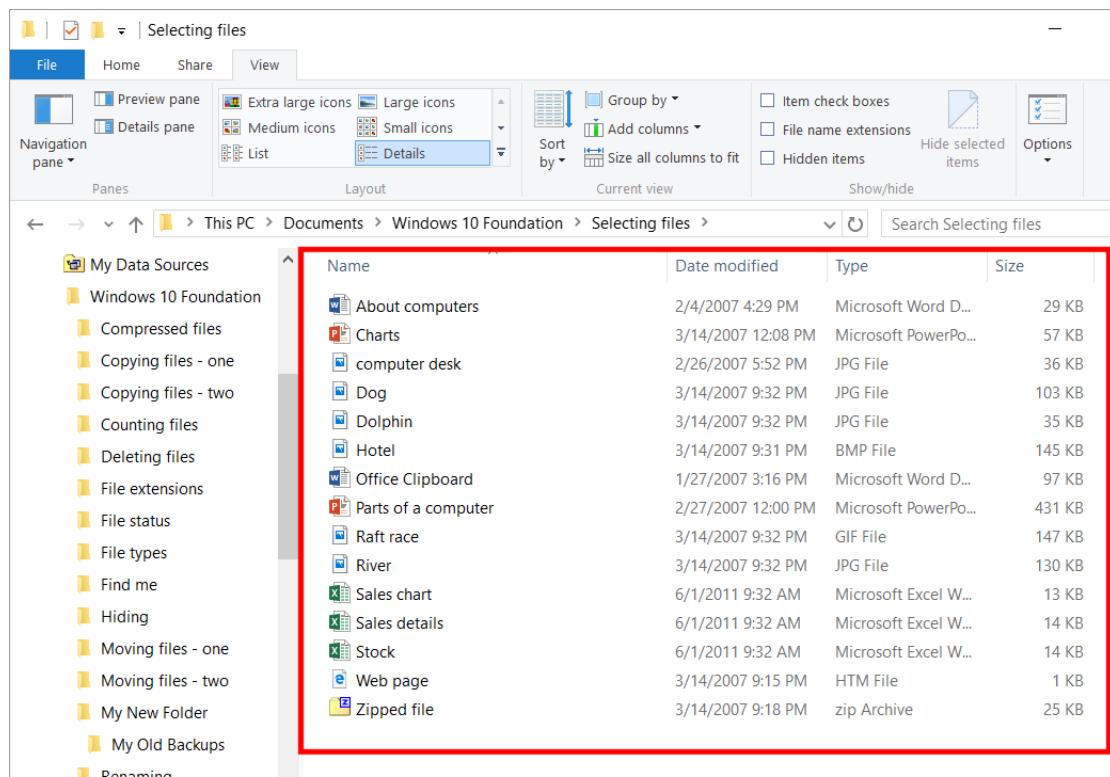
These files, as the name implies, are normally created as temporary files which are deleted after use. Both Windows and application programs can create temporary files which are used to store information on a temporary basis and which are deleted when they are no longer used. If the computer crashes, you may find that some files which were meant to be temporary are present as they were not automatically deleted.

**Selecting multiple files**

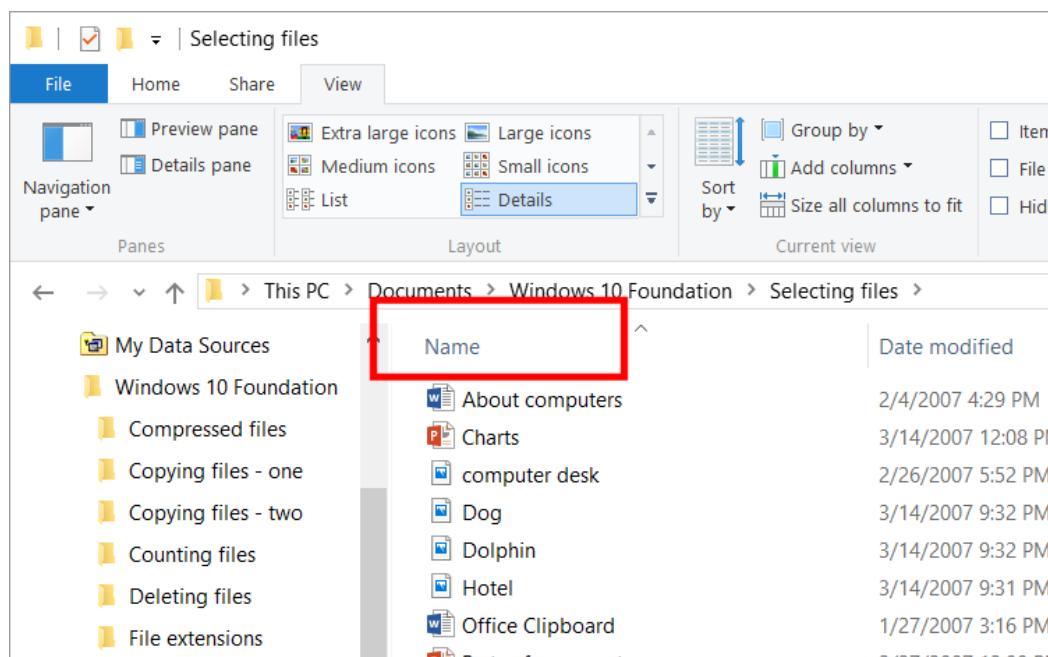
- Display the contents of the folder called **Selecting files**.
-



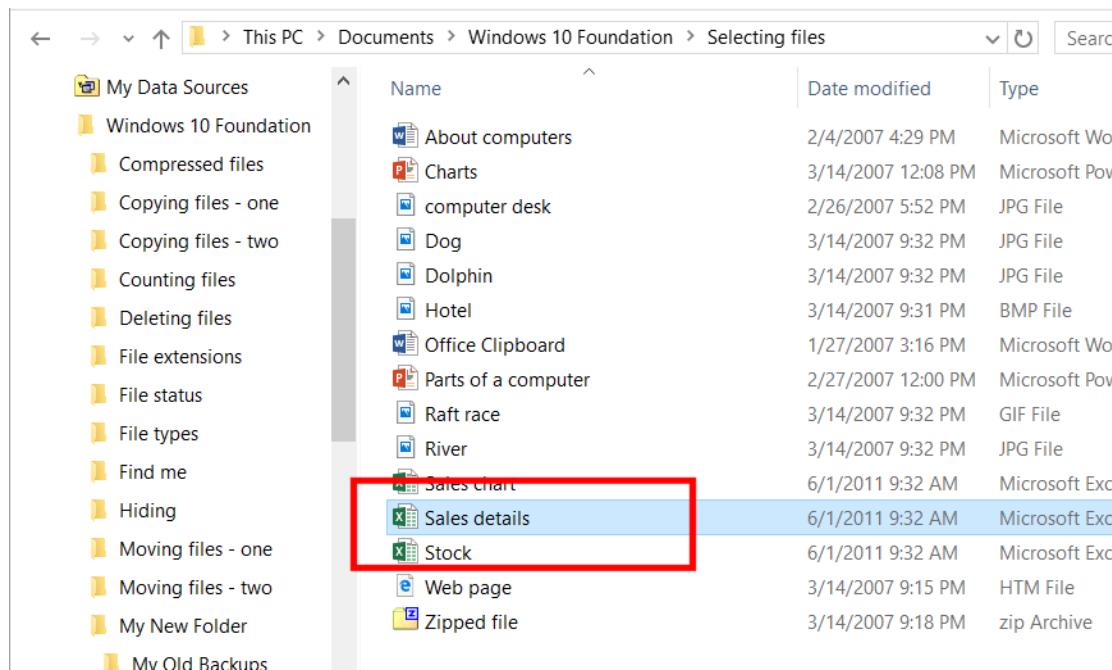
- You will see the following files displayed.



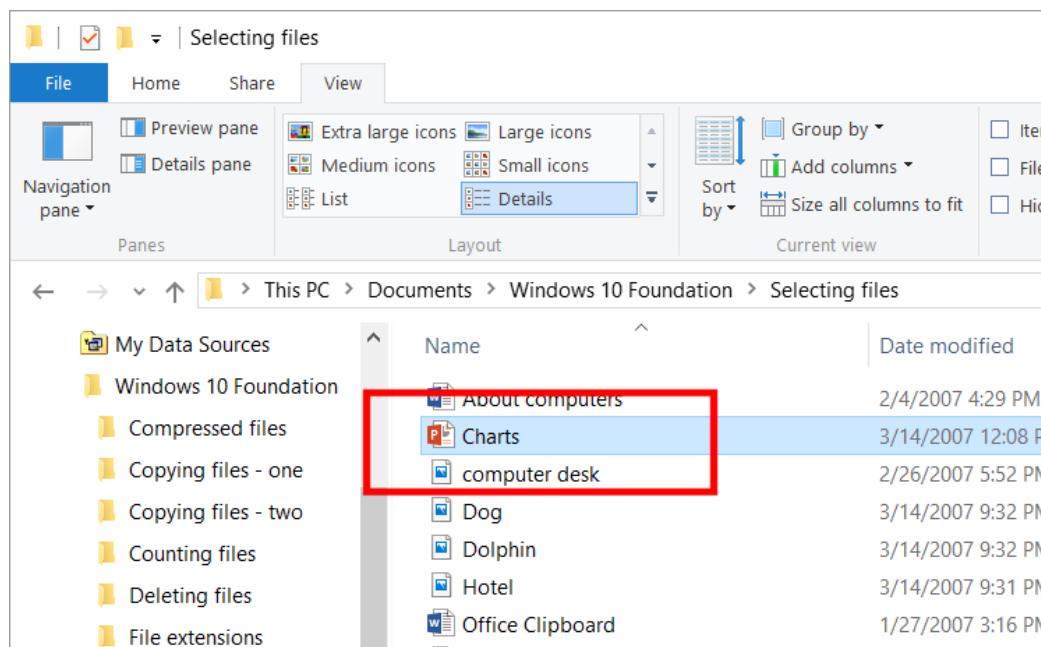
- If necessary, click on the **Name** header so that the files are displayed in ascending alphabetical order.



- Click on the file called **Sales details**. This will select that file, as illustrated.



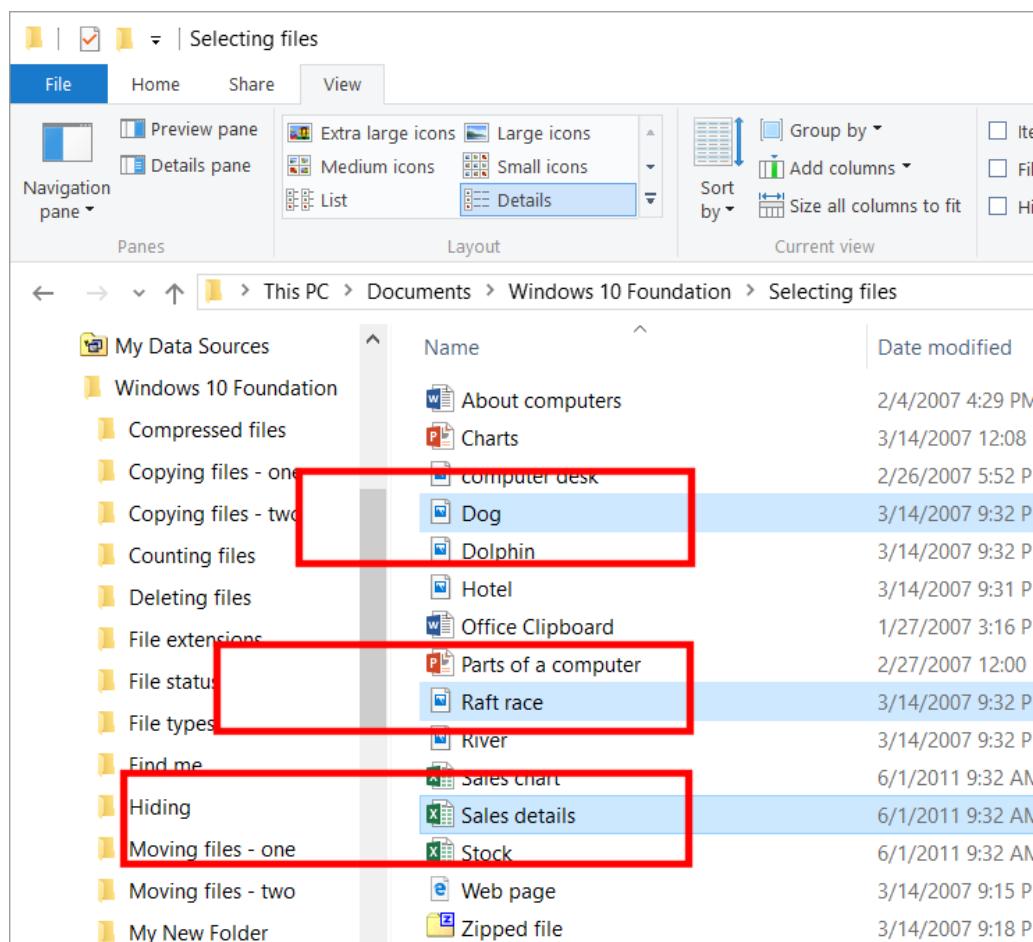
- Click on another file, such as **Charts**. The second file will be selected and the first file de-selected, as illustrated.



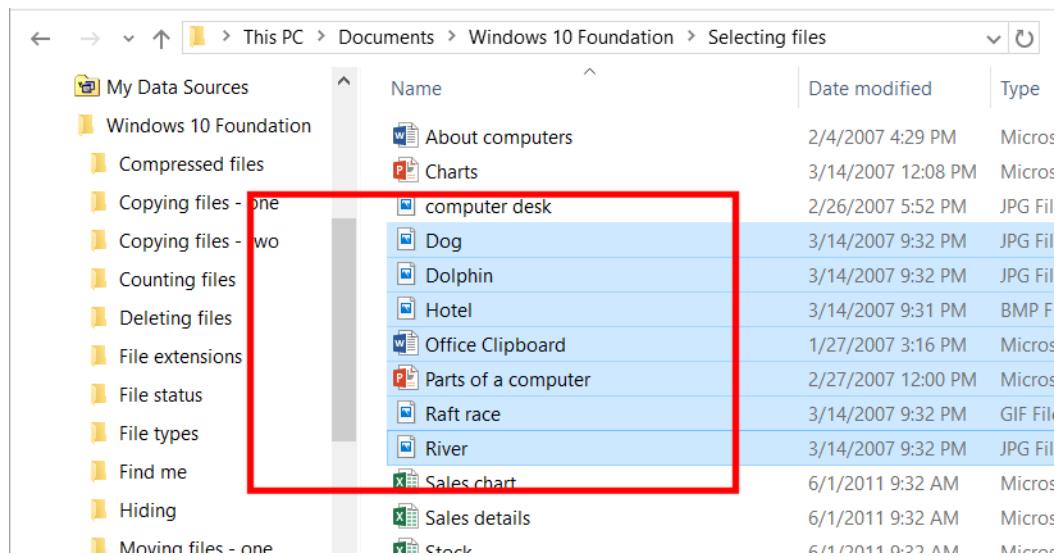
**TIP:** Selecting multiple files is useful as once you have selected multiple files, you can manipulate all the selected files at the same time, rather than one file at a time.

- To select more than one file you need to use a trick.
- Click on the file called **Dog**. Then press the **Ctrl** key (and keep it pressed).

- Then click on the file called **Sales Details**.
- Finally click on a file called **Raft race**. Release the **Ctrl** key and all three files will remain selected, as illustrated.



- Click on a different file and the multiple files are no longer selected.
- Sometimes you may wish to select a block of files that are displayed next to one another. To do this we use a different trick.
- Click on the file called **Dog**. Press the **Shift** key and keep it pressed.
- Click on the file called **River** and then release the **Shift** key.
- All the files between the first and second file that you clicked on remain selected, as illustrated.



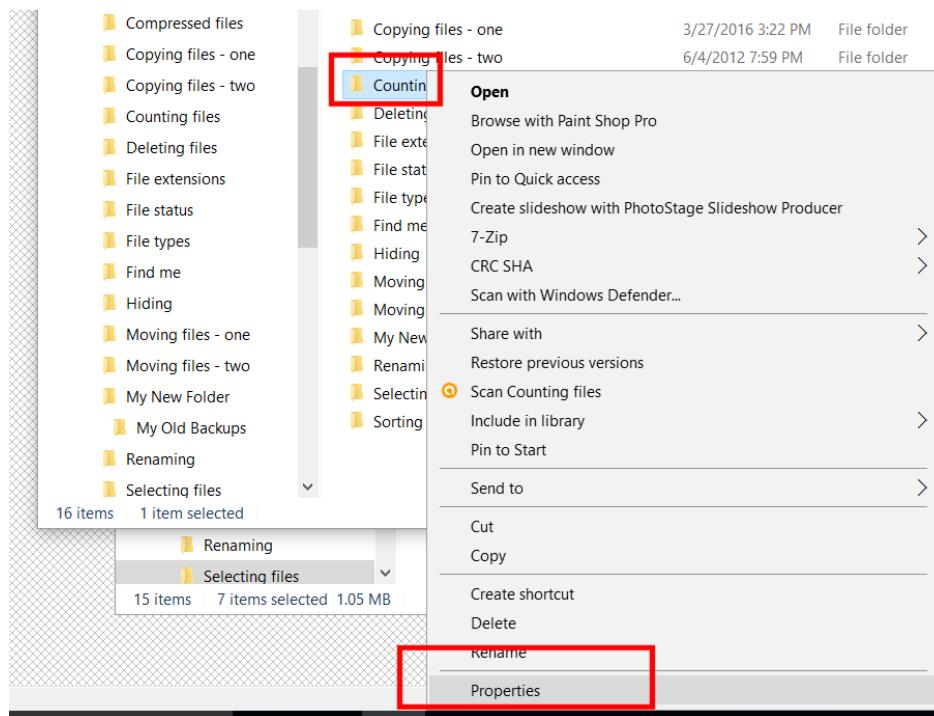
- Click on a different file and the multiple files are no longer selected.

**TIP:** These tricks using the **Shift** or **Control** keys also work when selecting multiple folders.

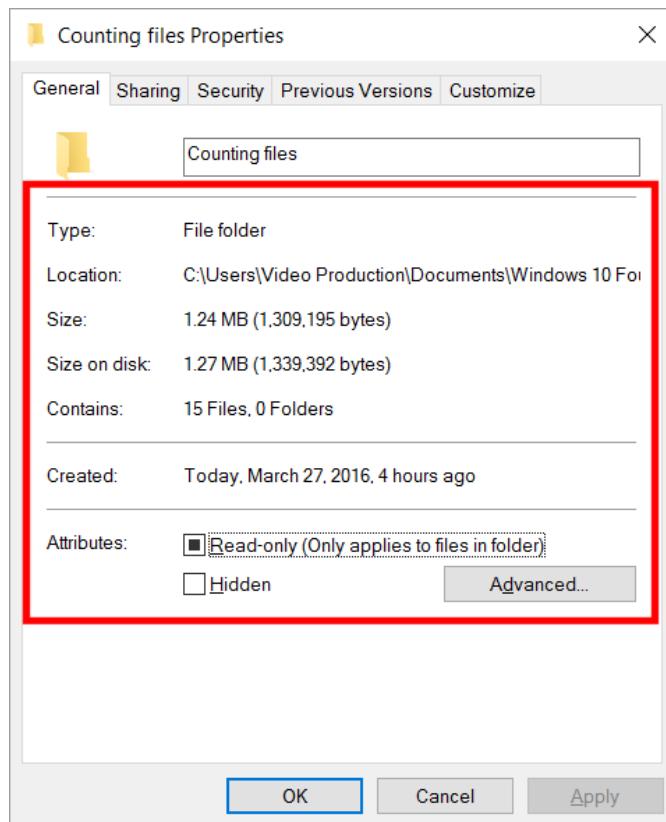
### Counting files in a folder

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- Display the folder called **Counting files**.
- Right click over this folder and from the popup menu displayed, click on the **Properties** command.

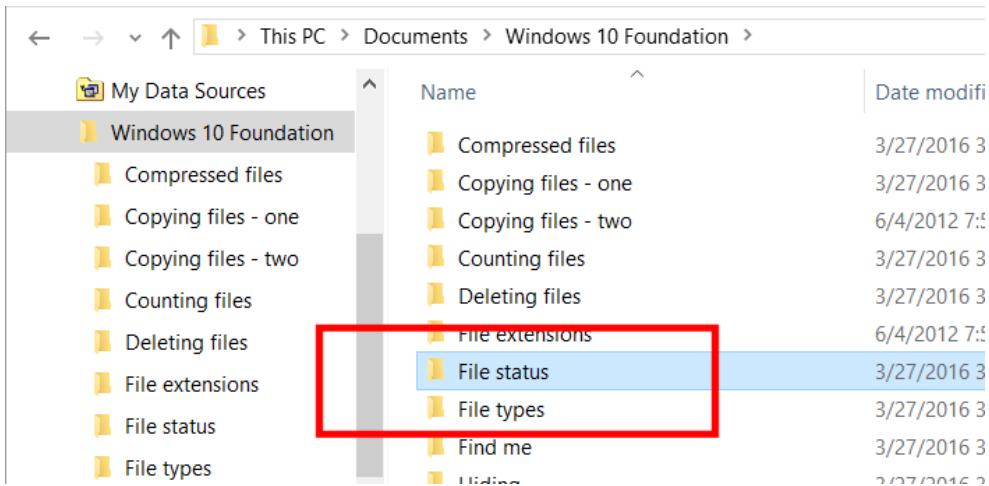


- You will see information displayed about the folder, including the number of files contained within the folder.

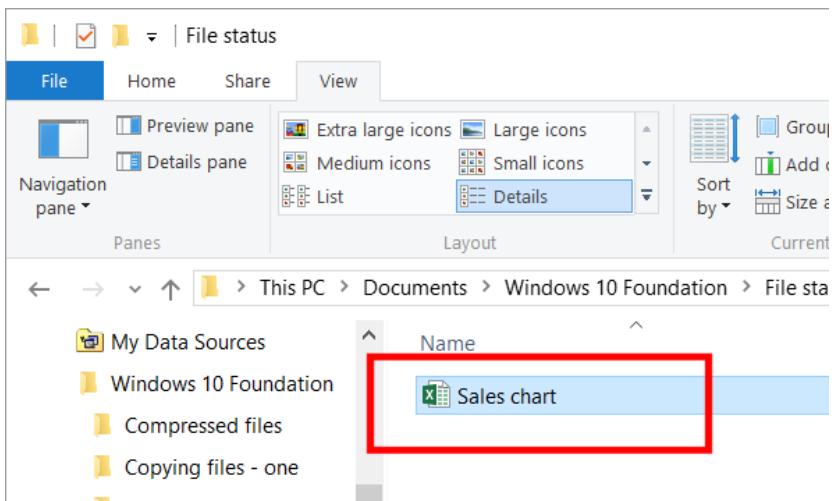


## File attributes

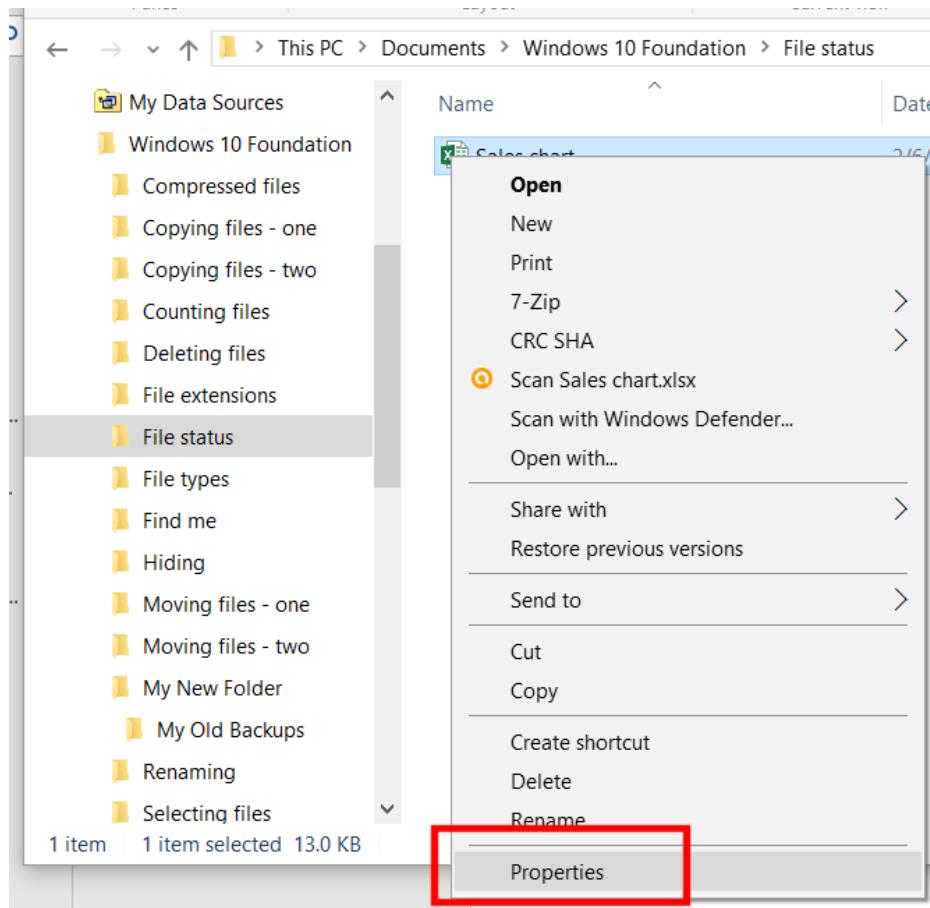
- Display the contents of the folder called **File status**.



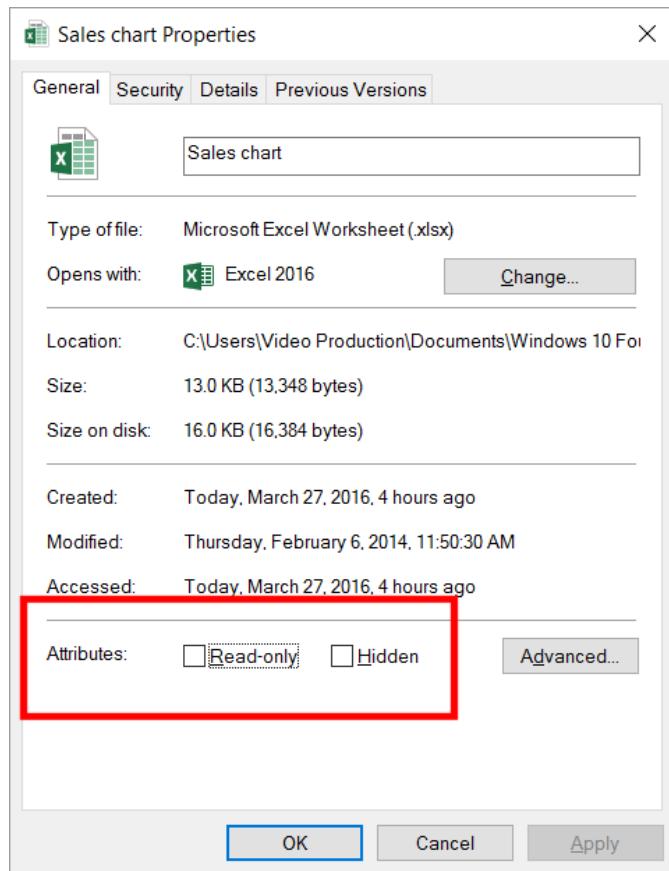
- Click on a file within the folder, called **Sales chart**.



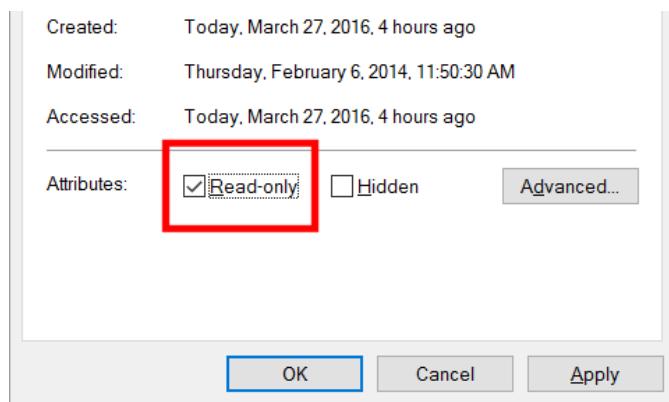
- Right click on this file and from the pop-up menu displayed select the **Properties** command.



- This will display the **Properties** dialog box for the selected file.



- In the **Attributes** section of the dialog box you can click on the **Read-only** check box.



- This will mark the file as read-only. Try it now and then press the **OK** button to confirm the action.

**NOTE:** If you make a file read-only you can still delete the file (by selecting it and pressing the **Del** key). However, if you were to open the file it would open without any problem, but if you edited the file you would have to save the file using a

different file name as the original file is marked read-only.

- Use the same technique to mark the file read/write again, after closing the Properties dialog box, re-open the dialog box to confirm this change. Close all open dialog boxes before continuing.

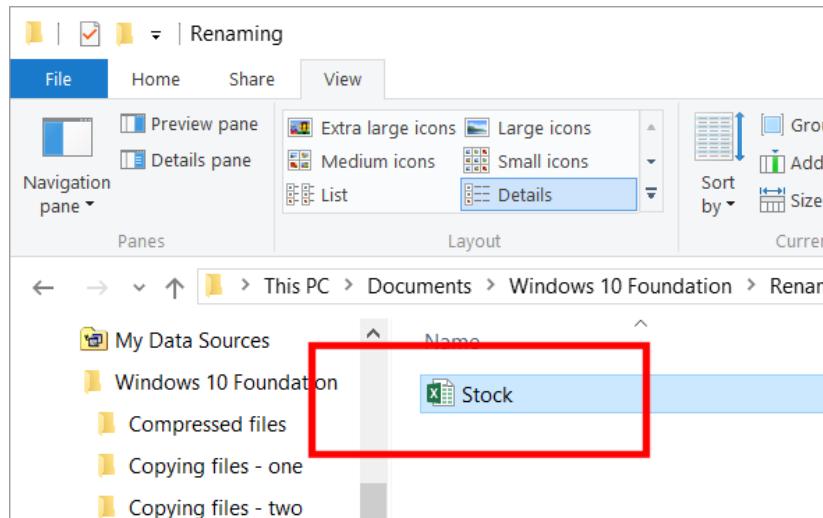
## Renaming files

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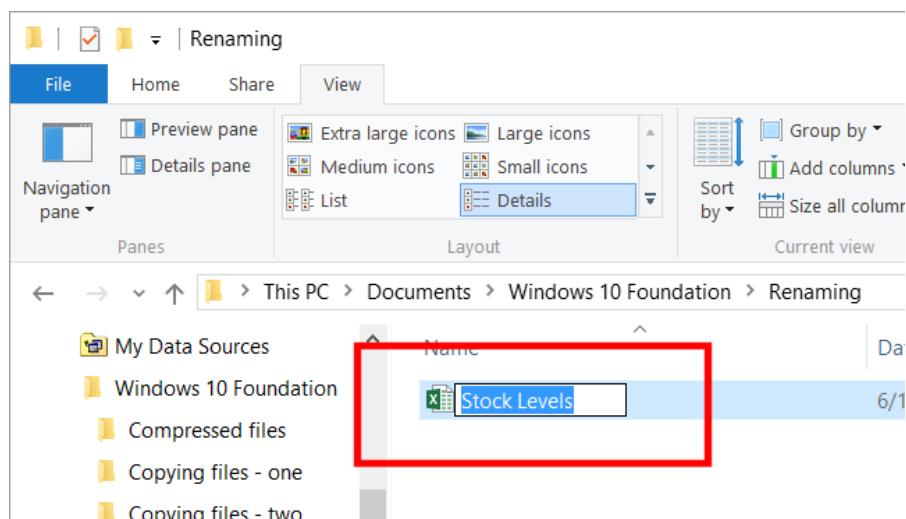
- Display the contents of the folder called **Renaming**.

Name	Date nr
Compressed files	3/27/21
Copying files - one	3/27/21
Copying files - two	6/4/20
Counting files	3/27/21
Deleting files	3/27/21
File extensions	6/4/20
File status	3/27/21
File types	3/27/21
Find me	3/27/21
Hiding	3/27/21
Moving files - one	3/27/21
Moving files - two	6/4/20
My New Folder	3/27/21
Renaming	3/27/21
Selecting files	3/27/21
Sorting files	3/27/21

- This folder contains a single file, called **Stock**.



- Select the file called **Stock**. Press the **F2** key and type in a new file name called **Stock Levels**. Press the **Enter** key to confirm the file renaming.



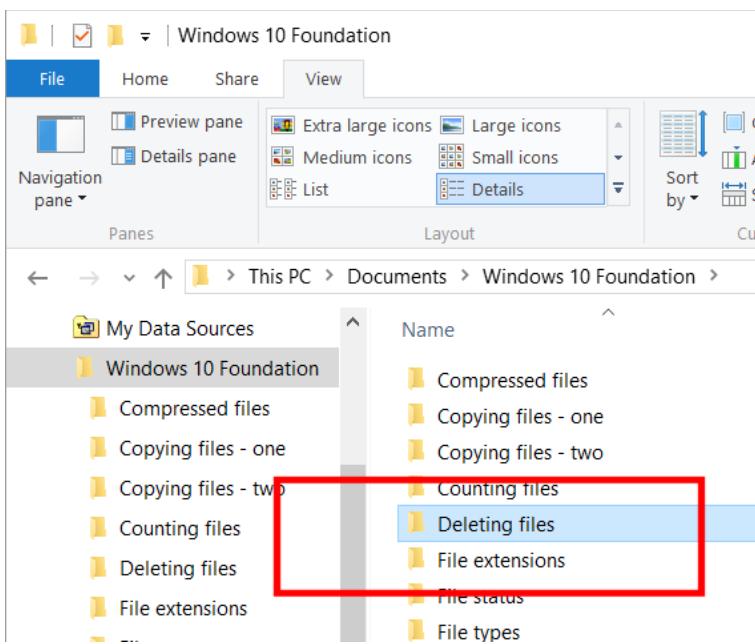
**NOTE:** Normally you just see the file name without what is called the file name extension. The file name extension is normally 3 or 4 letters, preceded by a dot (period). For instance, a text-only file has a file name extension of .TXT.

**WARNING:** To keep the display simple and uncluttered the file name extensions are not normally displayed within the File Explorer. If you do see the file name extension displayed, **be very careful not to alter the extension** when you are renaming a file.

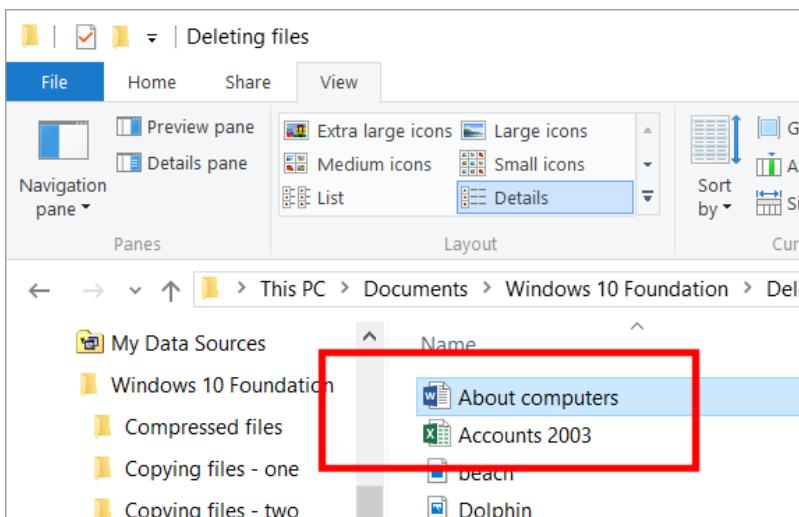
Windows can use the file name extension to tell what sort of file type a particular file is. If you change the extension Windows may no longer understand how to process a particular file.

## Deleting files

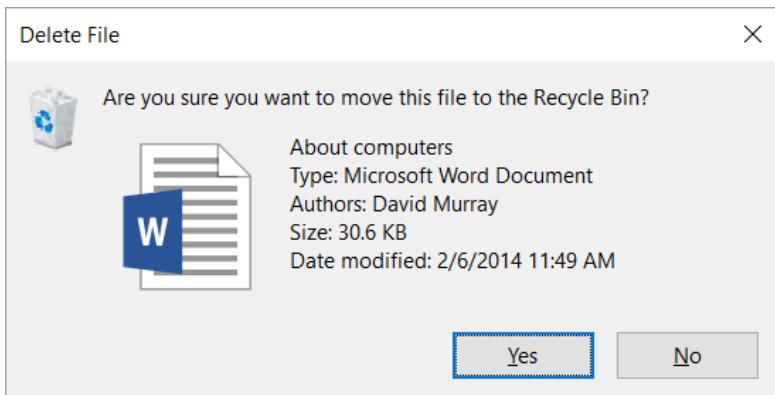
- Display the contents of the folder called **Deleting files**.



- Select the file called **About computers**.



- Press the **Del** key to delete the file. Confirm your deletion.



**NOTE:** When you delete a file, by default the file is actually moved to the Recycle Bin, rather than permanently deleted. You can later permanently delete it from the Recycle Bin, or if you deleted a file by accident, you can retrieve the file from the Recycle Bin.

**TIP:** If you wish to delete a file completely rather than send it to the Recycle Bin, press the **Shift** key while you are deleting the file. **Use this trick with caution as you will NOT be able to recover the file once you have deleted it!**

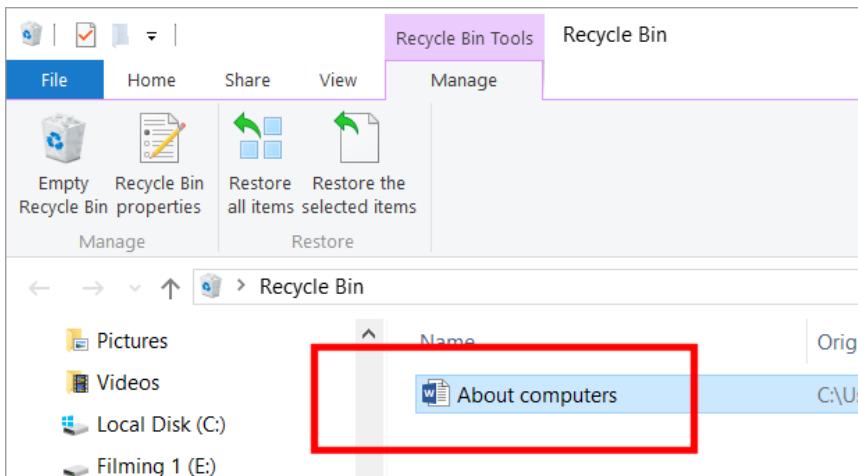
### **Restoring items from the Recycle Bin**

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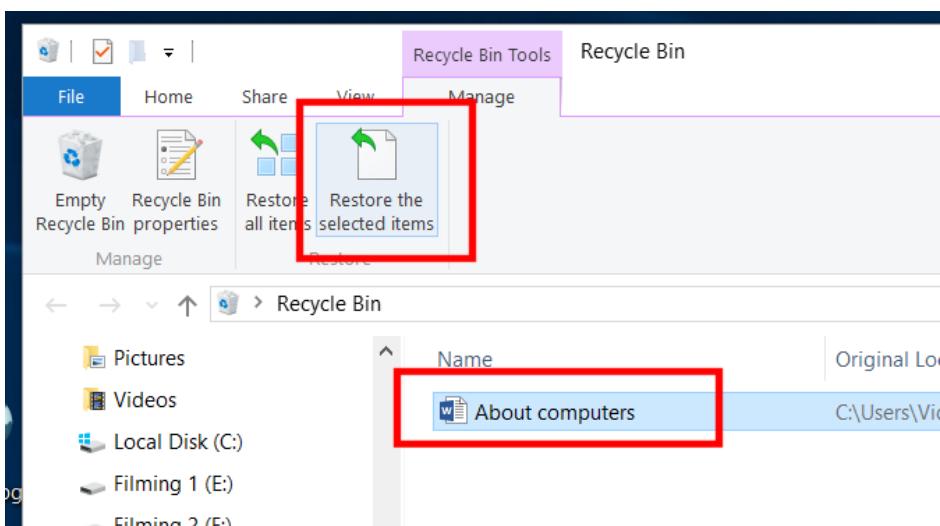
- Display the Desktop and minimize any open windows.
- Double click on the **Recycle Bin**



- You will see the Recycle Bin displayed.



- To restore an item from the Recycle Bin first select it and then click on the **Restore the Selected Items** button.

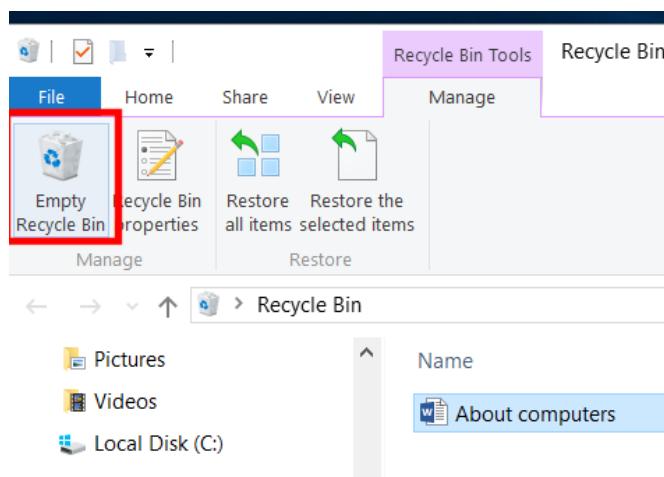


**TIP:** You may see lots more files contained within the Recycle Bin. If so ignore the other files, just concentrate on the file you have just deleted.

- The file will no longer be displayed within the Recycle Bin. Close the Recycle Bin.
- You should see the file once again displayed within the File Explorer window.

## Emptying the Recycle Bin

- Experiment with deleting more files within the **Deleting files** folder. Open the Recycle Bin. If you want to permanently remove files from the Recycle Bin rather than restoring them (i.e. un-deleting them), then click on the **Empty the Recycle Bin** button displayed within the Recycle Bin window.



### Permanently deleting a file (bypassing the Recycle Bin)

- If you wish to delete a file completely rather than send it to the Recycle Bin, press the **Shift** key while you are deleting the file. **Use this trick with caution as you will NOT be able to recover the file once you have deleted it!**

### Sometimes deleted files are too large to be recycled

- You should know that especially if you are using portable thumb drives or memory sticks, that when you delete a file you may see an error message warning you that the file is too large in fit into the Recycle Bin, in which case if you go ahead and delete the file then you cannot change your mind later.

### The Windows Clipboard

- The Windows Clipboard is an area of memory used for moving or copying items from one place to another. There are a number of Clipboard related keyboard shortcuts which you should memorize.

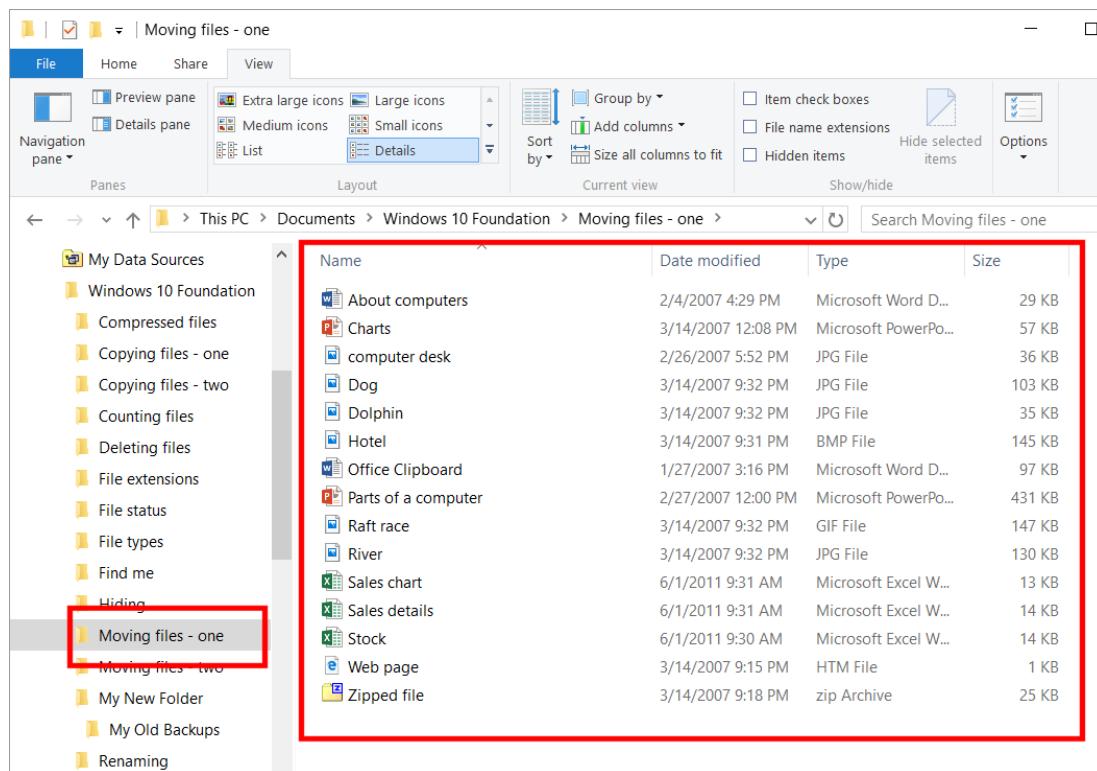
**Ctrl+X** - Moves the selected item to the Clipboard.

**Ctrl+C** - Copies the selected item to the Clipboard.

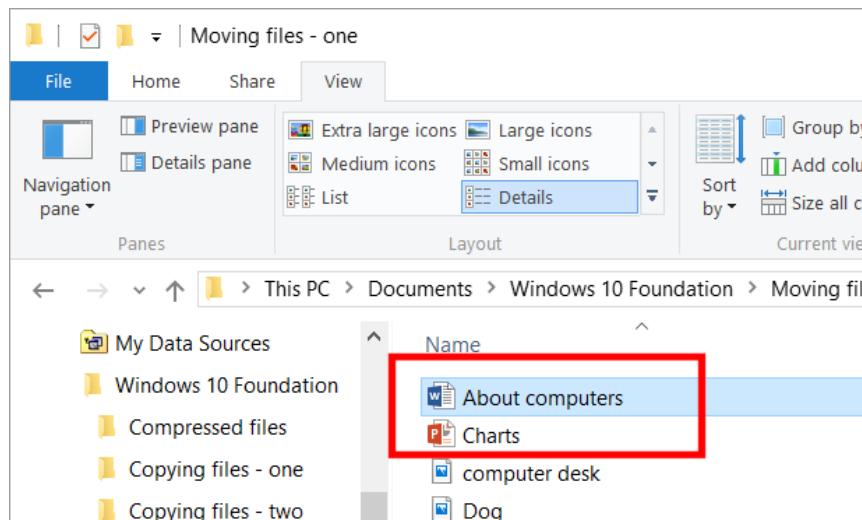
**Ctrl+V** - Pastes the item from the Clipboard.

### Moving files between folders

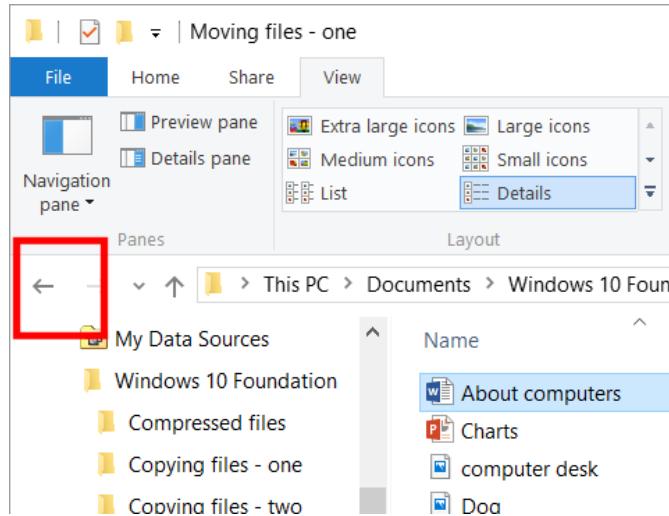
- If necessary open the File Explorer.
- Display the contents of the folder called **Moving files - one**.



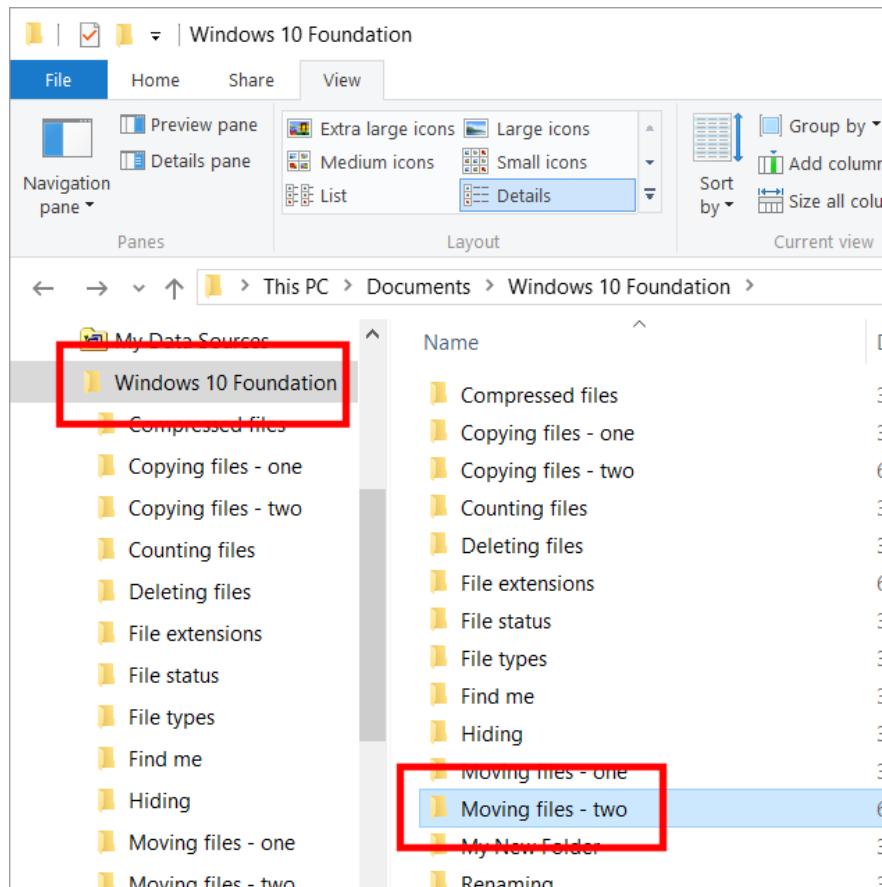
- Select a file called **About computers**.



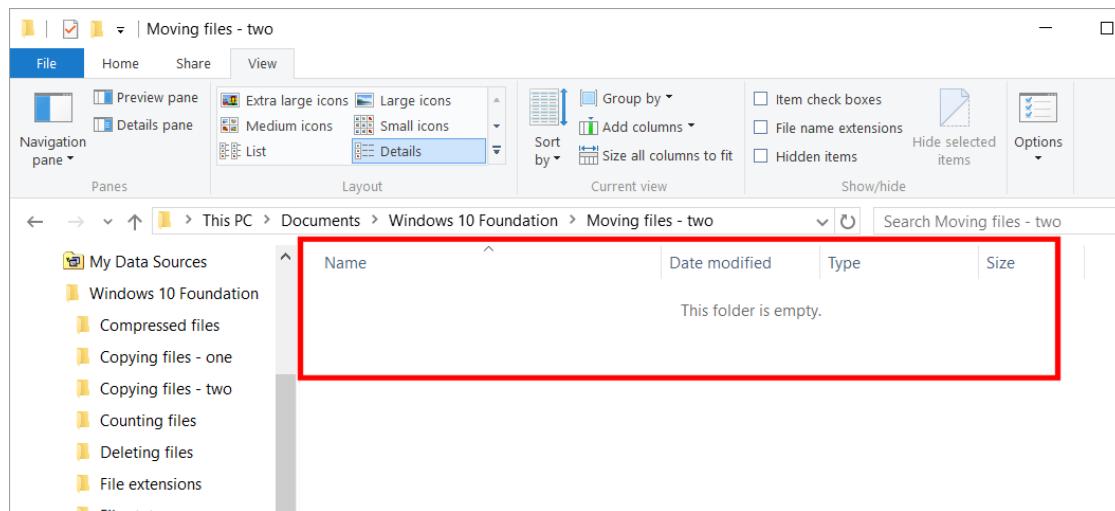
- Press **Ctrl+X**. This cuts (i.e. moves) the selected file to the Clipboard.
- Click on the **Back** button (top-left of the window) to return to the **Windows 10 Foundation** folder.



- Double click on the **Moving files – Two** folder.



- You will see the contents of the second folder displayed. As you can see this folder does not contain any files.



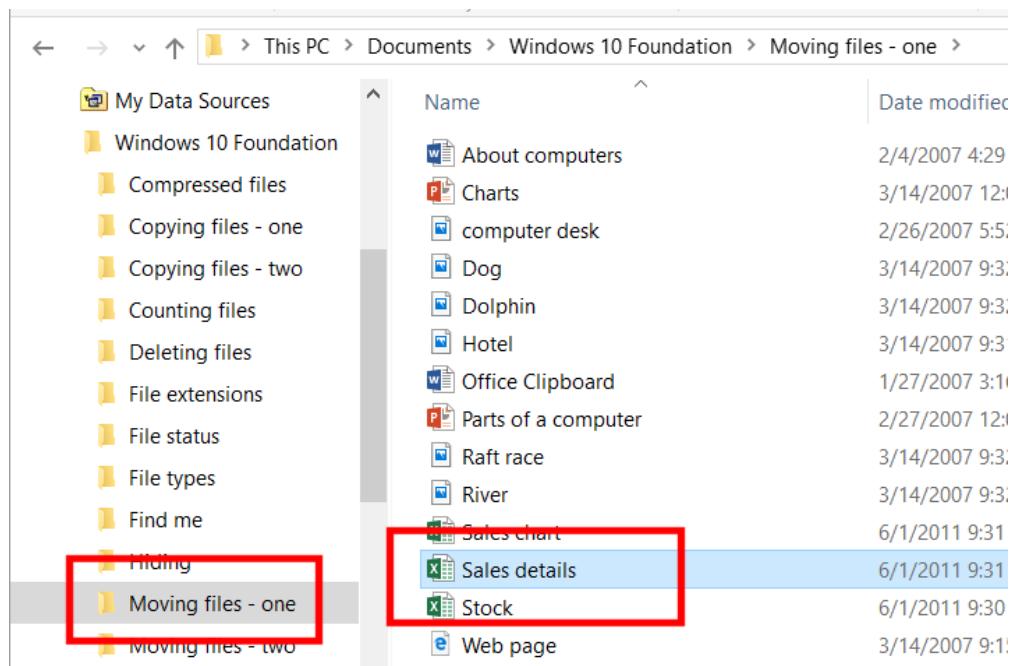
- Press **Ctrl+V**. This will paste the contents of the Clipboard to the selected folder. You will now see that the file that you cut has been moved to this second folder.
- Switch back to the original folder to verify that the file has been moved, not copied.
- Experiment with selecting multiple files and moving them from one folder to another.

**TIP:** You can use the same technique for moving entire folders from one place to another.

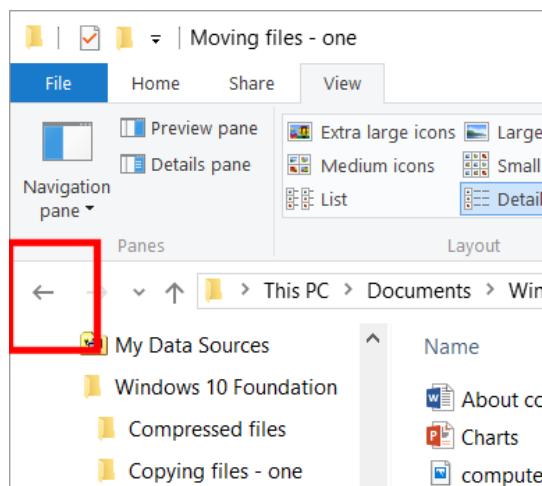
**TIP:** You can use the same technique for moving a file from a folder on one disk to a folder on another disk.

## Copying files between folders

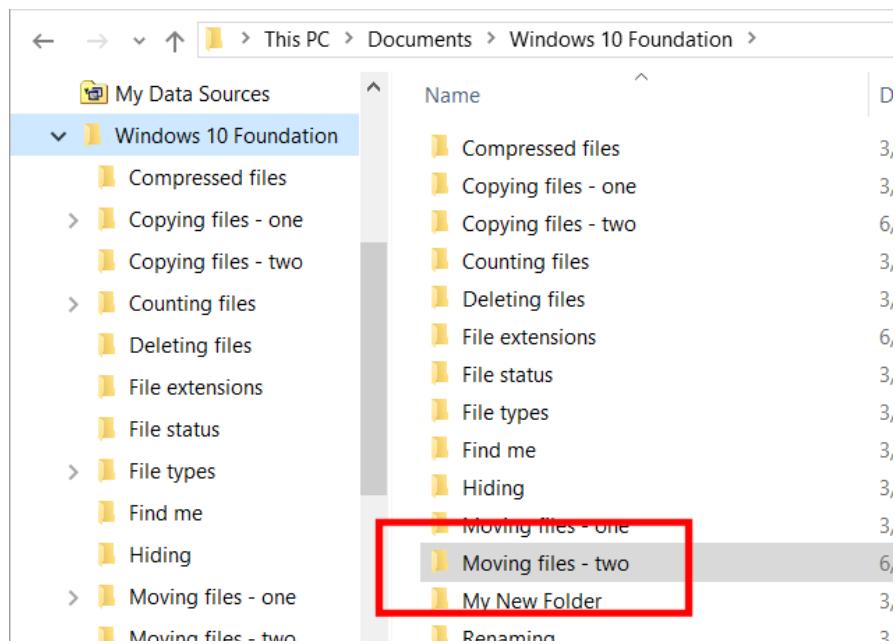
- Display the contents of the folder called **Moving files - one**.
- Select a file called **Sales Details**.



- Press **Ctrl+C**. This copies the selected file to the Clipboard.
- Click on the **Back** button (top-left of the window) to return to the **Windows 10 Foundation** folder.



- Double click on the **Moving files – Two** folder.



- You will see the contents of the second folder displayed.
- Press **Ctrl+V**. This will paste the contents of the Clipboard to the selected folder. You will now see that the file has been copied to this second folder.
- Switch back to the original folder to verify that the file has been copied, not moved.
- Experiment with selecting multiple files and copying them from one folder to another.

**TIP:** You can use the same technique for copying entire folders from one place to another.

**TIP:** You can use the same technique for copying a file from a folder on one disk to a folder on another disk.

## Backups

- Within a business environment you will normally use a computer that is connected to a network. In many cases your important data files will be automatically backed up for you and stored securely elsewhere on the network. You need to check with your IT support people that backups are performed automatically.
- In many small businesses or organizations little or no attention is given to the need to back up your data, until the day your computer breaks down or gets stolen, at which point you may have lost years of data.
- If the data you produce is important, it is your responsibility to make sure that it is regularly backed up.

- You can back-up across a network or to a removable device attached to your computer. You can copy your files to a CD or DVD disk and then store these safely. Alternatively, you may have the facility to back up to a tape device. Many people backup data to so called ‘memory sticks’. Memory sticks are small devices you can plug into your computer sockets, within the File Explorer they look just like a normal drive and have a drive letter assigned to them.
- Whatever backup method you use, there are three basic principles when it comes to backups.

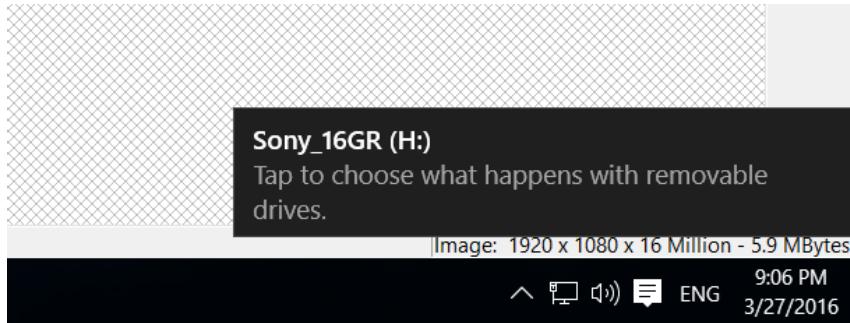
**Offsite storage:** It is no use backing up your data to say a DVD, and leaving the backup copies next to your computer. If your computer gets stolen, chances are the backup disks will also get stolen. Always store your backup offsite.

**Regular backups:** Perform separate backups on a regular basis. Even if one of the backups contains an error, the chances are that the rest will be OK.

**Check the backup:** Every so often just check that you can restore the backed up data to a computer. Do not overwrite the latest version of your data with an earlier version; just simply check that the backup mechanism has not been corrupted. Also check what has been backed up.

## Removable Memory Sticks - AutoPlay

- Insert the memory stick into one of the ‘USB’ sockets on your computer.
- You will see a message displayed in the top-right corner of your screen.



- Click on this message and you will see the following displayed.

## Sony\_16GR (H:)

Choose what to do with removable drives.



Configure this drive for backup  
File History



Configure storage settings  
Settings



Open folder to view files  
File Explorer



Take no action

- Click on the **Open folder to view files** option. This will display the contents of the memory stick within the File Explorer.

### Backing up data to a removable drive

- If necessary, insert the memory stick into one of the 'USB' sockets on your computer. You will see the **AutoPlay** window displayed.

## Sony\_16GR (H:)

Choose what to do with removable drives.



Configure this drive for backup  
File History



Configure storage settings  
Settings



Open folder to view files  
File Explorer

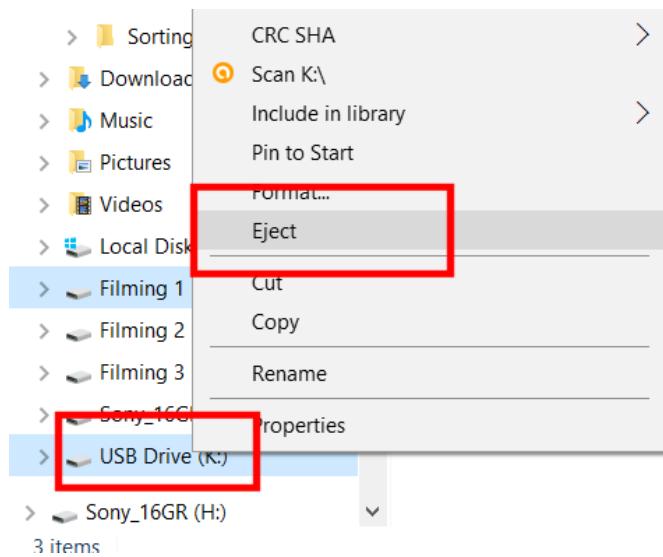


Take no action

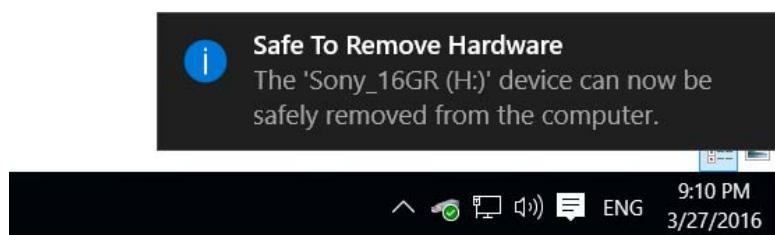
- Click on the **Open folder to view files** option. This will open the **File Explorer** allowing you to copy files to this device.
- You can select the files within one of your sample folders and press **Ctrl+C** to copy the file to the Clipboard.
- Select the removable drive and press **Ctrl+V** to paste the contents of the Clipboard to the removable drive.

## Safely ejecting a memory stick

- You should never just remove a memory stick as this can result in data that you have copied to, or from, the disk being lost or corrupted.
- Within the **File Explorer**, right click over the memory stick drive and from the pop-up menu displayed, select the **Eject** command.



- After a short delay you will see a message displayed telling you it is safe to remove the memory stick.



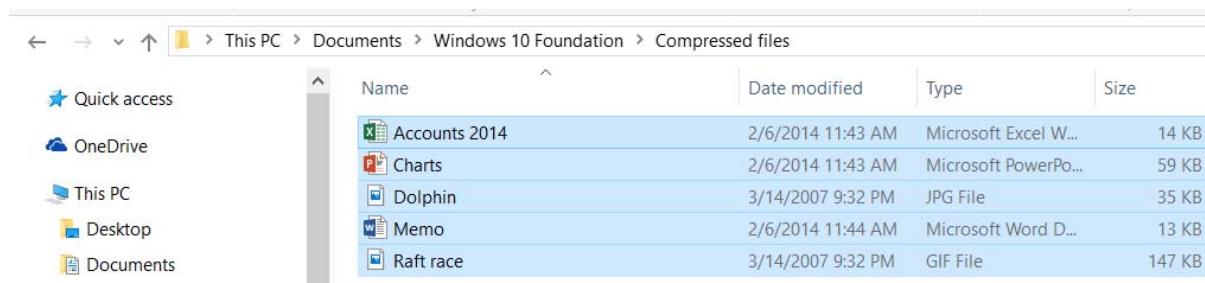
**NOTE:** The same procedure applies to disconnecting portable hard disk drives that you connect to your PC.

## What is file compression?

- File compression lets you make the size of files smaller. This is useful when you need to save space on a disk or when you are sending a file as an email attachment and you want to keep the size of your attachments as small as possible.
- There are many third-party programs that you can purchase to compress or uncompress files and folders, such as WINRAR, WINZIP and PKZIP. These offer more flexibility than the options built into Windows 10, but you need to purchase these for a small additional cost.
- If you have installed a separate file compression program this may affect the way, the compression features that are built into Windows 10 work. In the examples illustrated below, no third party file compression has been installed; all the work is being performed by Windows itself.

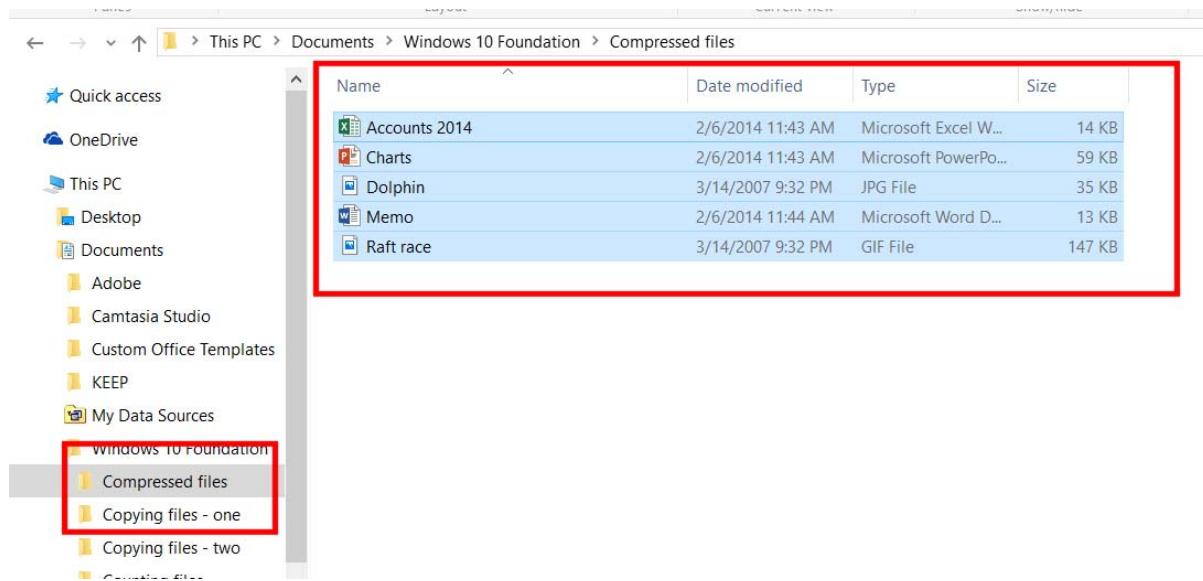
## Compressing files

- Within the **File Explorer**, display a folder called **Compressed Files**. This folder is located under the **Windows 10 Foundation** folder, which in turn is located under the **Documents** folder. As you can see this folder contains 5 files.

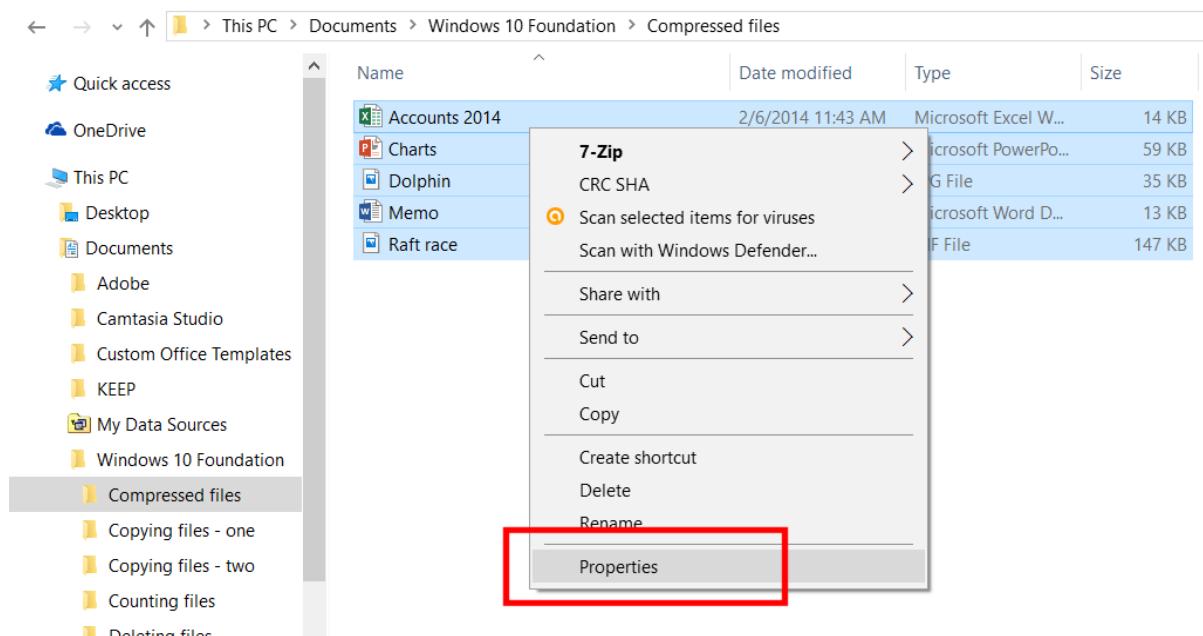


This PC > Documents > Windows 10 Foundation > Compressed files				
	Name	Date modified	Type	Size
Quick access	Accounts 2014	2/6/2014 11:43 AM	Microsoft Excel W...	14 KB
OneDrive	Charts	2/6/2014 11:43 AM	Microsoft PowerPo...	59 KB
This PC	Dolphin	3/14/2007 9:32 PM	JPG File	35 KB
Desktop	Memo	2/6/2014 11:44 AM	Microsoft Word D...	13 KB
Documents	Raft race	3/14/2007 9:32 PM	GIF File	147 KB

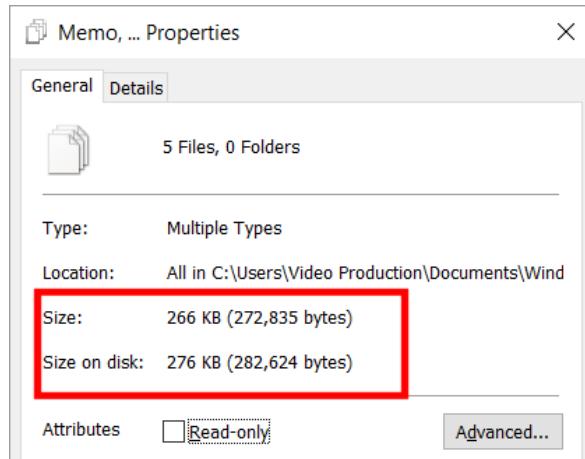
- Click on one of the files to select the file and then press **Ctrl+A** which will select all the files.



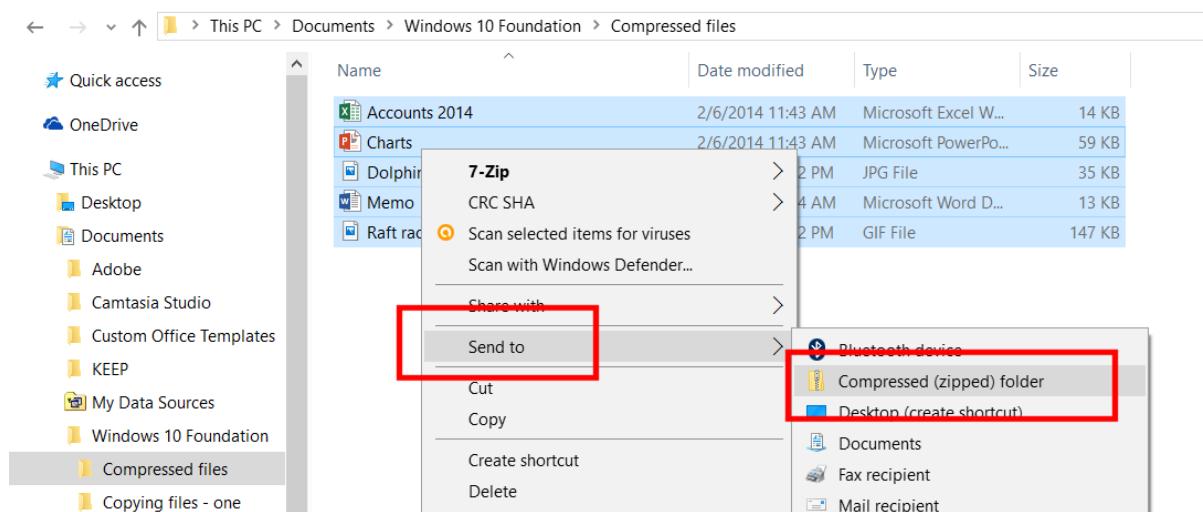
- Right click over the selected files and from the pop-up menus displayed select the **Properties** command.



- This will display information about total file size for all the selected files. Make a note of this information.

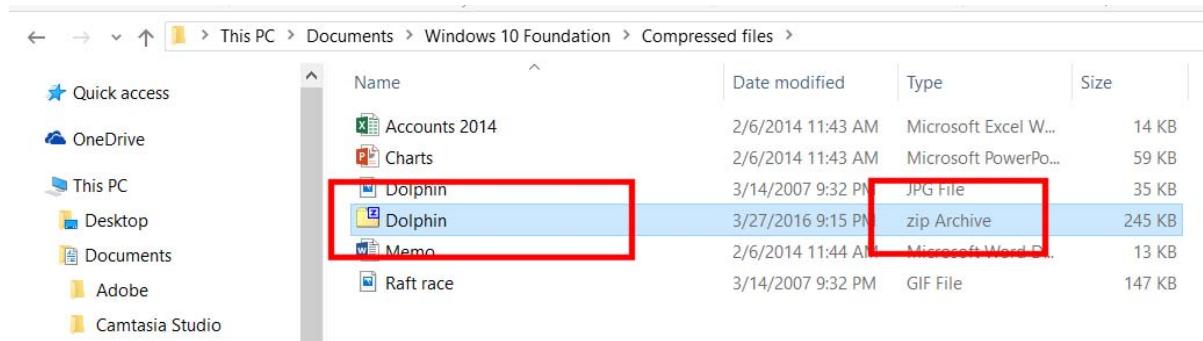


- Click on the **OK** button to close the **Properties** window.
- With the files still selected, right click again, but this time select the **Send to** command. From the sub-menu select **Compressed (zipped) Folder**.

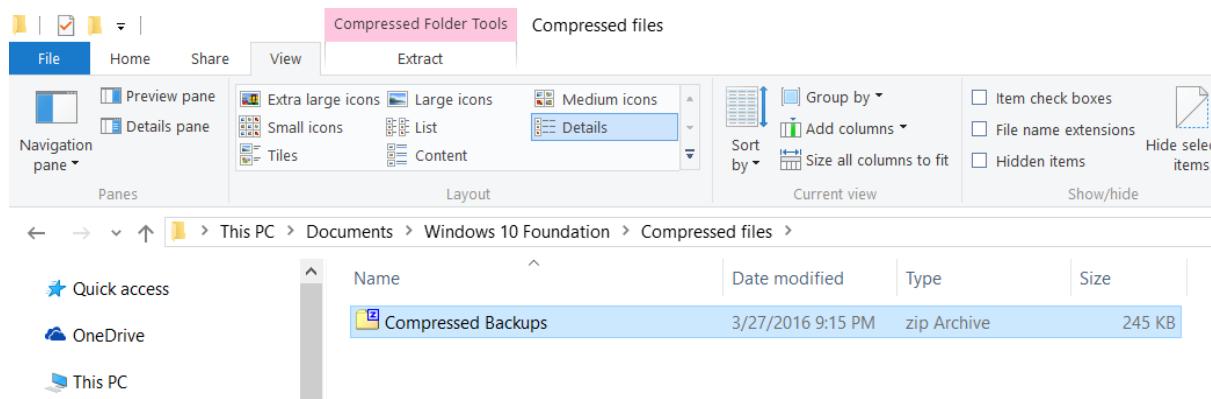


- Your screen will now look like this.

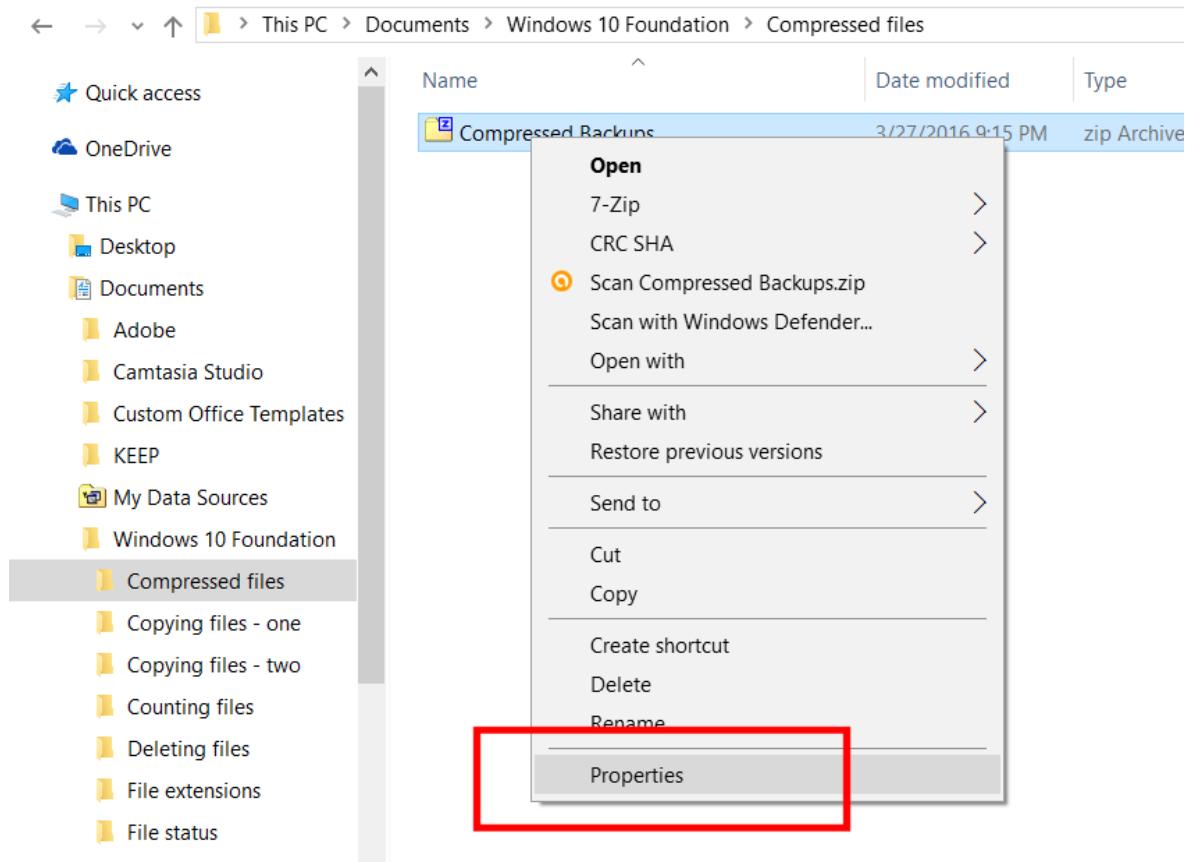
**NOTE:** The name of the compressed folder may be different. Look for the item that is marked with a folder icon rather than a file icon. In the example shown the compressed folder is called **Chart**.



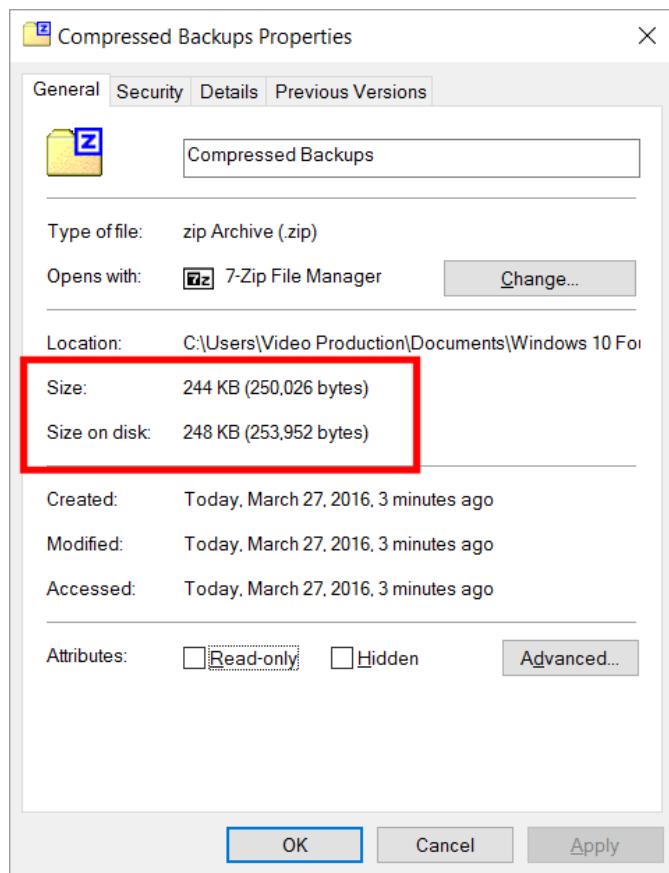
- Rename the compressed folder and call it **Compressed Backups**. Press the **Enter** key and your screen will now look like the illustration shown. You can still see the original files and you can also see the compressed folder containing a compressed copy of the individual files.
- Select each of the original files and use the **Del** key to delete them so that only the compressed folder is left.
- Now you can only see the compressed folder, which actually contains compressed copies of the original files.



- Right click on the compressed folder and from the pop-up menus displayed select the **Properties** command.



- You should find that the total size of the compressed folder is smaller than the total file size of the original separate files.



- Close the **Properties** dialog box.

### Extracting compressed files

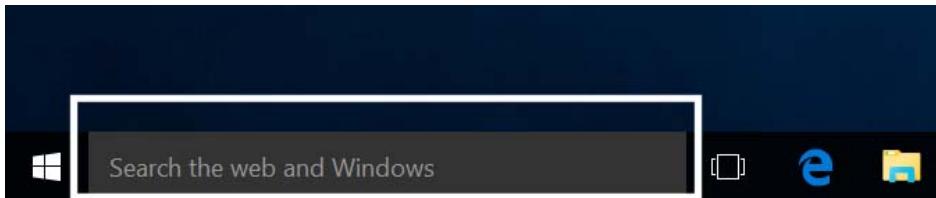
---

- Select the compressed folder that you created within the previous exercise.
- Right click over the compressed folder and from the pop-up menu displayed, select the **Extract All** command and follow the onscreen instructions.
- Close any open windows before continuing.

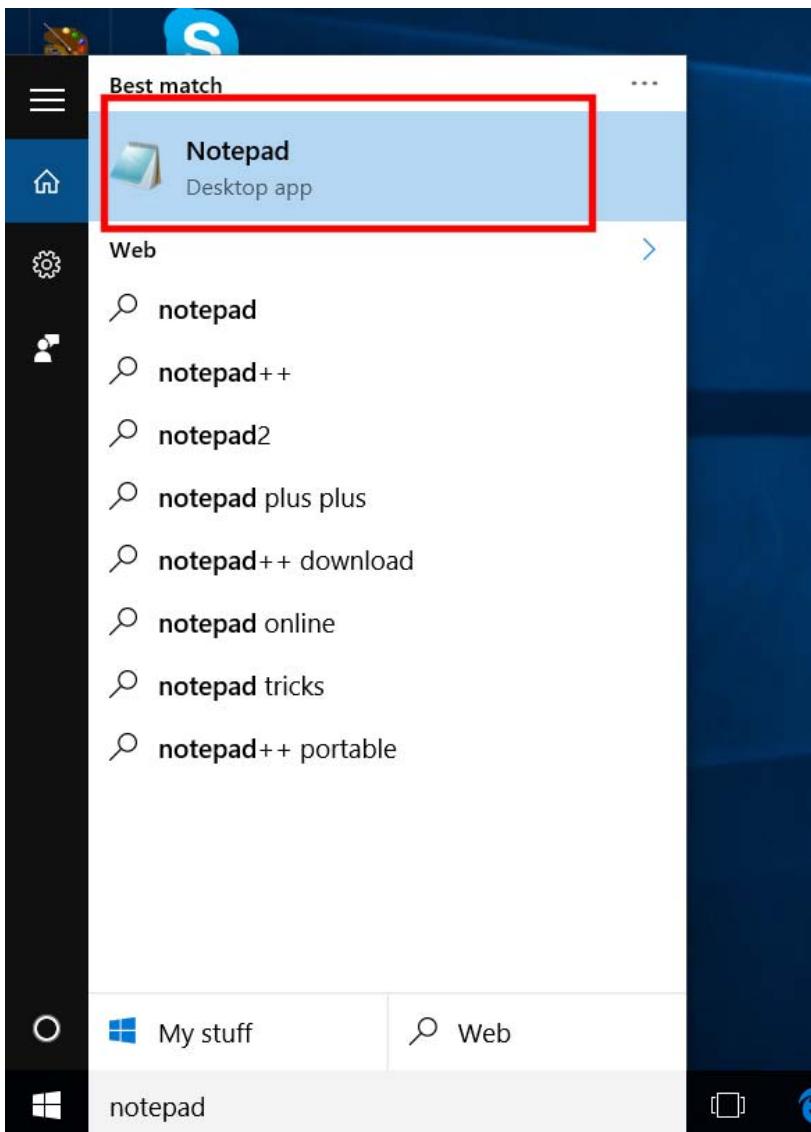
# Searching

## Searching for applications (programs)

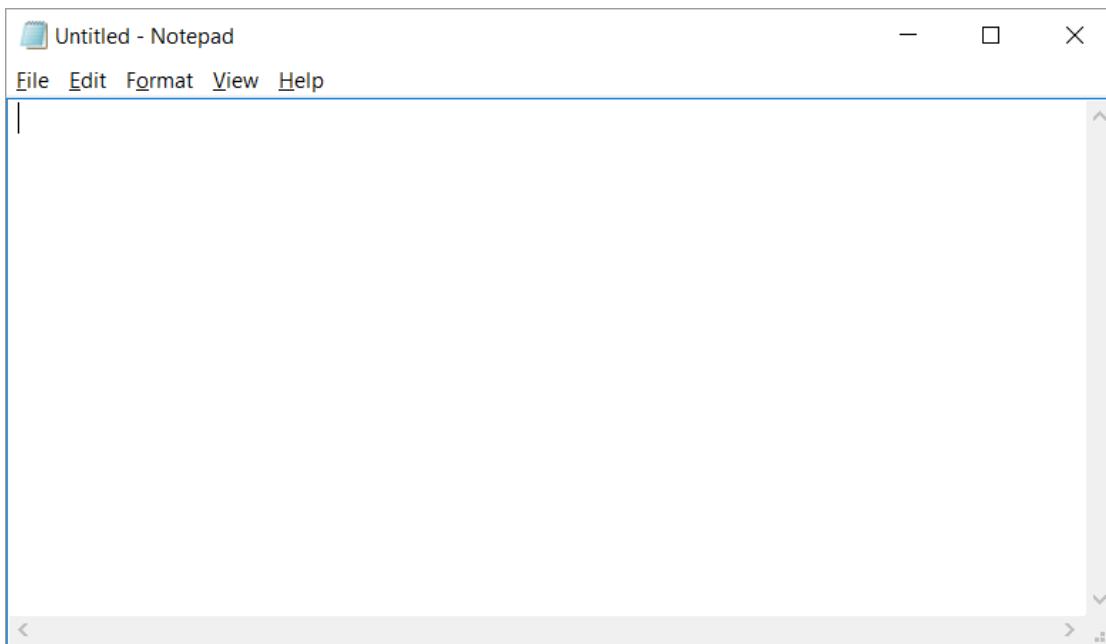
- Display the Windows Desktop.
- Within the search box type the name of an application such as **Notepad**.



- You will see the following.



- Click on the **Notepad** item to launch the program.
-

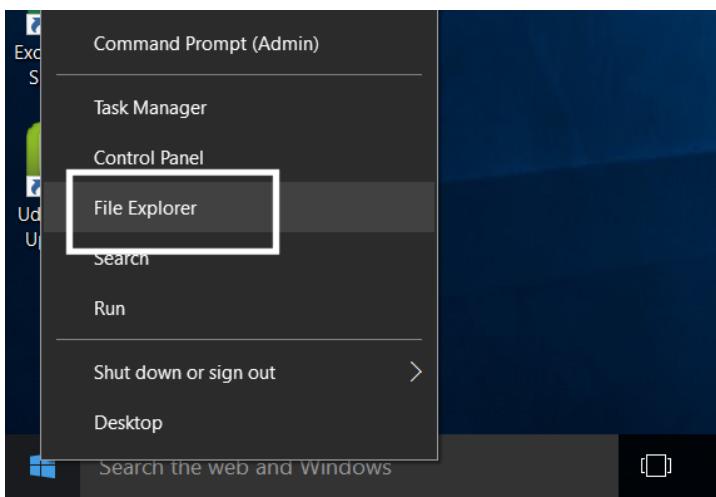


- Press **Alt+F4** to close the Notepad program.

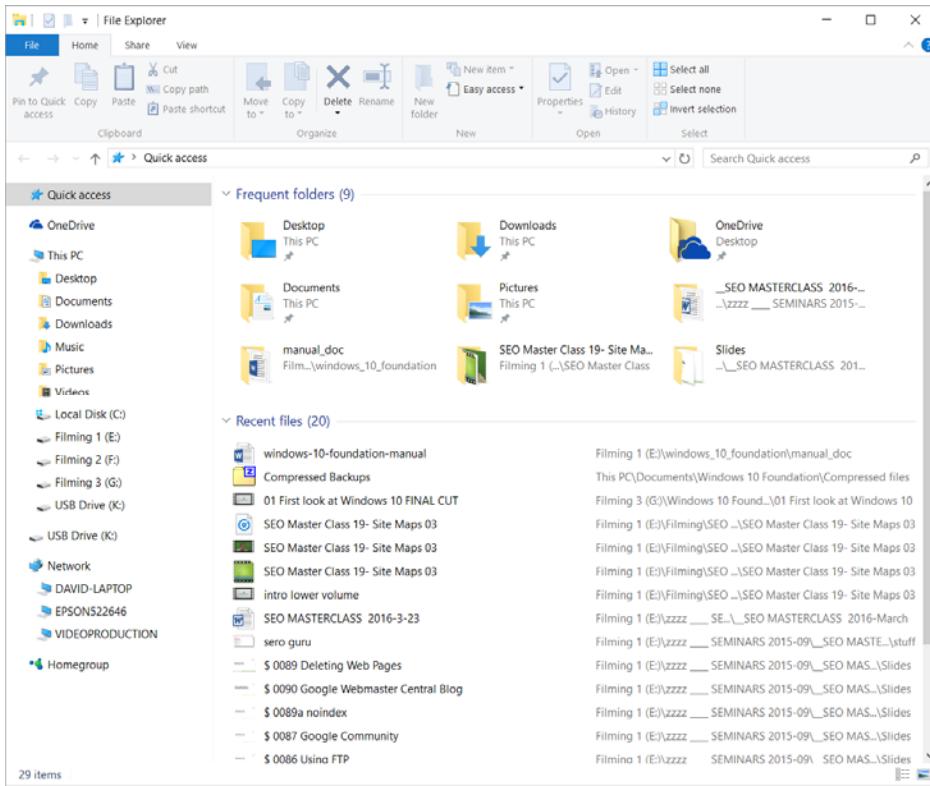
## Searching for files on your hard disk

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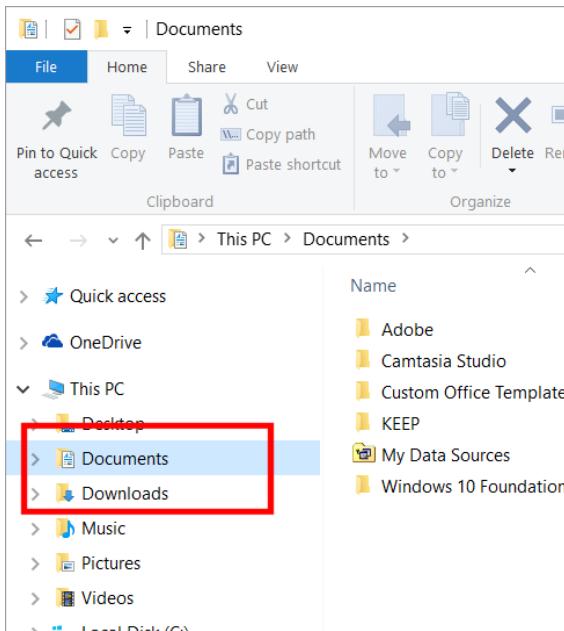
- If necessary, display the Windows Desktop.
- Right click on the **Start** button and from the popup menu displayed click on the **File Explorer** command.



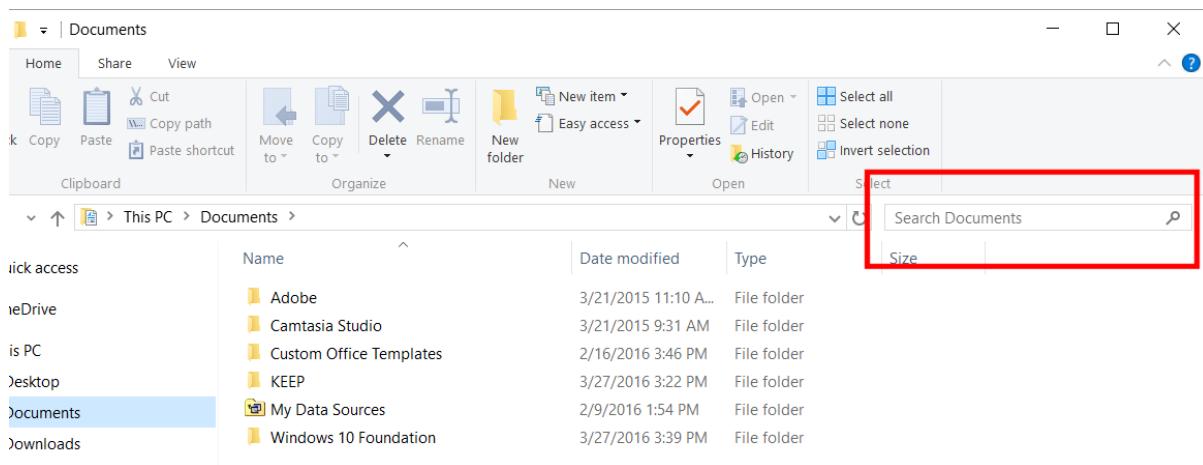
- This will display the File Explorer.



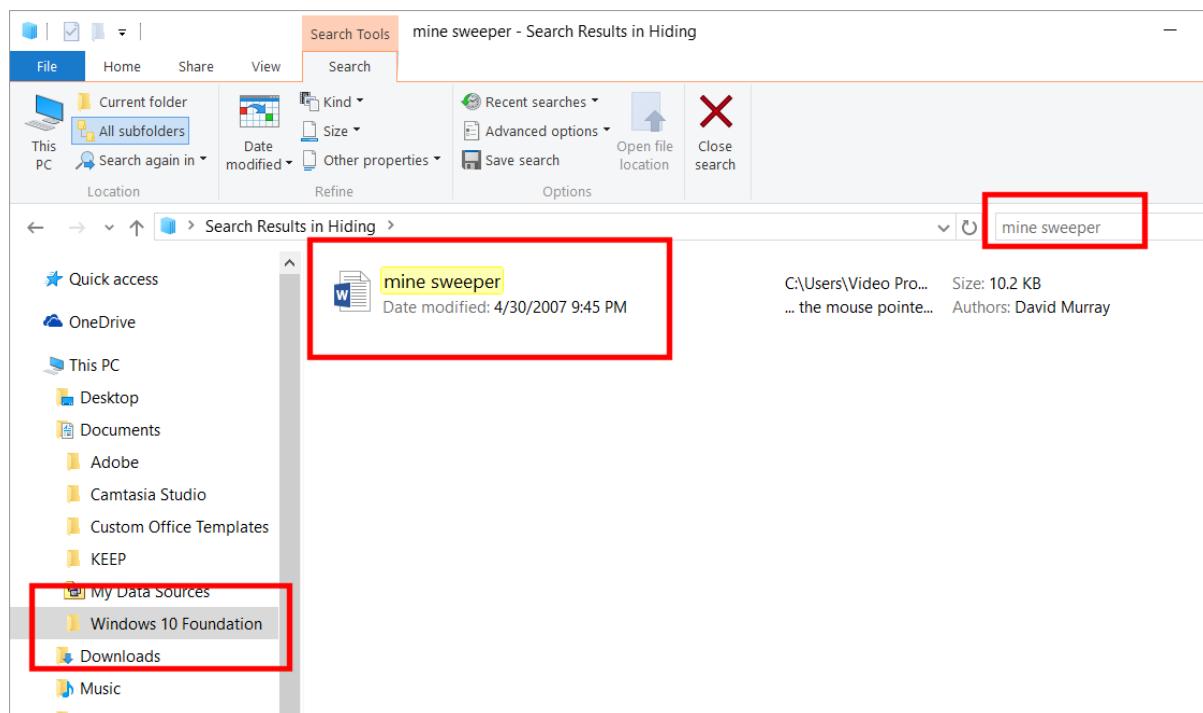
- You can search the entire hard disk, or you can localize your search to a particular folder within the hard disk. In this case select the **Documents** folder.



- Then change to the **Windows 10 Foundation** folder.
- Click within the **Search Documents** section (top-right of your screen).



- Enter the file name you are searching for, in this case enter the words **mine sweeper**. You will see the following.

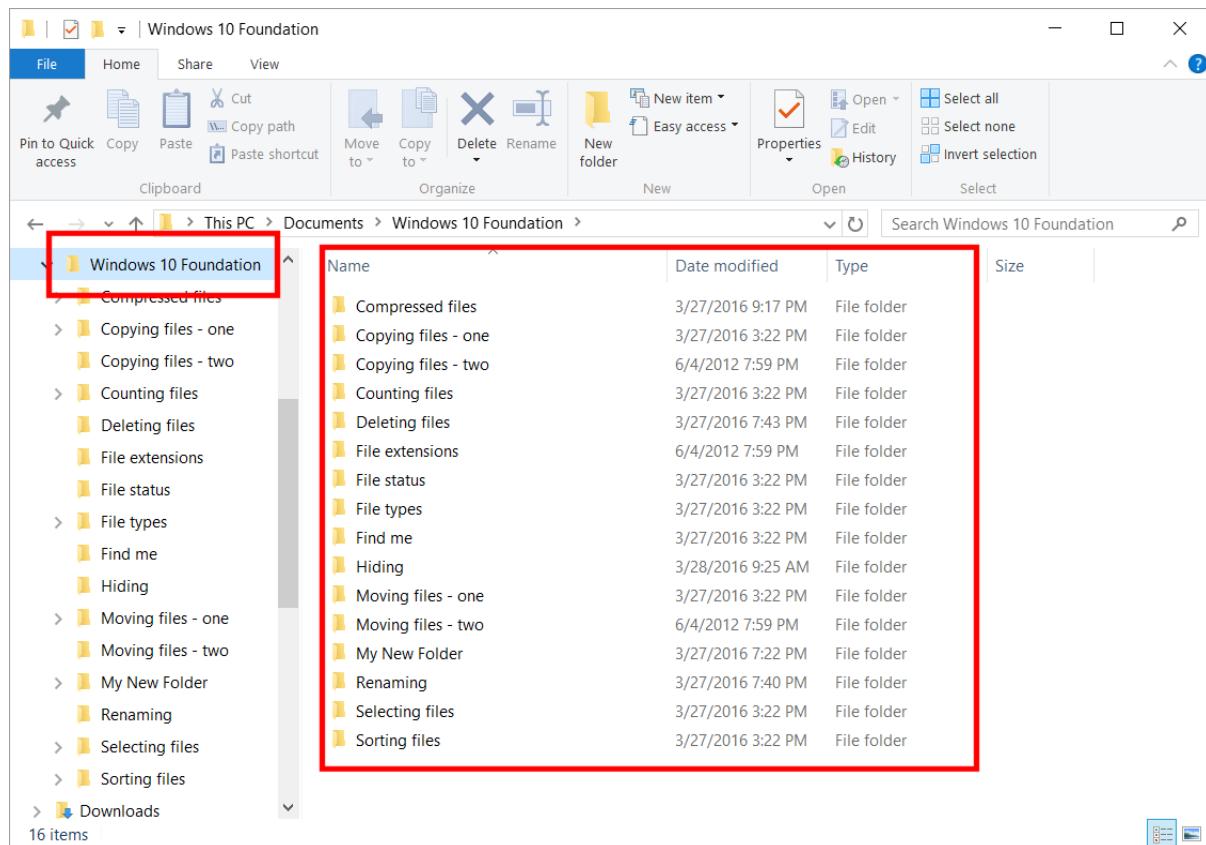


- You have found the file. Double click on the file to open it.
- Then press **Alt+F4** to close the Microsoft Word program.

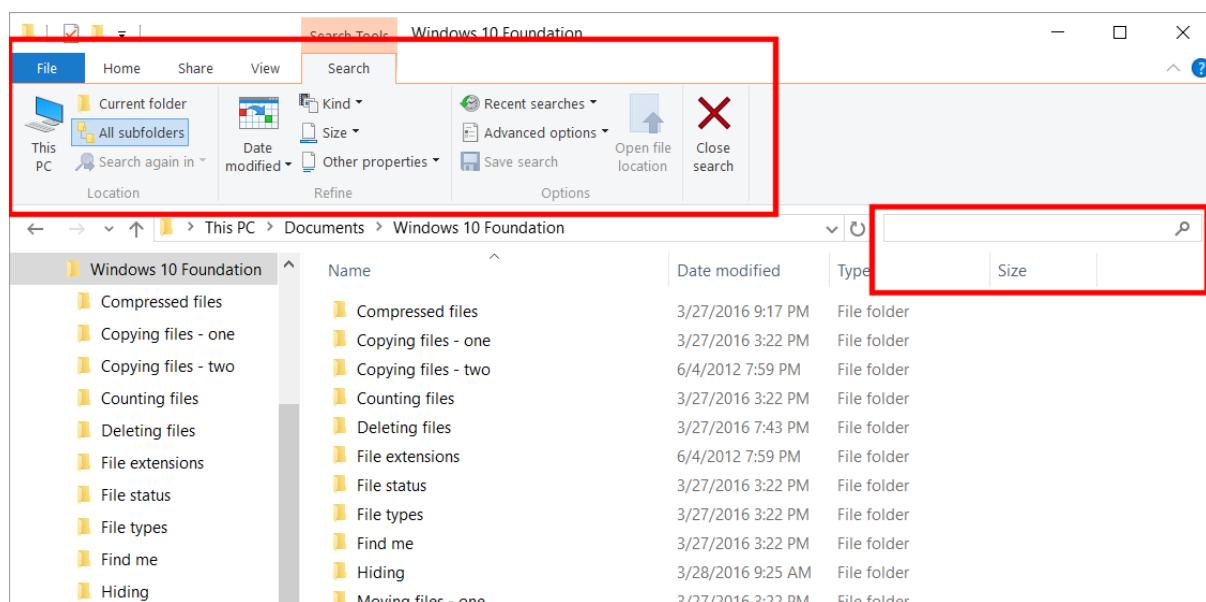
## Searching by file size

- Display the **File Explorer**.
- Navigate to the **Documents** folder.

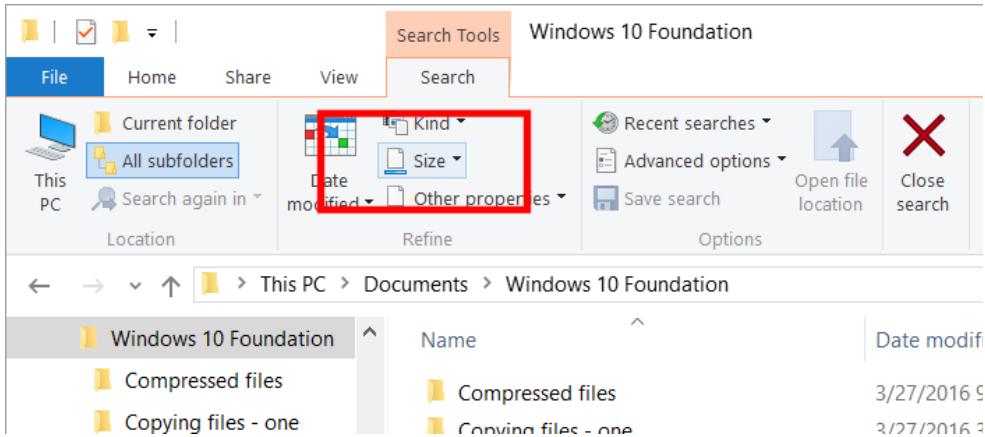
- Navigate to the Windows 10 Foundation folder. Your screen will now look like this.



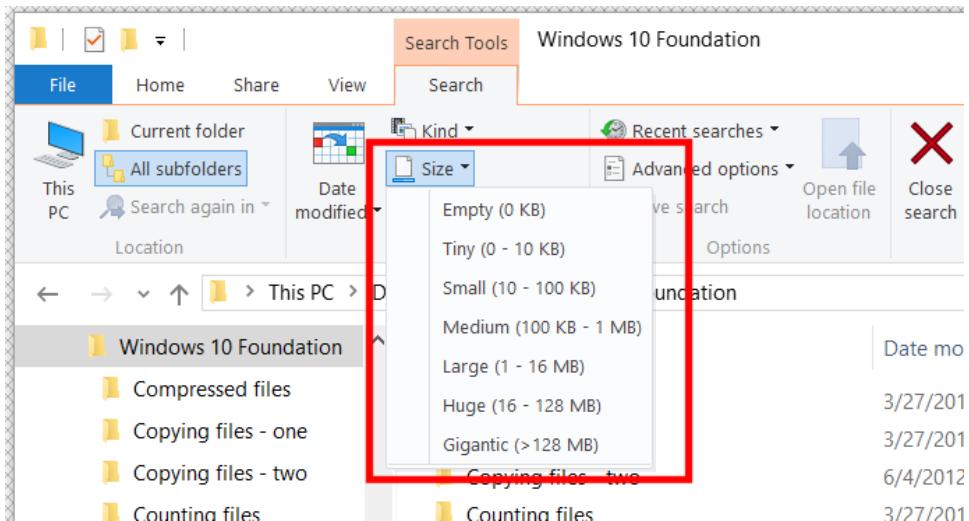
- Click once within the search box (top-right) and you will see the Search Ribbon displayed across the top of the window.



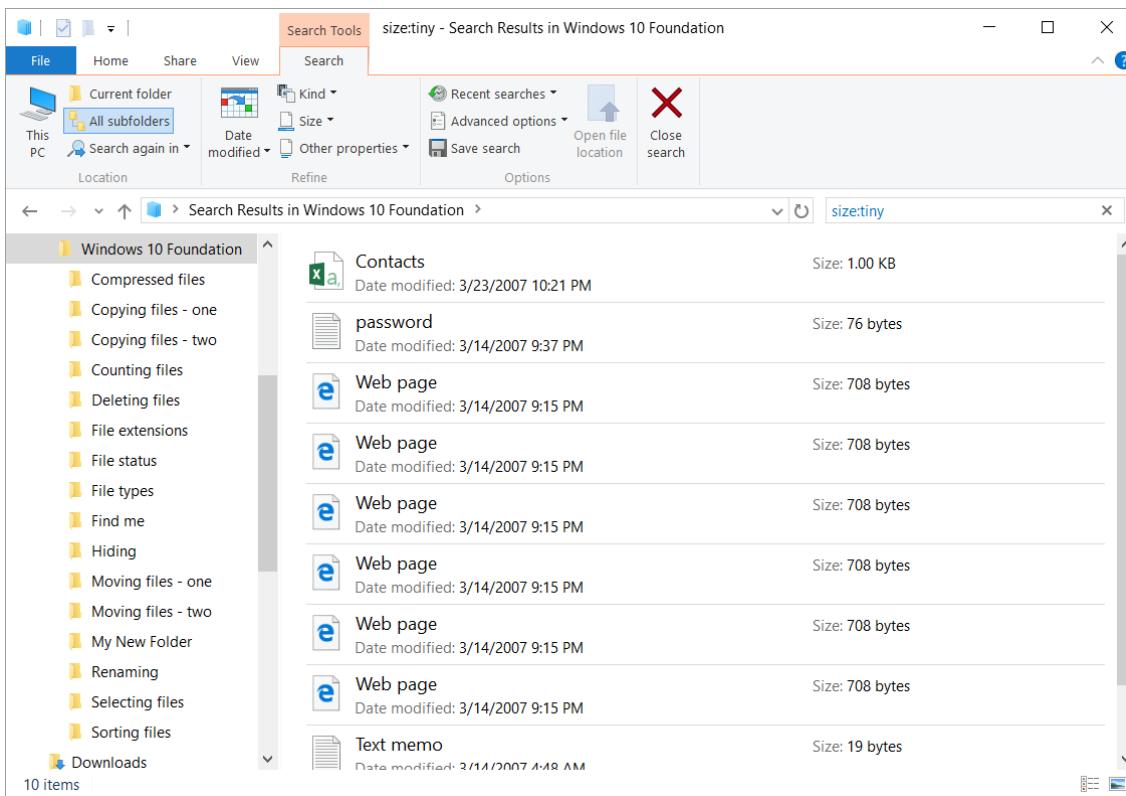
- Click on the drop down next to **Size**.



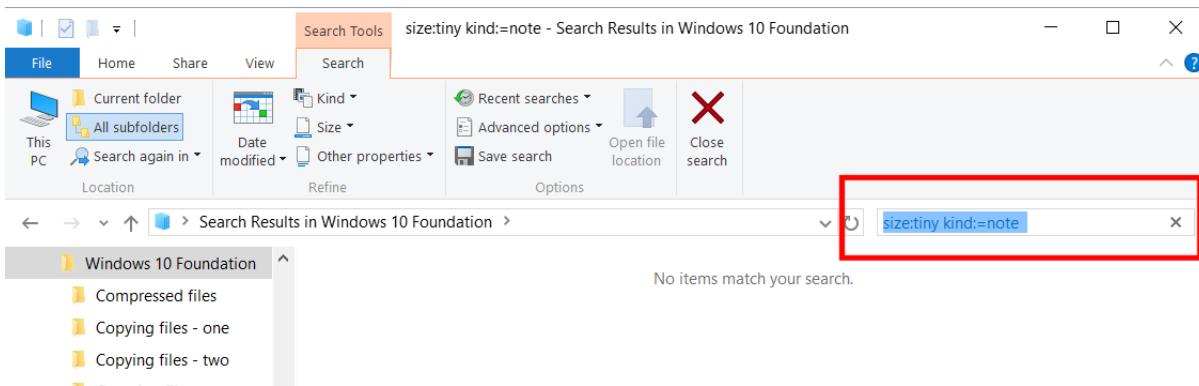
- You will see a drop down list of file sizes.



- Experiment with selecting different file sizes and see how this affects the results that are displayed in the search window.
- For instance, select the **Tiny** option. You may see a green bar moving across the screen. This shows that Windows is searching the current folder, plus all its sub-folders, for files that match your search criteria, which in this case is just tiny files.
- Once Windows has finished searching the results will be displayed, as illustrated below.



- Clicking on any of the search results within the list will display the file contents or in some cases run a program file.
- Before continuing, remove the 'tiny' filter. Click on the X within the search box, as illustrated.

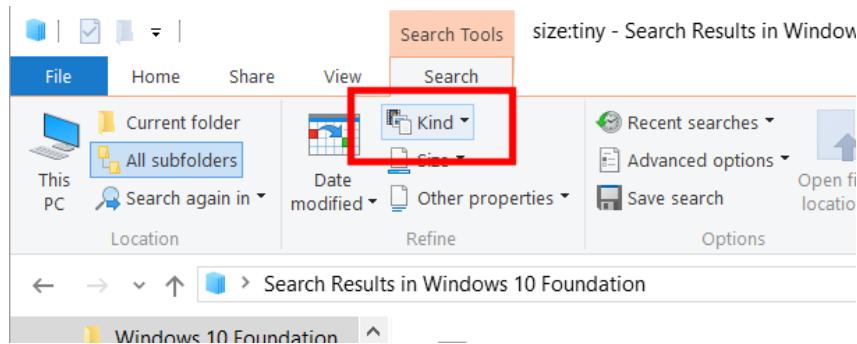


- Close the File Explorer.

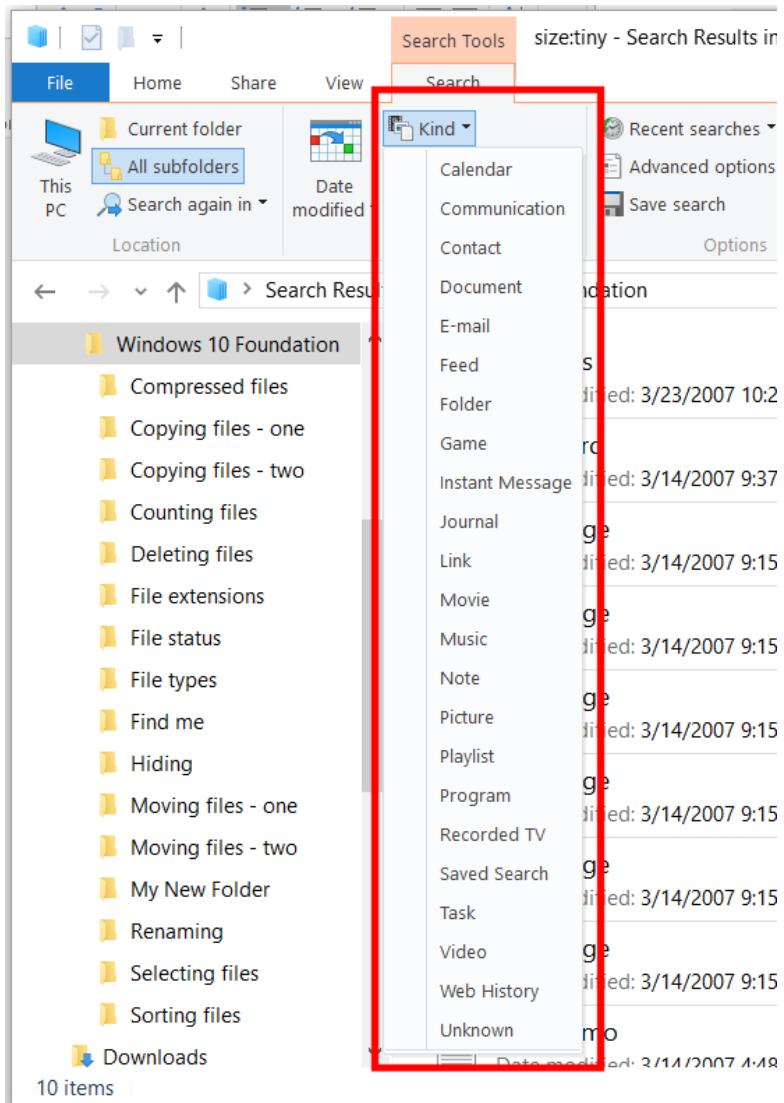
## Searching by Kind

- If necessary re-open the File Explorer.

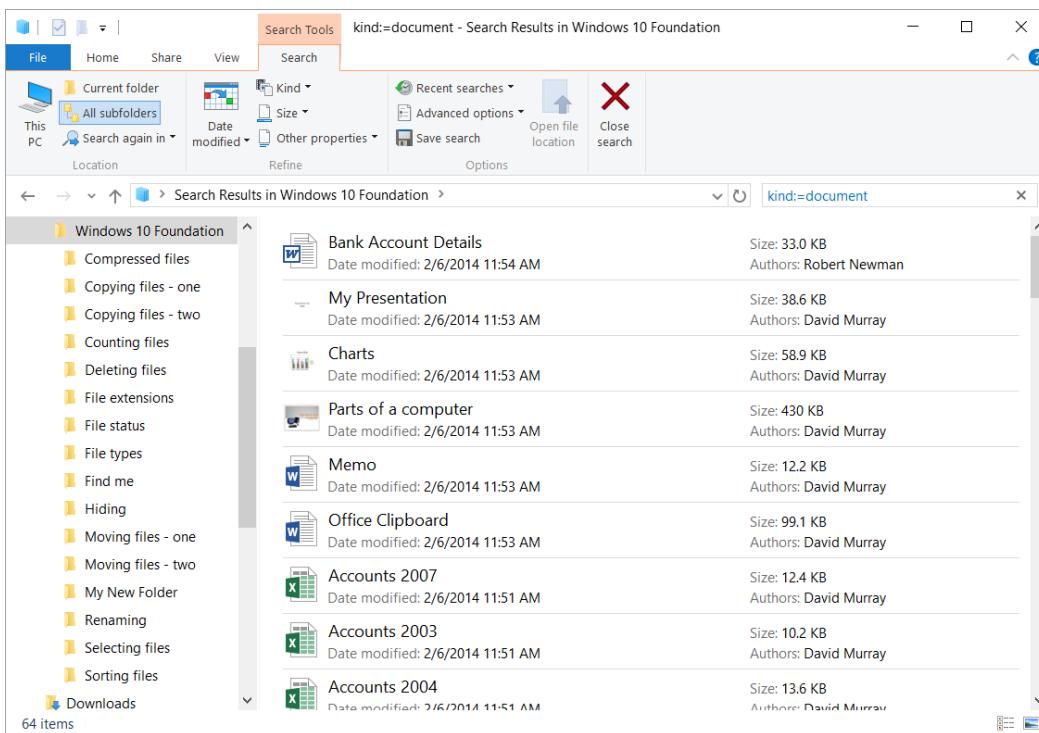
- Navigate to the **Windows 10 Foundation** folder.
- Click within the **Search** box and the Search Ribbon will be displayed.
- Click on the **down arrow** to the right of the **Kind** link.



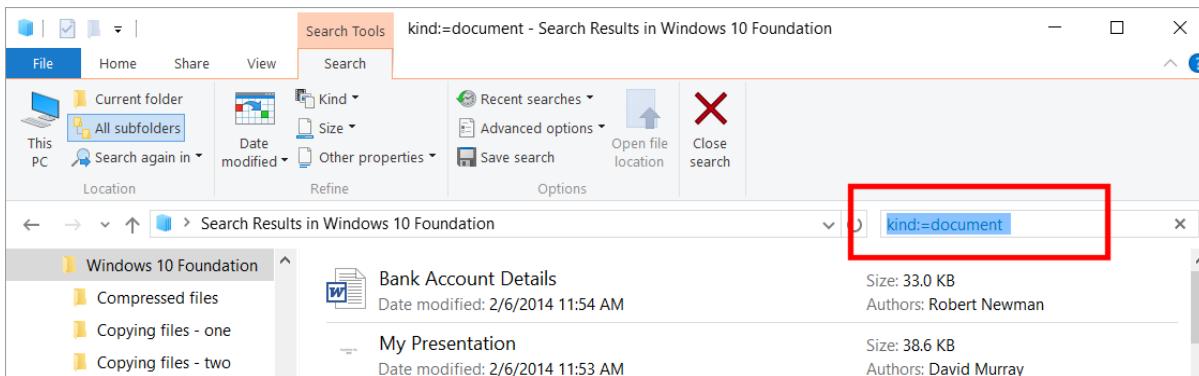
- This will display a list of file types.



- Try selecting the **Document** file type and see the effect.



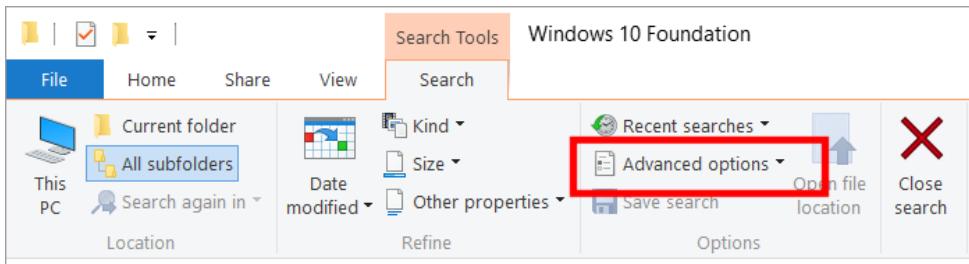
- Before continuing, remove the 'kind' filter. Click on the X within the search box, as illustrated.



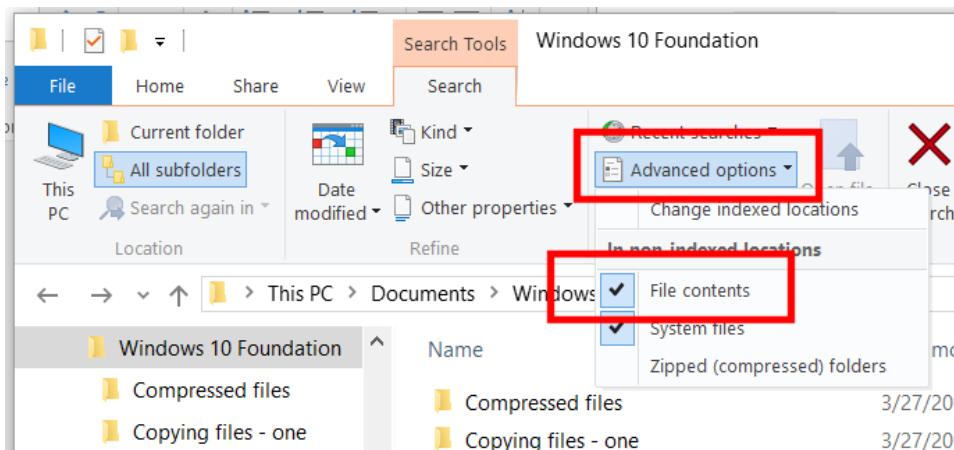
## Searching by file content

- You can search for a file if you know the file name. In real life you may create a document and remember what is in the document, but not remember where you saved the document, or what the file name was. The good news is that you can search for file content. For instance, let's say you created a document containing an unusual word or phrase, such as **daveabc9**, then this can be used to find the file.
- If necessary re-open the File Explorer.

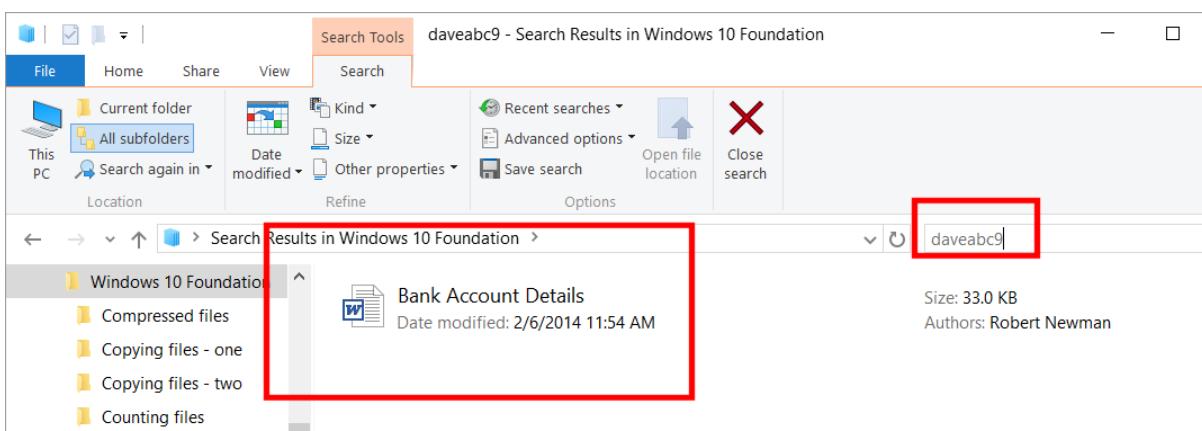
- Navigate to the **Windows 10 Foundation** folder.
- Click within the **Search** box and the Search Ribbon will be displayed.
- Click on the **down arrow** to the right of the **Advanced Options** link.



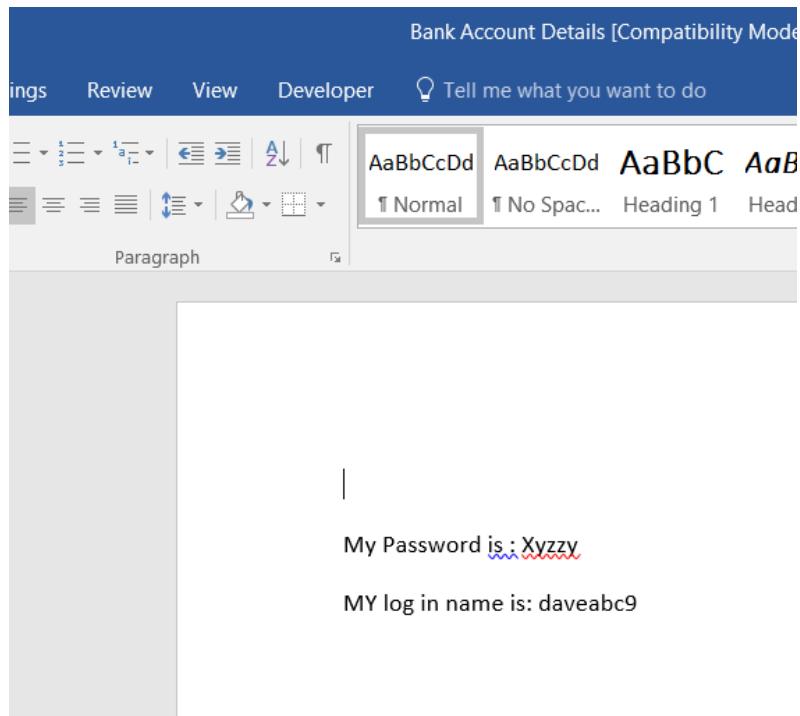
- From the drop down list displayed select **File contents**.



- Type the word **daveabc9** into the search text box. After a short delay you should see that the file name which contains this text is displayed within the search results.



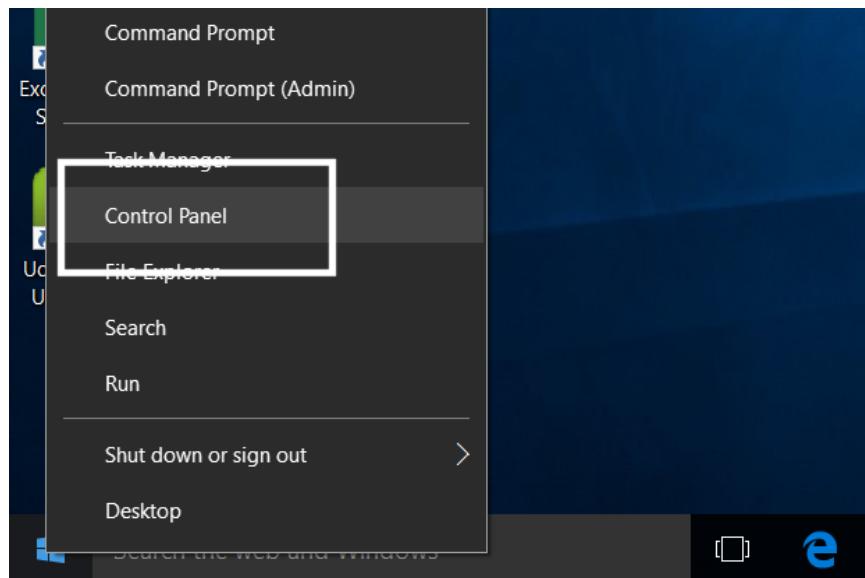
- Double click on the file to open the document and verify that the document does indeed contain the text **daveabc9**.



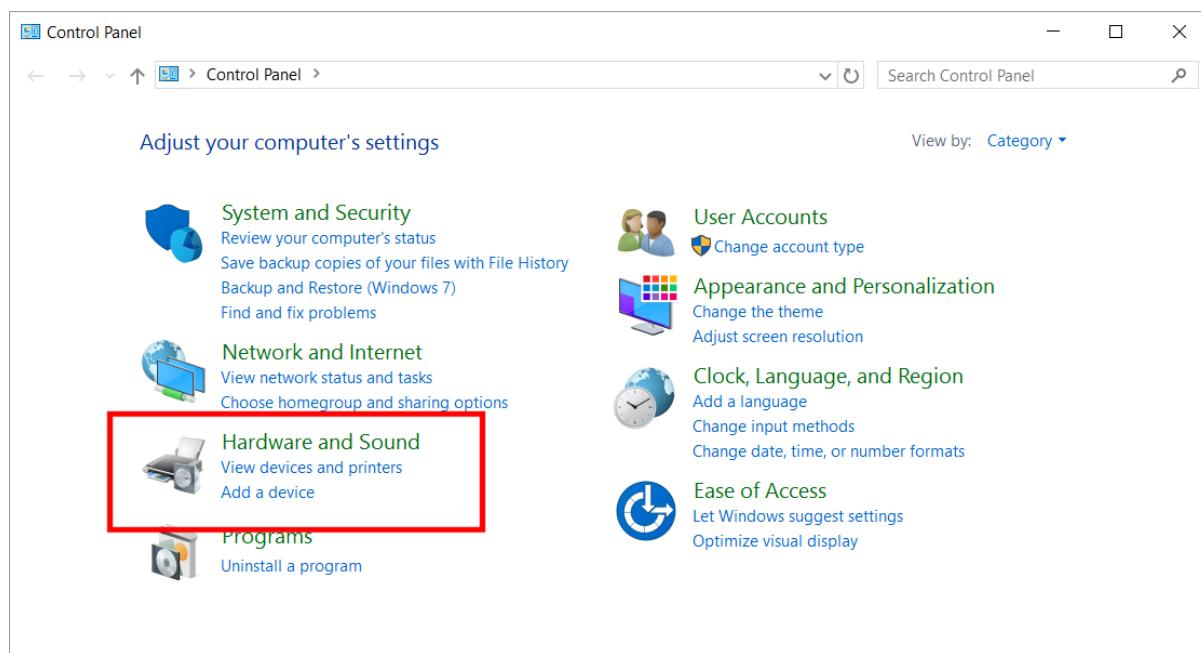
# Printing Issues

## Viewing the printers that are available to your PC

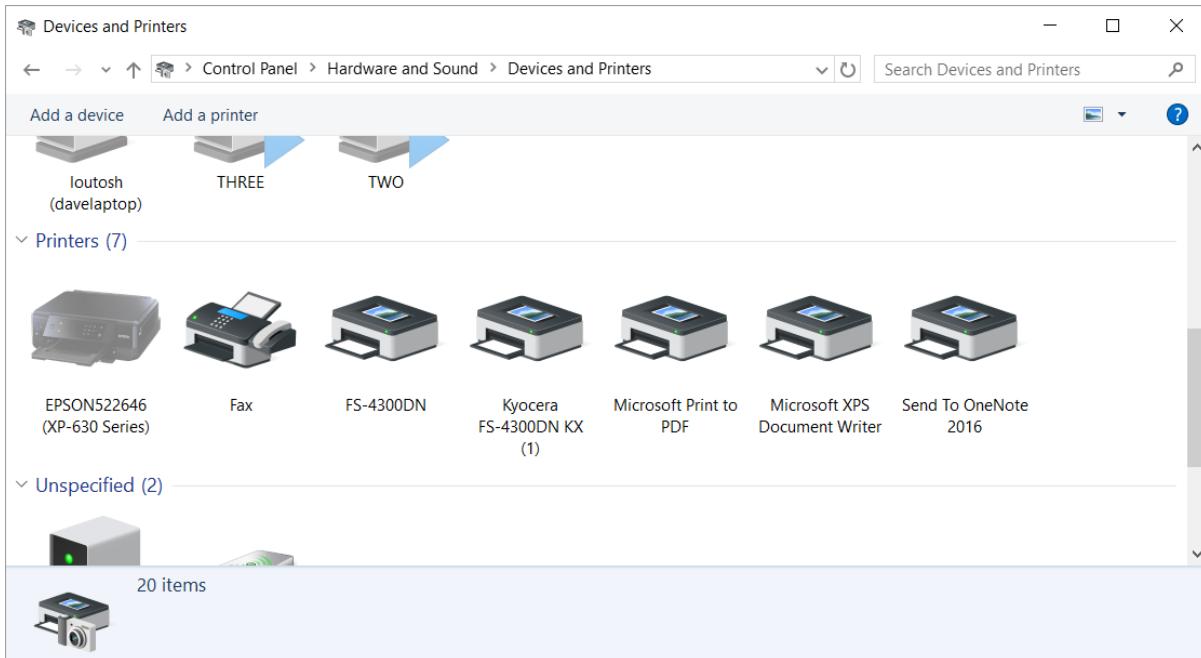
- If necessary, display the Desktop.
- Right click over the **Start button** and from the popup menu displayed click on **Control Panel**.



- The **Control Panel** will be displayed.



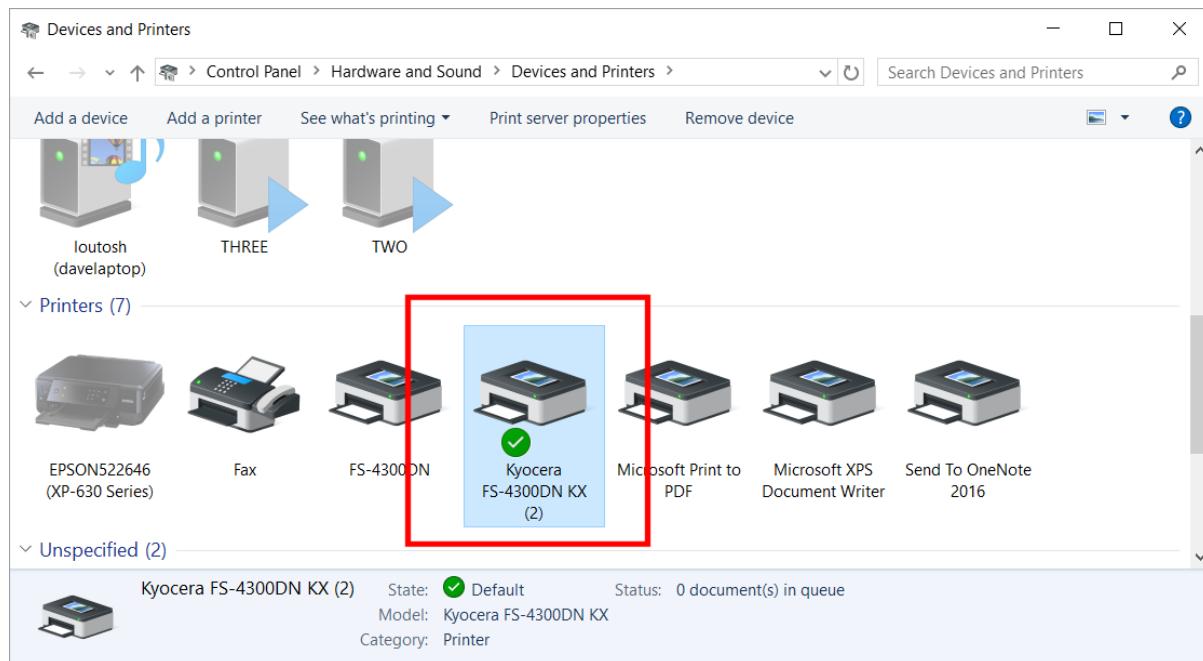
- Within the **Hardware and Sound** section of the dialog box, click on the **View devices and printers** link. This will display your available printers.



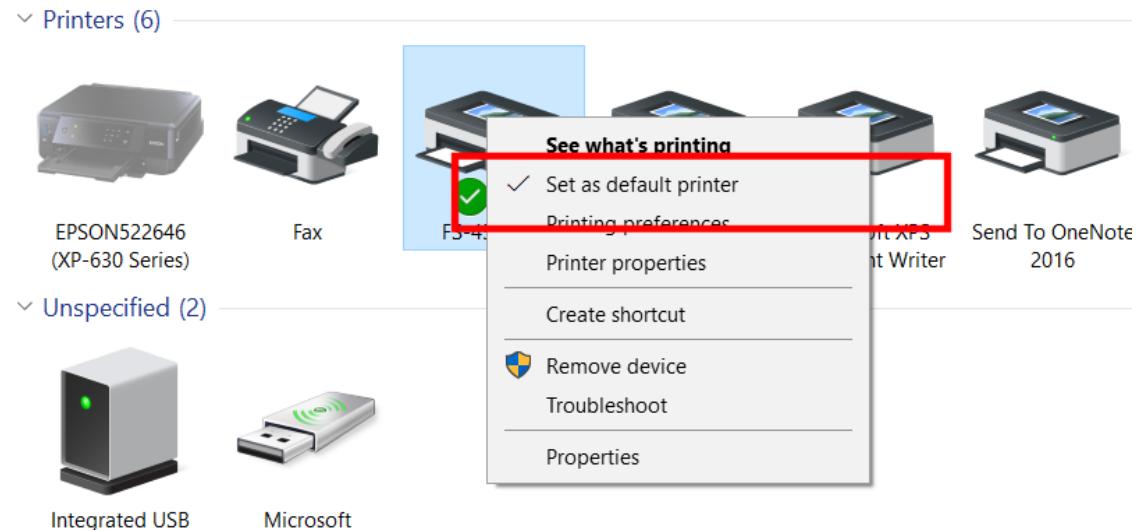
## Setting the Default Printer

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- If you have more than one printer available to your computer, you will see that one printer has a green tick over it. This indicates that it is the default printer and if you were to print from an application such as Microsoft Word, then by default this is the printer that your document would be sent to and printed on. In this example the default printer is the HP LaserJet printer. It is marked with the green tick.



- If you right click over the default printer, you will see a popup menu with the Default Printer option ticked.

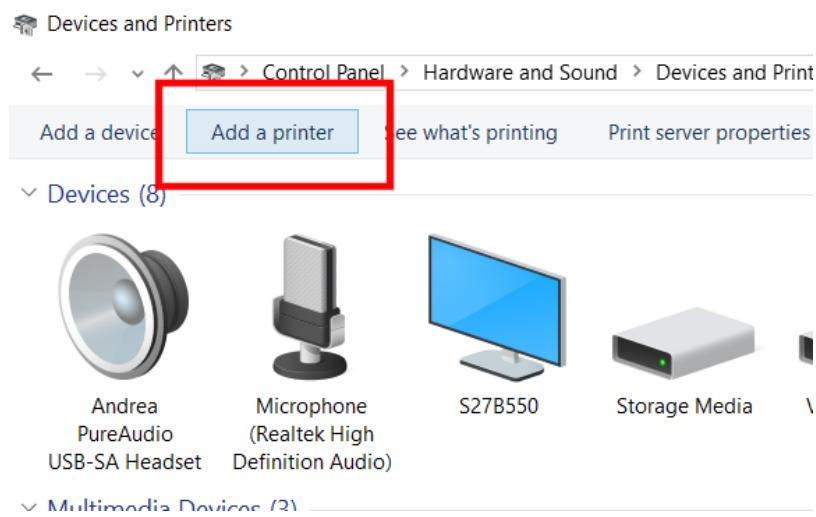


- To set a different printer as the default printer, simply right click on a different printer icon and from the popup menus displayed mark it as the new default printer.

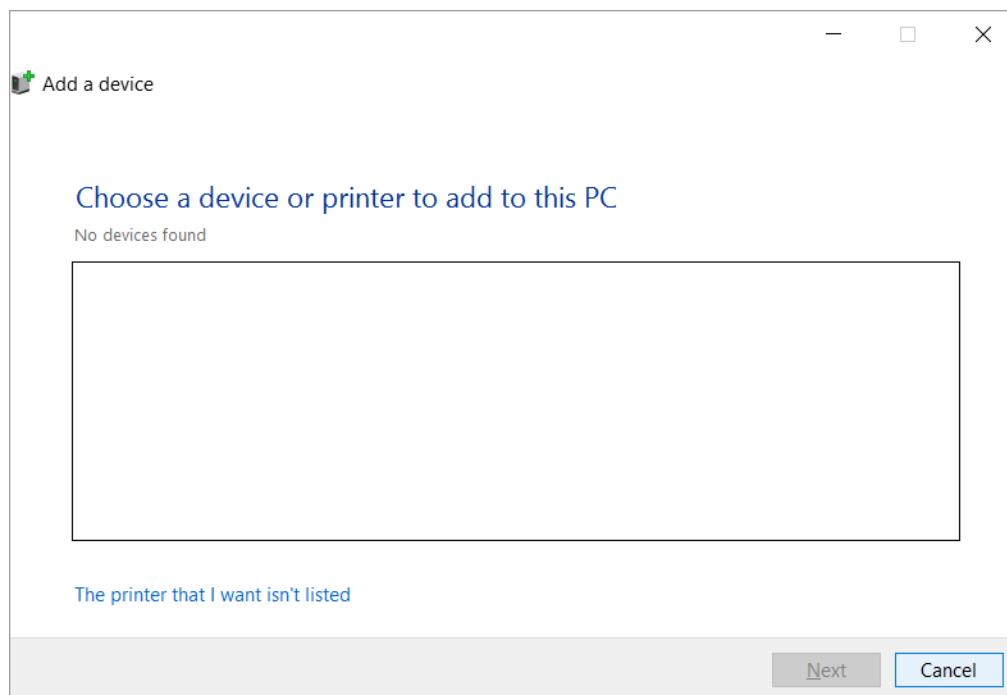
## Installing a new printer

- If necessary, display the **Control Panel**.

- Click on the **Add a Printer** button within the Control Panel.



- This will display the **Add Printer** dialog box.

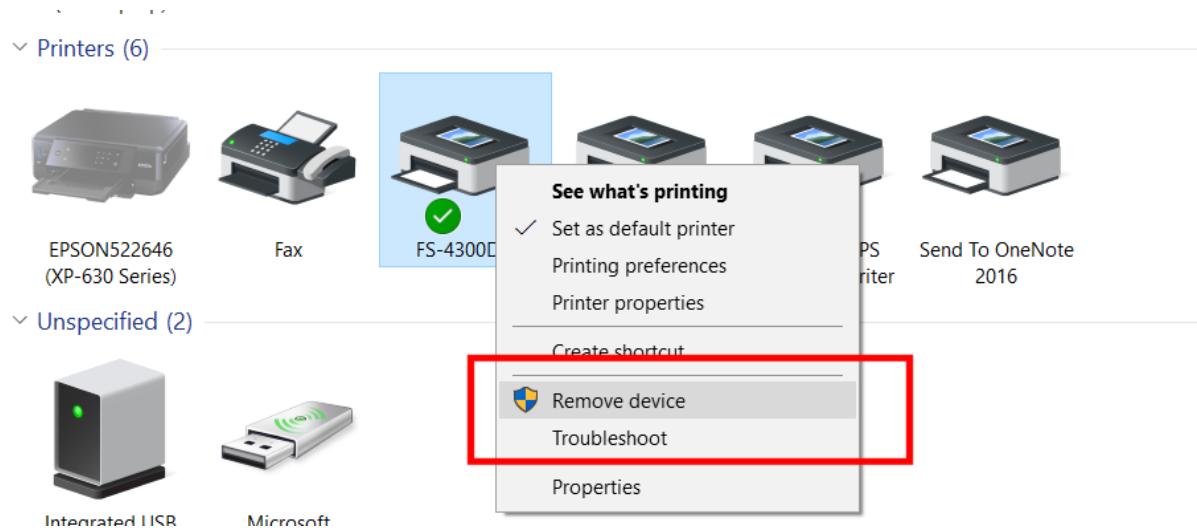


- In many cases Windows will automatically detect that a new printer is available and automatically install the correct printer drivers so that your PC can print to that printer.
- In some cases, you may have to use an installation disk that was supplied with the printer, in which case insert the disk and follow the instructions.

- Another option is to manually install a printer driver, in which case after clicking on the **Add a Printer** button you can follow on-screen prompts and install the necessary software.

## Removing a printer

- Display the Control Panel.
- Display the **Printers and Devices** window.
- Right click over the printer you wish to remove and from the popup menu displayed click on **Remove Device**.



## Printing from an application

- Once the printer is correctly connected and installed, you normally print from within your applications. In most applications, such as Microsoft Word or Microsoft Excel, the keyboard shortcut to print your work is **Ctrl+P**.
- Alternatively use the menus at the top of the application to print your work.

# Viruses, Spyware and Cookies

## Computer viruses

- Viruses are small programs written so that they can jump from one computer to another (via disk or a network), which can cause disruption or damage to the computer system. Even data files such as a Word document can contain a virus. As well as causing damage to your data, or in some cases even destroying your data, viruses can cause other effects, such as using your email system to email all your email contacts and in the process infect other people's computers.
- Basically if you access files which are virus infected, then that virus may be transmitted to your computer. Never accept diskettes/CDs/DVDs which have not been properly virus scanned first by your computer support team. Never connect to the Internet without an active virus checker program scanning all the files you download.

## Spyware

- Spyware is software that installs itself on your computer and then spies on your computer activity. Often spyware is used to collect marketing information but more serious versions can collect sensitive data which could later be used in a criminal way. If you download and install free software, then this may have types of spyware hidden within it. There are many different programs that you can use to detect and remove spyware on your computer.

## Cookies

- Cookies are commonly used to allow visitors to a web site to personalize their relationship with the web site. For instance, a weather web site could use a cookie to remember that you live within a particular area of the country. The next time you visit that web site, the weather that will be displayed will relate to your location. Some cookies are less innocent. Cookies are often downloaded automatically when you visit the web site, so you can acquire them without realizing it. Most anti-spyware programs will also detect cookies for you.

## Virus checking programs

- An up to date virus checker should help protect you from losing data due to virus attacks and you should find that your email system does not get jammed up due to multiple email viruses.

- You will have less chance of being sued for damages by other organizations that you accidentally infected with a virus.
- Running a virus checker on a computer which contains a virus is known as disinfecting the PC as the virus program will detect and then eliminate the virus.
- You will save time and money by preventing virus attacks as opposed to dealing with the effects of an attack.

**NOTE:** Get all the security updates and patches for your version of Windows so that Windows itself is less vulnerable to virus attack.

## Scanning for viruses

---

- Many virus checking programs will scan your PC when you first switch on in the morning and some will even run detailed scans automatically, as well as automatically updating themselves so that you are protected against new virus types.

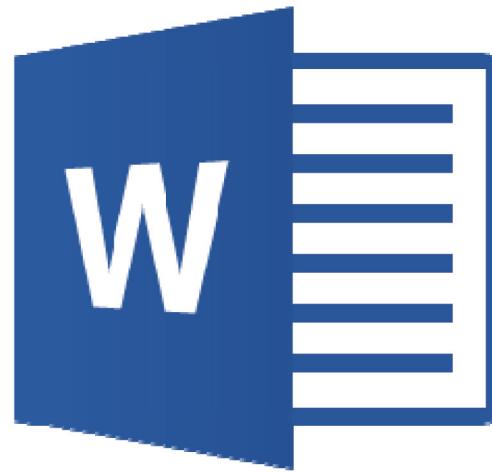
## Updating anti-virus programs

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- As new viruses are constantly emerging, it is vital to update your virus program on a regular basis. Many programs will do this automatically. You can also run the update manually to make absolutely sure you have all the latest updates.

# **Microsoft Word 2016**

## **Foundation**





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## Tutor Setup Information

- Copy the sample files folder called **Word 2016 Foundation** to the **Documents** folder.
- At the end of the course, remove all files modified or created during the course, prior to re-running the course.
- At the end of the course, reset all program and operating system defaults that may have been modified during the course, prior to re-running the course.

## Sample files for this course

- During this course you will need to open samples files.

These are stored under the **My Documents** folder in a sub-folder called:

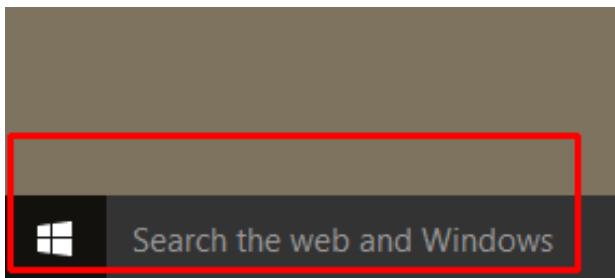
**Word 2016 Foundation.**

If you create any new files, unless otherwise instructed, you should also save the files in this folder.

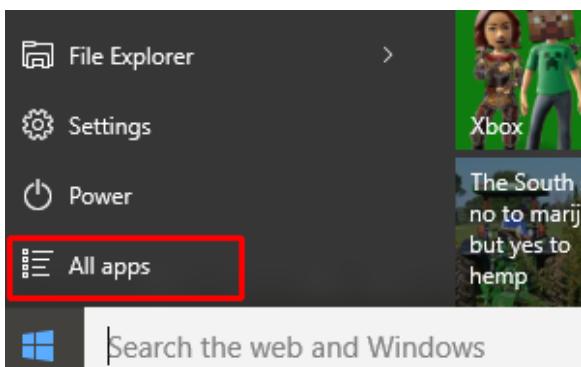
# The Microsoft Word 2016 screen

## Starting Microsoft Word 2016

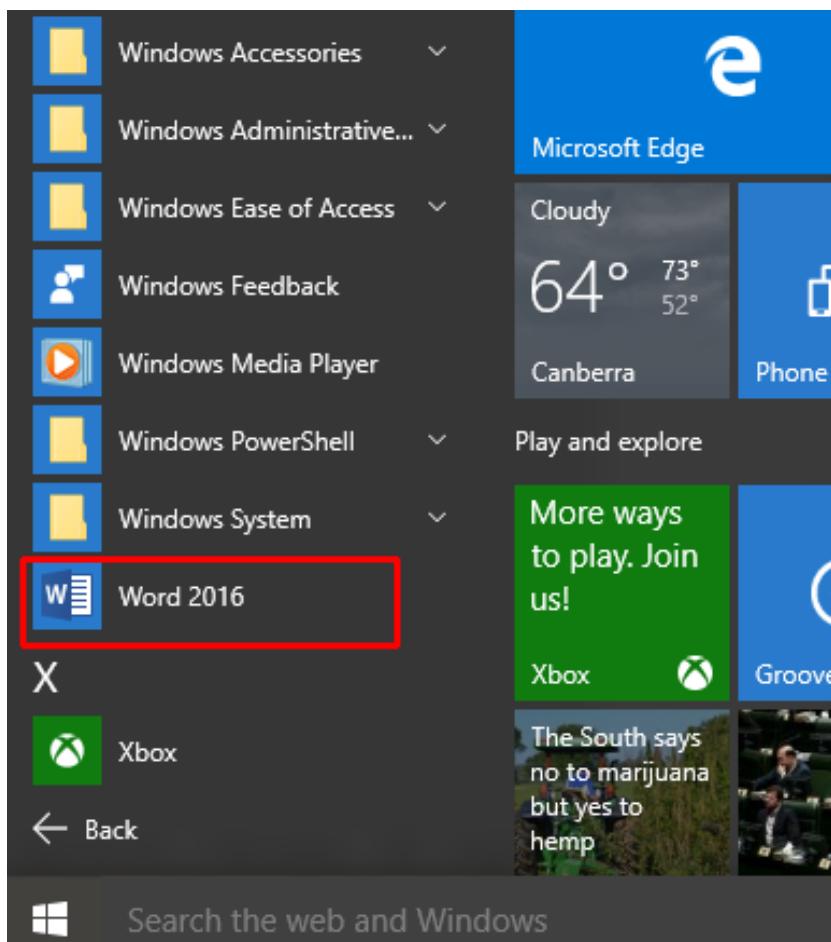
- If necessary, switch on your computer and if required enter the necessary logon and passwords. If you are using Windows 10, to start Microsoft Word 2016 click on the **Start** icon, at the bottom left of your screen.



- You will see a popup menu displayed. Click on **All Apps**



- From the menu displayed and you can select **Microsoft Word 2016**.



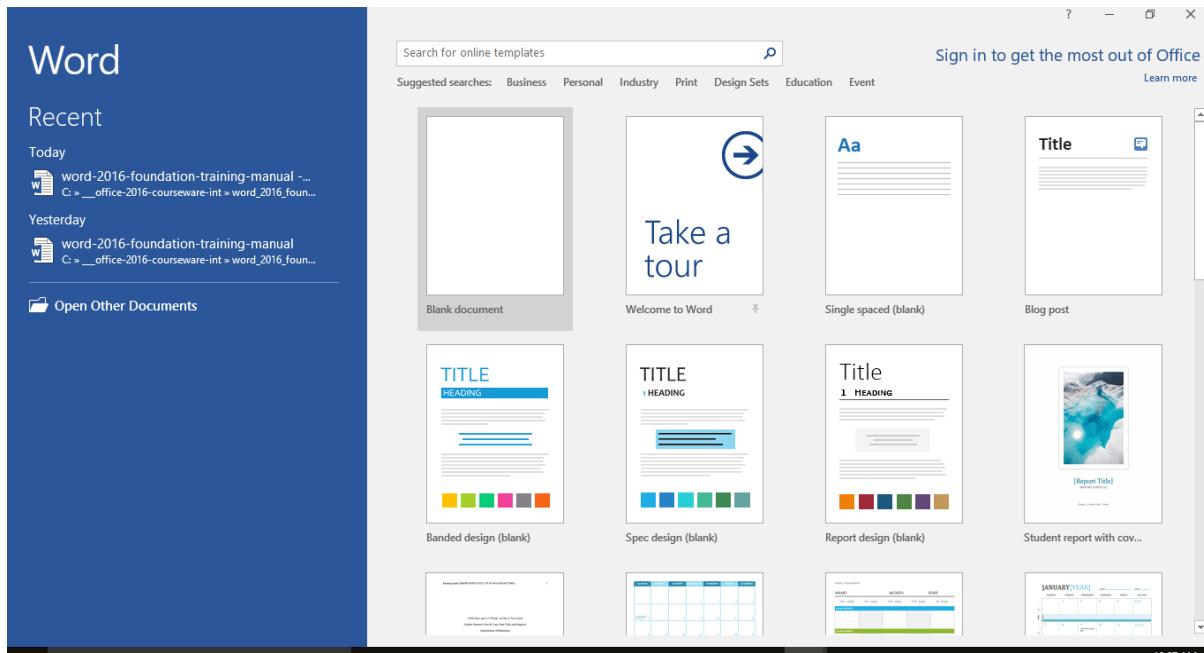
- **NOTE:** These menu options may vary slightly from one computer to another, but with a little hunting around you should be able to locate the Microsoft Word 2016 option.

Once you click on the Microsoft Word 2016 option this will load the Microsoft Word program from your hard disk into memory. You can then start using the program.

### The Microsoft Word 2016 opening screen

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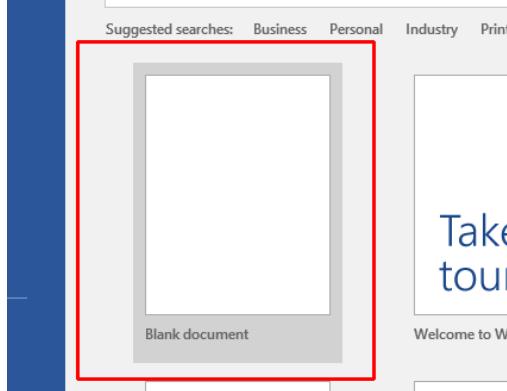
- When the Microsoft Word 2016 program loads, your screen will look something like this.



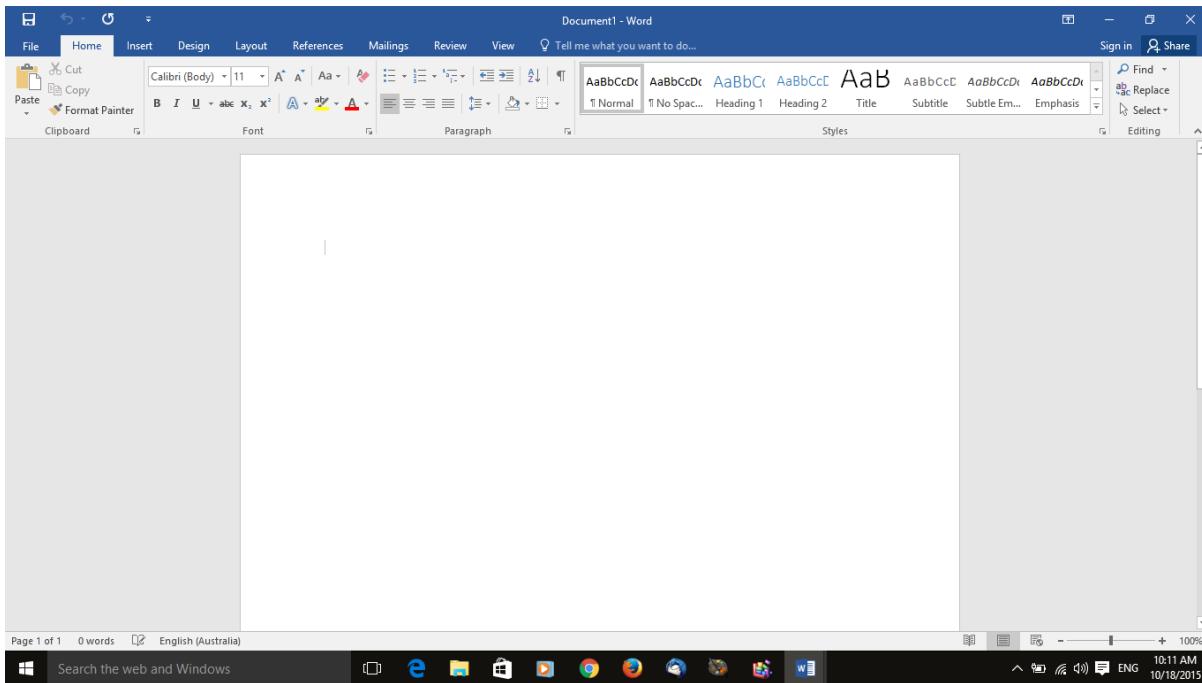
**TIP:** If you have seen previous versions of Microsoft Word, you will notice that at first glance the screen looks different from the way Microsoft Word used to look. Don't panic however, you will find that in fact it is not all that different, and is in many ways easier to use than older versions.

## To create a new blank document

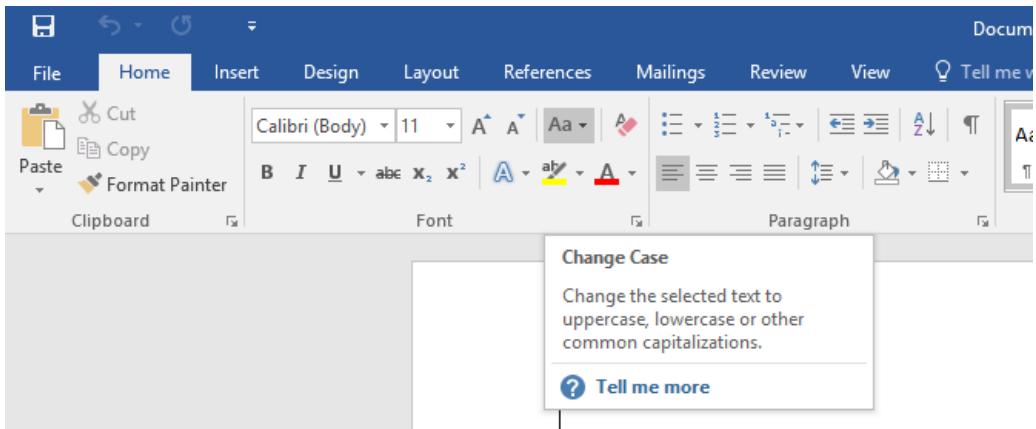
- Click on the **Blank Document** thumbnail (or press **Ctrl+N**).



- Your screen will now look like this.



- You will find that if you move the mouse pointer over icons at the top of the screen a help popup is displayed explaining the function of each item. As you can see Microsoft Word is telling you what the function of this particular button is. Try moving the mouse pointer over the **Change Case** icon and you will see information about this icon, as illustrated below.

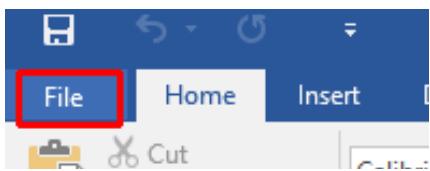


- Experiment with moving the mouse pointer over other icons and you will get information about what they do.

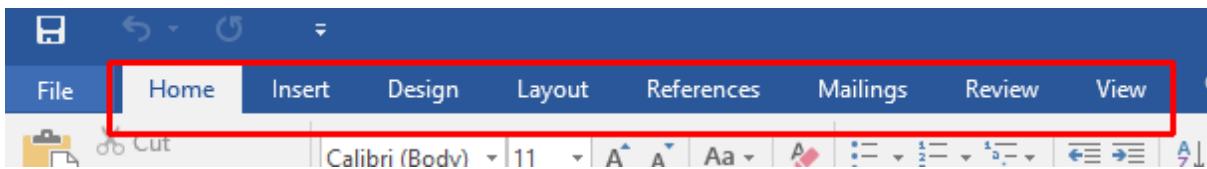
## The levels of command organization

- The Microsoft Word 2016 screen is made up of different levels of organization.

### File Tab

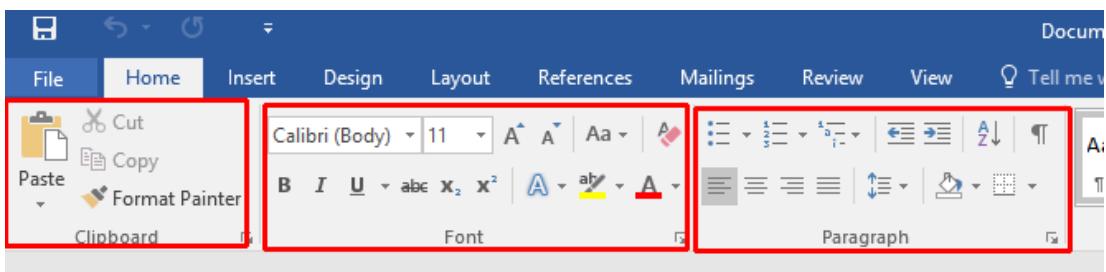


## Tabs



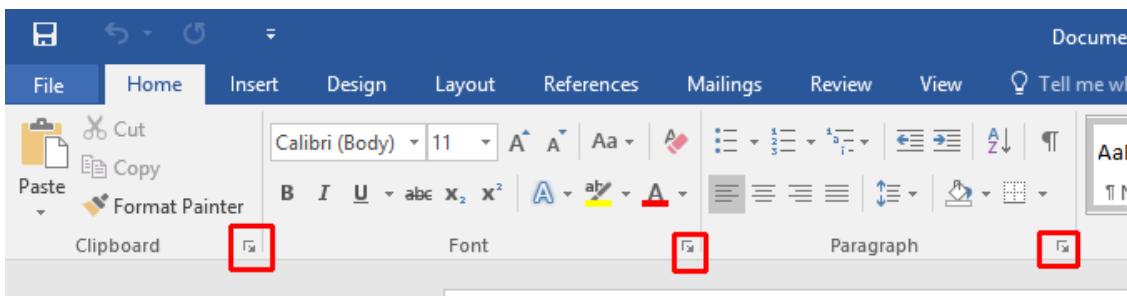
## Groups:

Within each tab you will see groups. Items within a group perform a related function.



## Dialog Box Launcher Buttons:

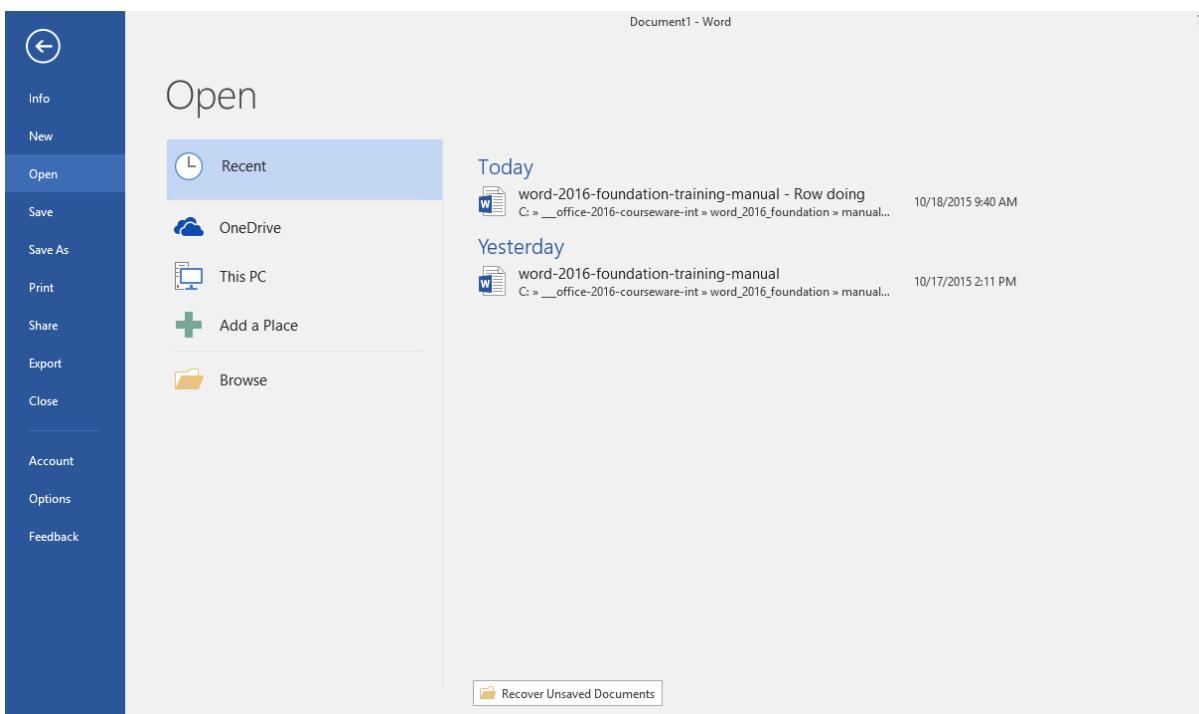
Groups often display a Dialog Box Launcher at the bottom-right of the group. Clicking this will display a dialog box displaying additional options.



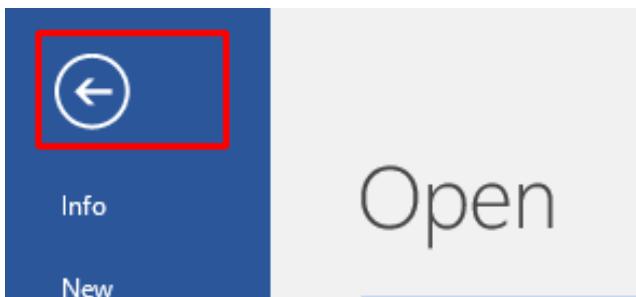
## The File Tab

---

- Clicking on the **File Tab** will display the following.



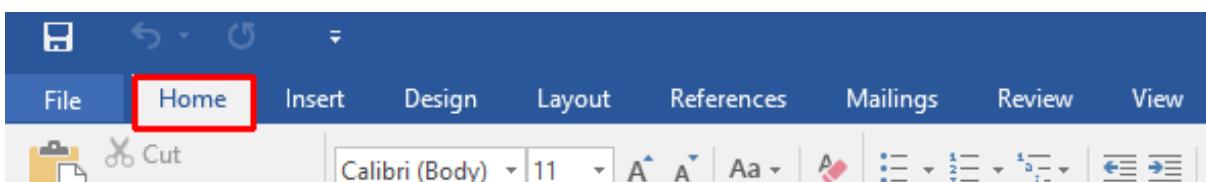
- Within the screen displayed are common commands such as **Open** (for opening a Microsoft Word document stored on your hard disk), **Save** (for saving a Microsoft Word document to your hard disk) and **Print** (for printing a Microsoft Word document). We will use these commands shortly. For now, just remember what is available when you click on the **File Tab**.
- To exit from the **File** tab, click on the **Back** button at the top left of the screen.



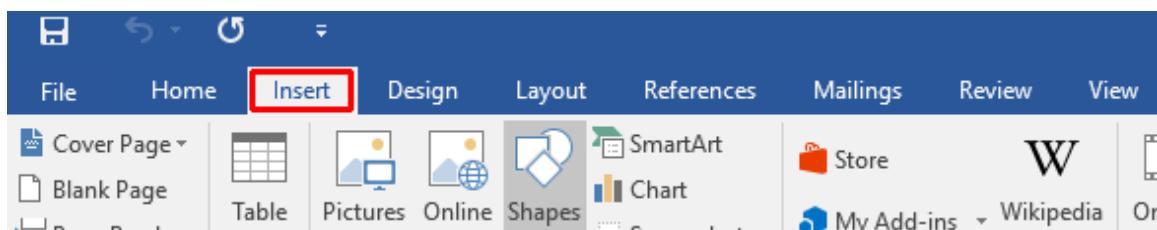
## Ribbon Tabs

---

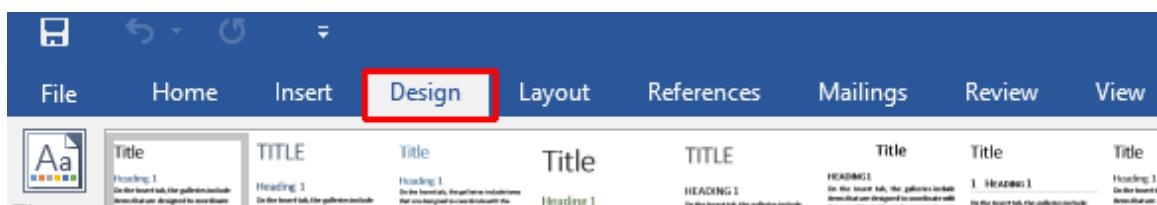
- When you first start Microsoft Word, you normally see the **Home** tab displayed, as illustrated.



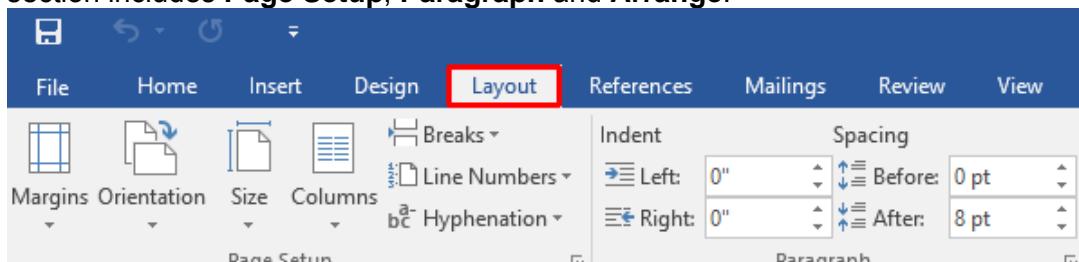
- This tab contains icons and other controls that are most commonly used within Microsoft Word, such as making text display as bold or underlined. You can also find more advanced options such as paragraph alignment, numbering and bulleting. Move the mouse pointer over some of the icons and get a feel for what options are contained within this tab.
- Click on the **Insert** tab and you will see commands and options relating to inserting items within your Microsoft Word document. Again move the mouse pointer over the items and see what is available.



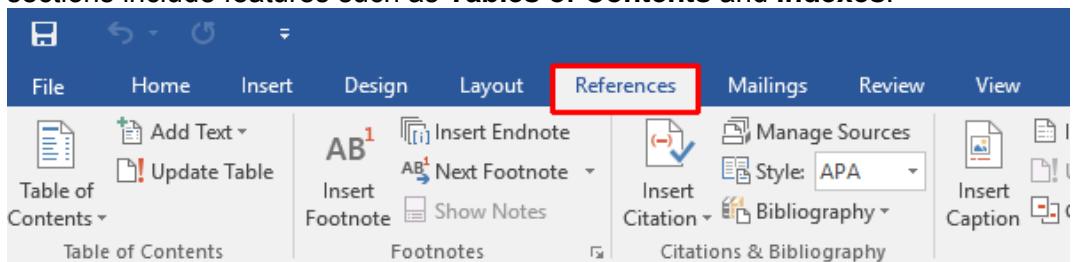
- Click on the **Design** tab and you can apply design elements such as themes and styles.



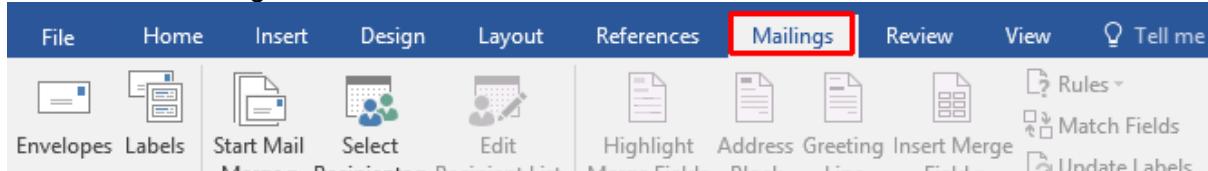
- Click on the **Page Layout** tab and briefly examine what is available within this tab. The section includes **Page Setup**, **Paragraph** and **Arrange**.



- Click on the **References** tab and briefly examine what is available within this tab. The sections include features such as **Tables of Contents** and **Indexes**.



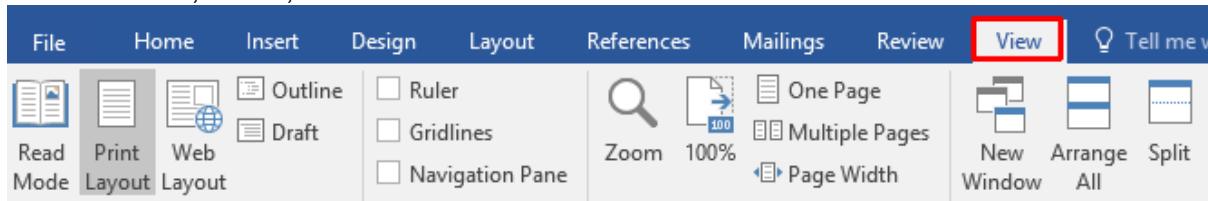
- Click on the **Mailings** tab and briefly examine what is available within this tab. This is all about the mail merge feature.



- Click on the **Review** tab and briefly examine what is available within this tab. The sections include **Proofing, Language, Comments, Tracking and Changes**.

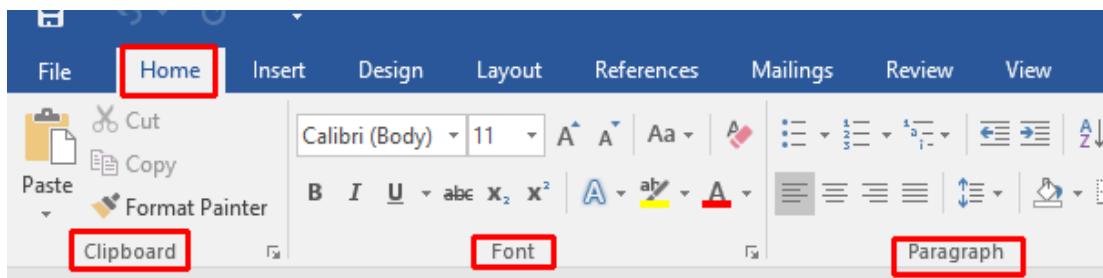


- Click on the **View** tab and briefly examine what is available within this tab. The sections include **Views, Show, Zoom and Window**.



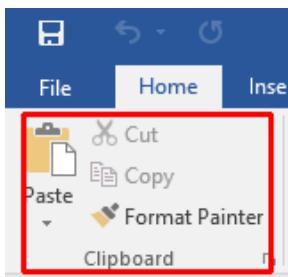
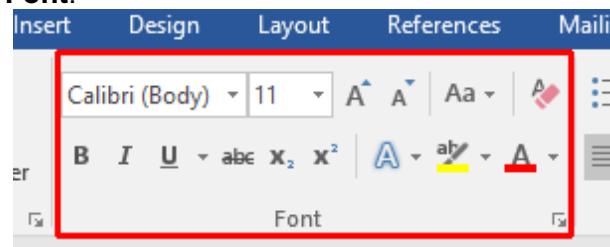
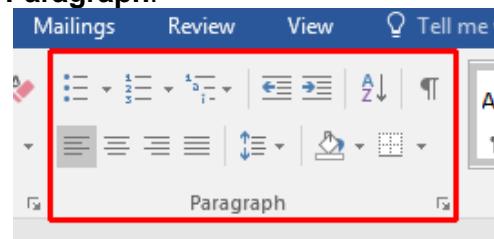
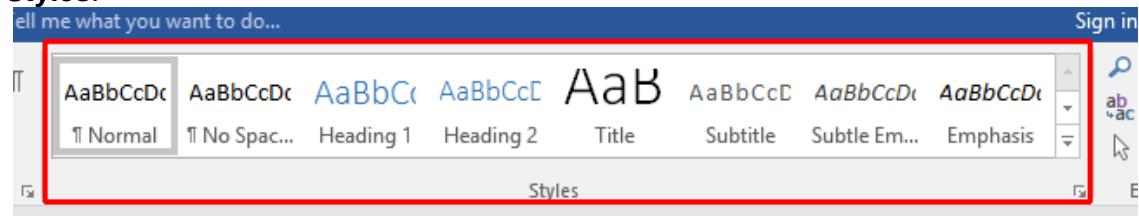
## Groups

- Did you notice that within each tab, commands are grouped? For instance, look at the **Home** tab.



- You normally see the following groups of commands under the **Home** tab.

**Clipboard:**

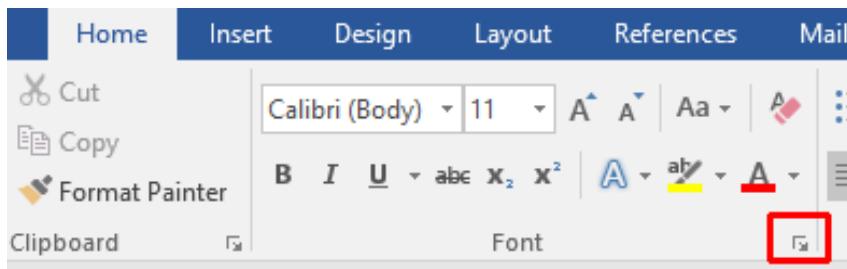
**Font:****Paragraph:****Styles:****Editing:**

- Look at the other tabs and you will see that in each case commands are grouped.
-

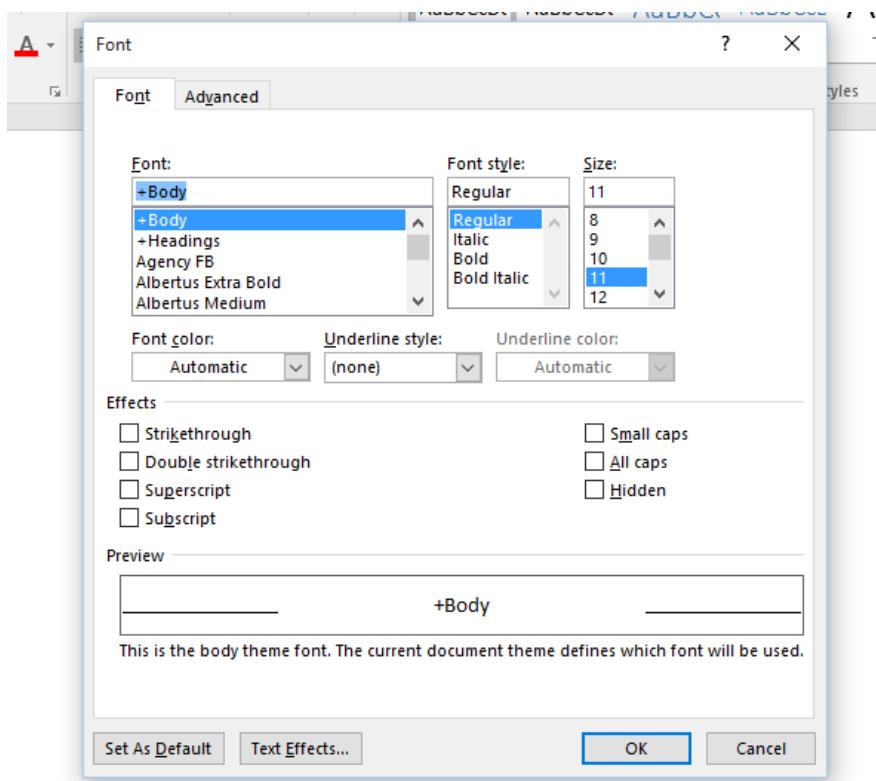
## Dialog box launcher

---

- If you look carefully at the bottom right of many groups, there is a small control called the **dialog box launcher**. Clicking on this will display a dialog box containing even more options. Display the **Home** tab, and click in the **Font dialog box launcher**.



- You will see the **Font** dialog box displayed.



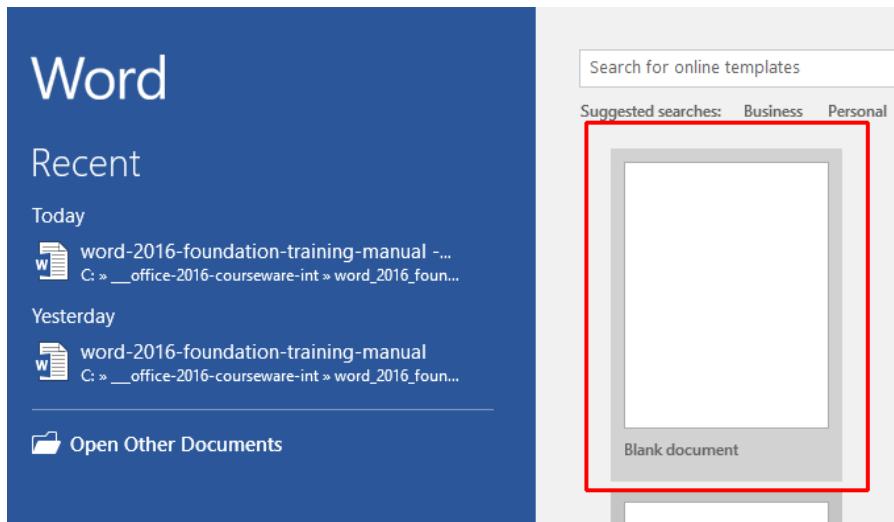
As you can see, this dialog box has a range of additional commands and options such as adding a shadow effect to your text.

- Click on the **Cancel** button to close the dialog box.
  - Close the Word program using the keyboard shortcut **Alt+F4**.
-

# Starting to Use Microsoft Word 2016

## Using the default Microsoft Word document

- Open the Microsoft Word program.
- Click on the **Blank Document** thumbnail.

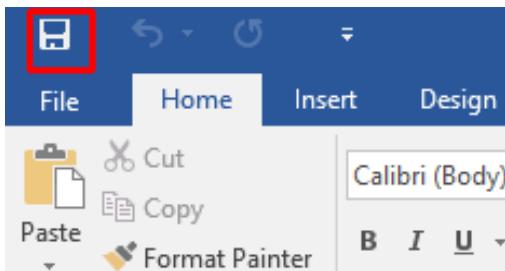


- This creates a new Microsoft Word document for you. This is like a piece of blank paper on to which you can start typing.
- Type your name. Press the **Enter** key a few times. As you can see this drops you down a line each time you press the **Enter** key.
- Type in the following text.

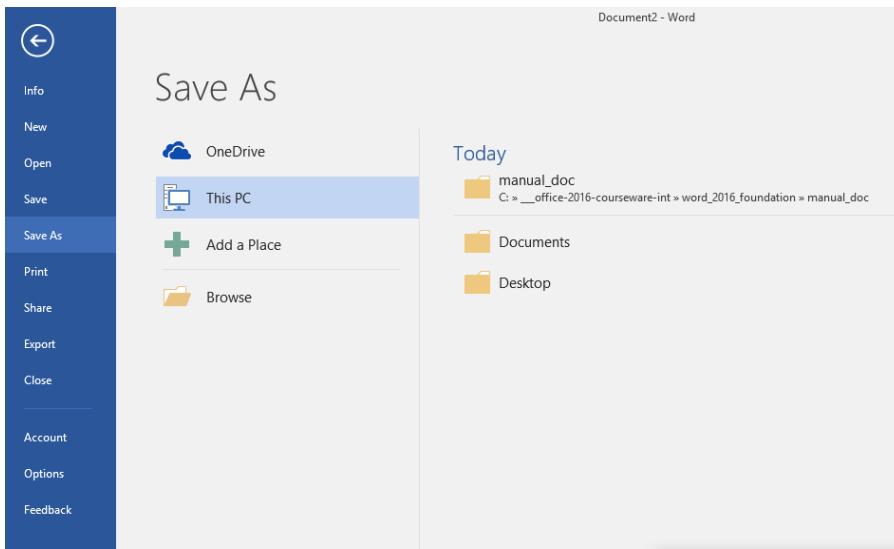
There will be a meeting tomorrow at 11 am in room one to discuss the introduction of our new range of products. Please can everyone attend and bring samples and details of prices.

## Saving Microsoft Word documents

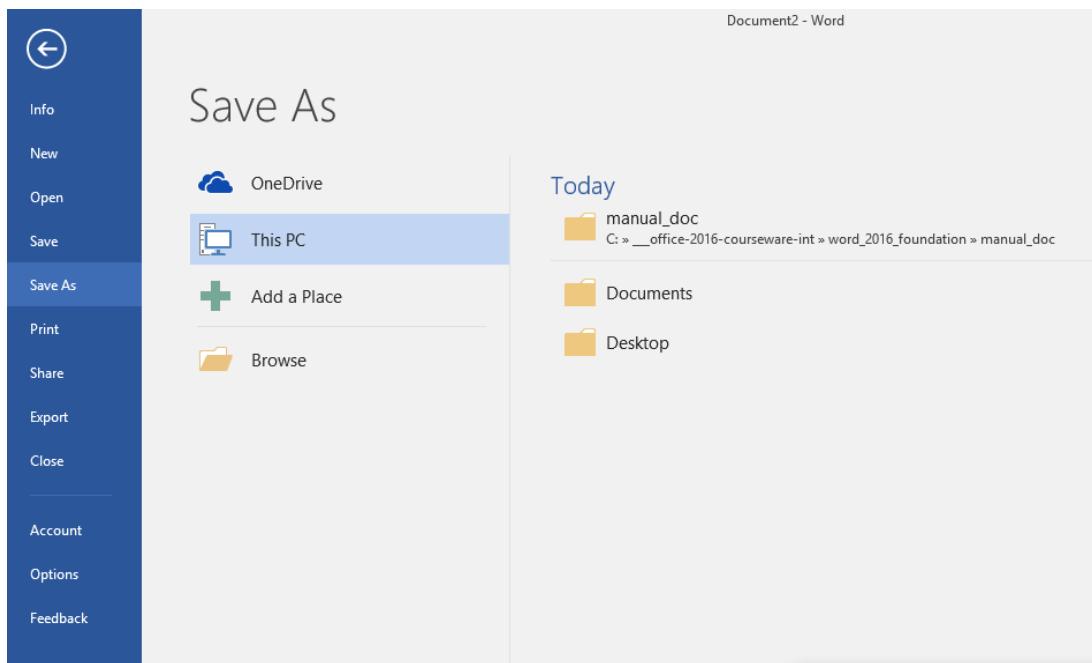
- You have typed in some text but this has not been saved. If your computer lost power now, then everything you have just typed in could be lost. Saving your Microsoft Word document to disk means that the information will be safely stored as a file on your hard disk and then at a later date you can reopen this file from your hard disk.
- To save your file, click on the **Save** icon (towards the top-left of your screen)



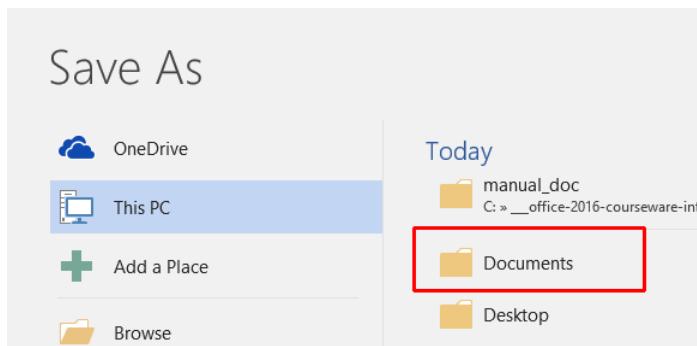
- This will display the **Save As** screen box as illustrated:



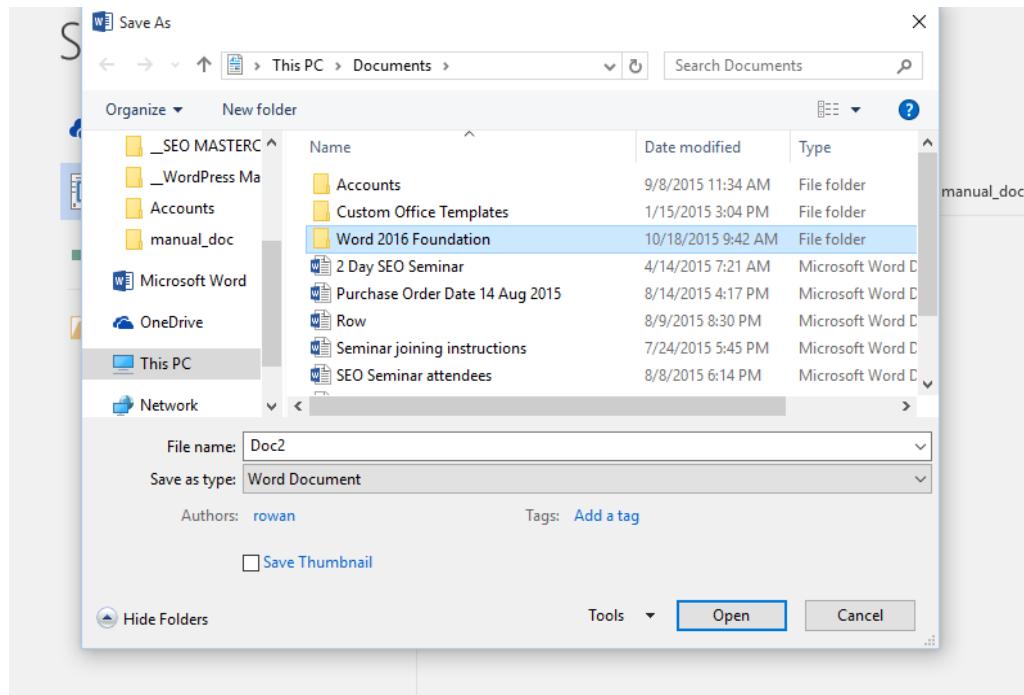
- You can save the document to various places, in this case we will save the document to the computer's hard disk. To do this click on the **This PC** option, as illustrated.



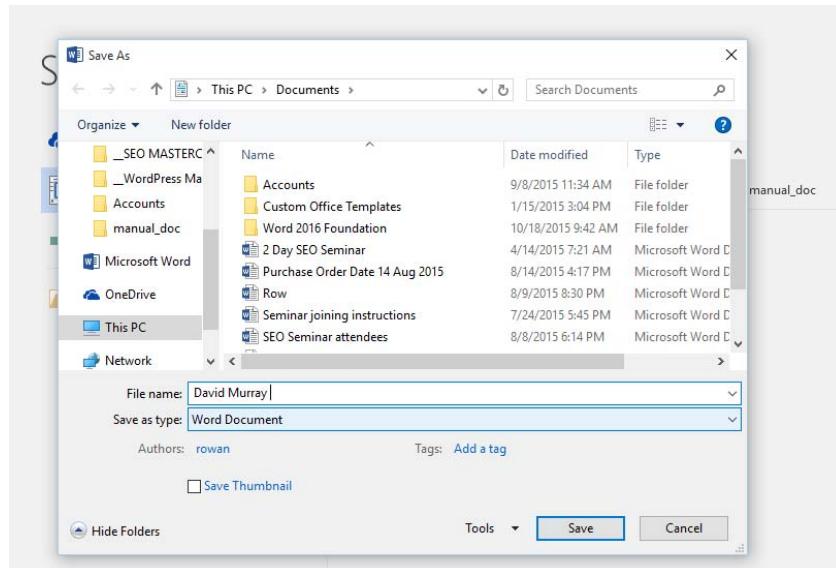
- Click on the **Documents** entry.



- This will display the **Save As** dialog box.



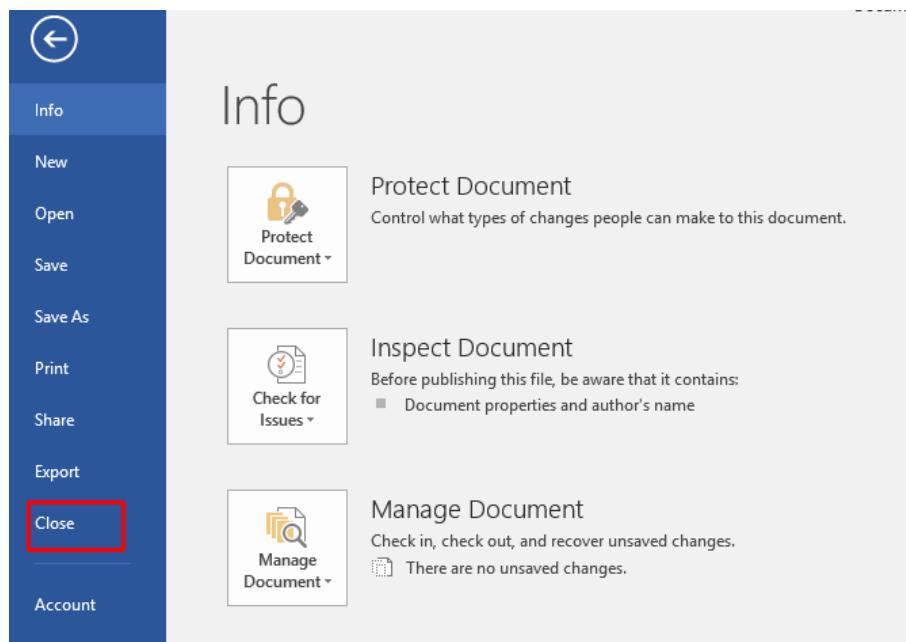
- If necessary, scroll down the list of folders until you can see a folder called **Word 2016 Foundation**, and then click on this folder to select it.
- Click on the **Open** button (at the bottom-right of the dialog box), to open this folder.



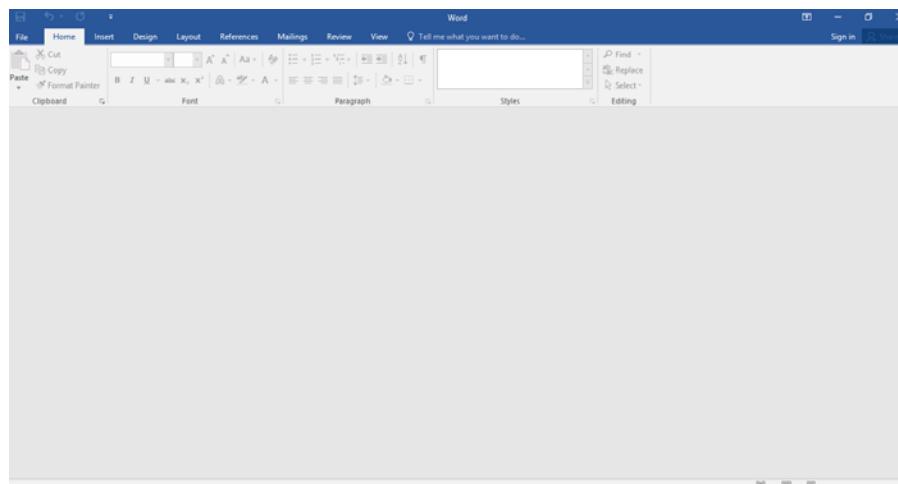
- Click on the **Save** button and the document will be saved to disk as a file using the file name suggested by Microsoft Word (probably your name).
- You have now saved the file to a folder called **Word 2016 Foundation**.

## Opening and closing documents

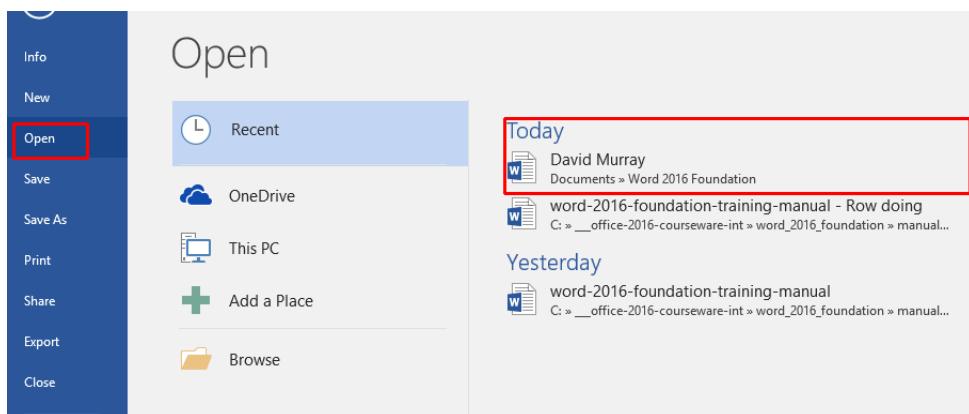
- Now that you have saved your document, you can close the file. To do this click on the **File** button and select the **Close** command.



- The screen will now look like this. As you can see, most of the commands are now greyed out as they will not be available until you create a new document or open an existing document.

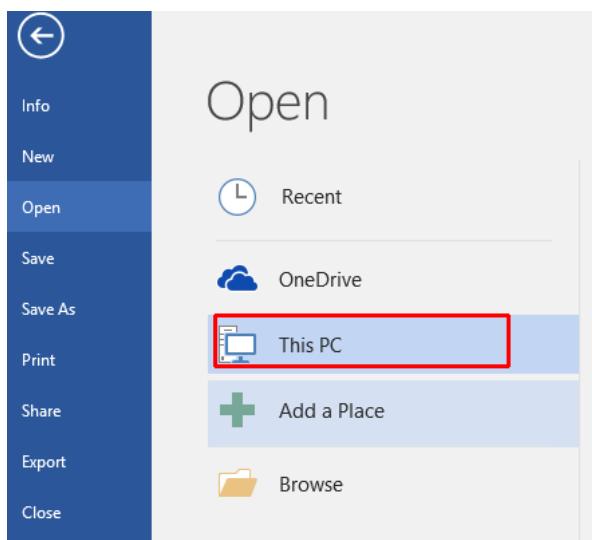


- To open a document, click on the **File** button and select the **Open** command.

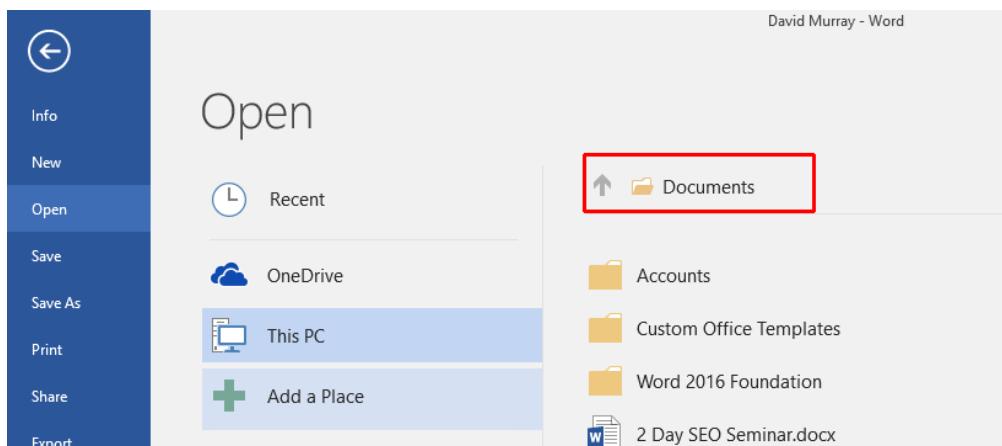


**NOTE:** This will display a list of recently opened documents, so the easy way to re-open your document would be to click on the item within the **Recent Documents** list.

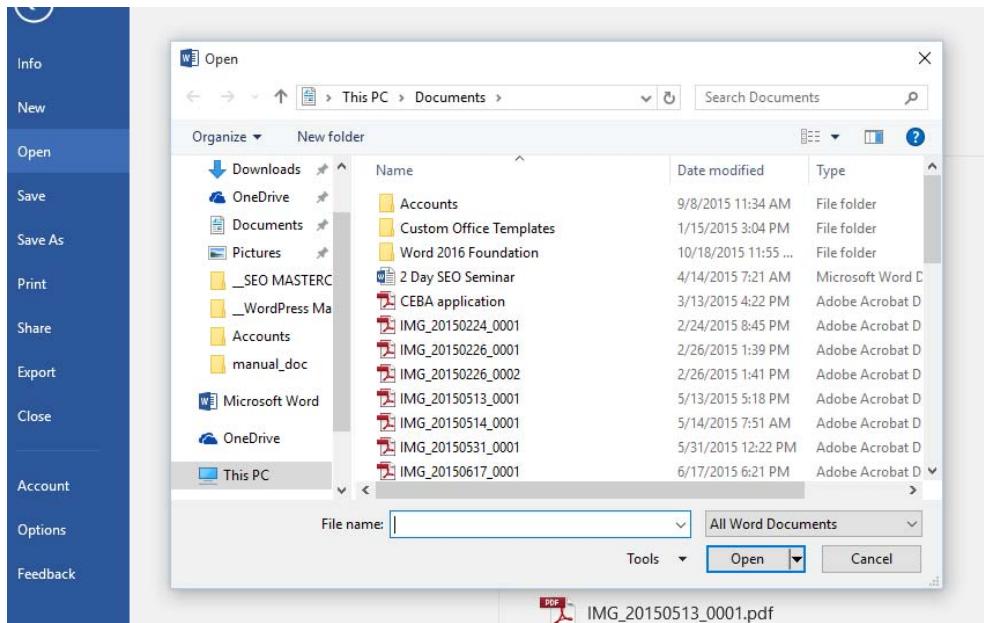
**HOWEVER** in this case click on the **This PC** item, as illustrated below.



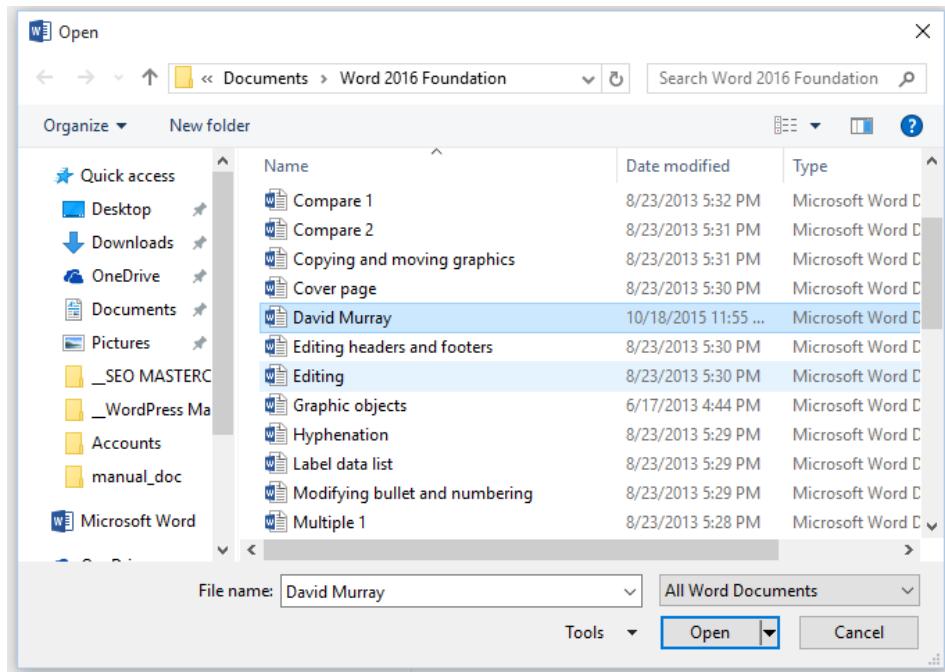
- Then click on the **My Documents** folder.



- This will display the **Open** dialog box.



- Within this dialog box, scroll down to the **Word 2016 Foundation** folder and **double click** on it to change to that folder.
- If necessary, scroll down to select the file you previously saved (**David Murray**) in the example illustrated.



- Double click on the file that you previously saved to open it.

- Your file will be copied from your hard disk into your computer memory. You will now see your document displayed on the screen again.

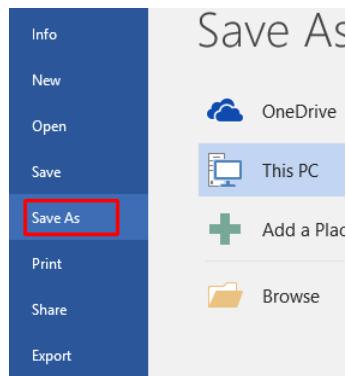
## Save As

---

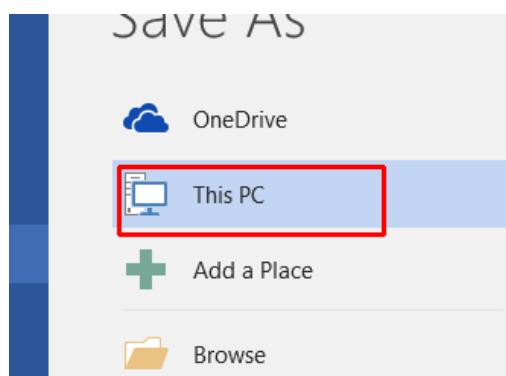
- Sometimes you might want to save different versions of a document. Once you have re-opened your document, click on the page at the end of your text and press the **Enter** key a few times to insert a few empty lines. Type in the following text:

**Please also inform the rest of your team that they need to attend this meeting.**

- If we were to click on the **Save** icon that we originally used to save the document, it would overwrite the old version of the file with the contents of the amended document. To save the file using a different file name, click on the **File button** and from the menu displayed, click on the **Save As** command.



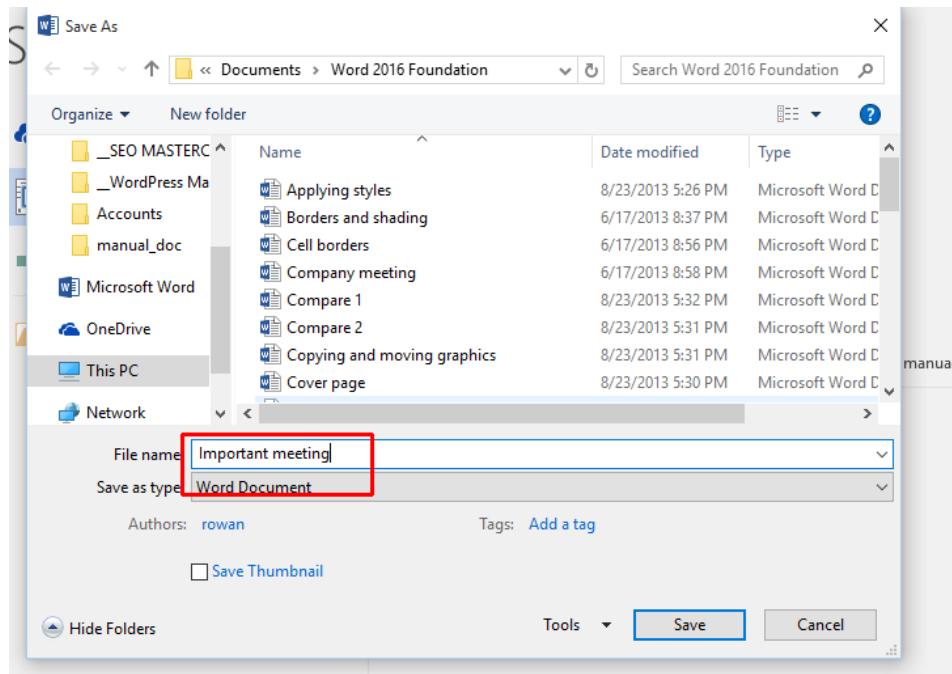
- Double click on **This PC** within the **Save As** section.



- This will display the **Save As** dialog box.

Within the **File Name** section of the dialog box, enter the file name as:

**Important Meeting.**



- Then save the file by clicking on the **Save** button.

You now have two versions of this file saved to your hard disk.

- Close the document before continuing.

### Creating a new, blank document using a keyboard shortcut

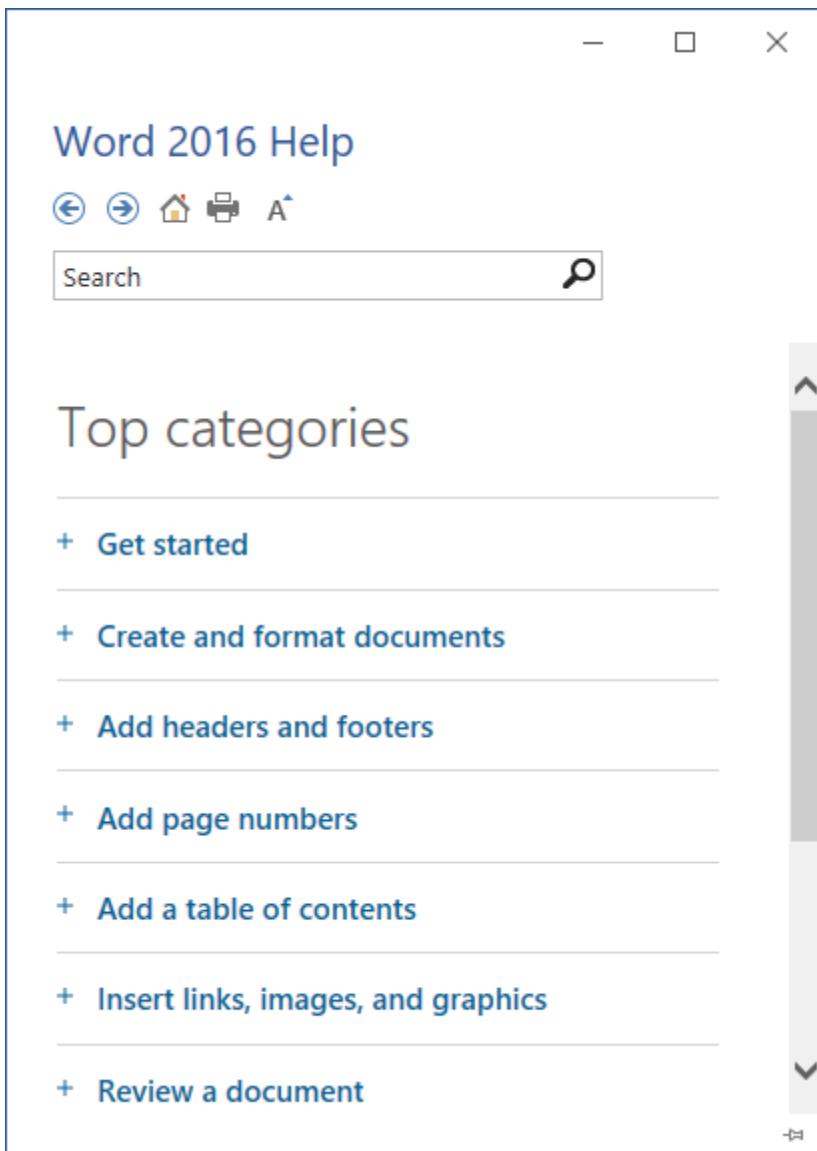
---

- Once Microsoft Word is displayed on your screen you can create a new document by pressing **Ctrl+N**. This document will use the default Microsoft Word template and be displayed on your screen. Try this now. Once the empty document is displayed, type in your name and save the document using the file name **My New Document**. Close the document.

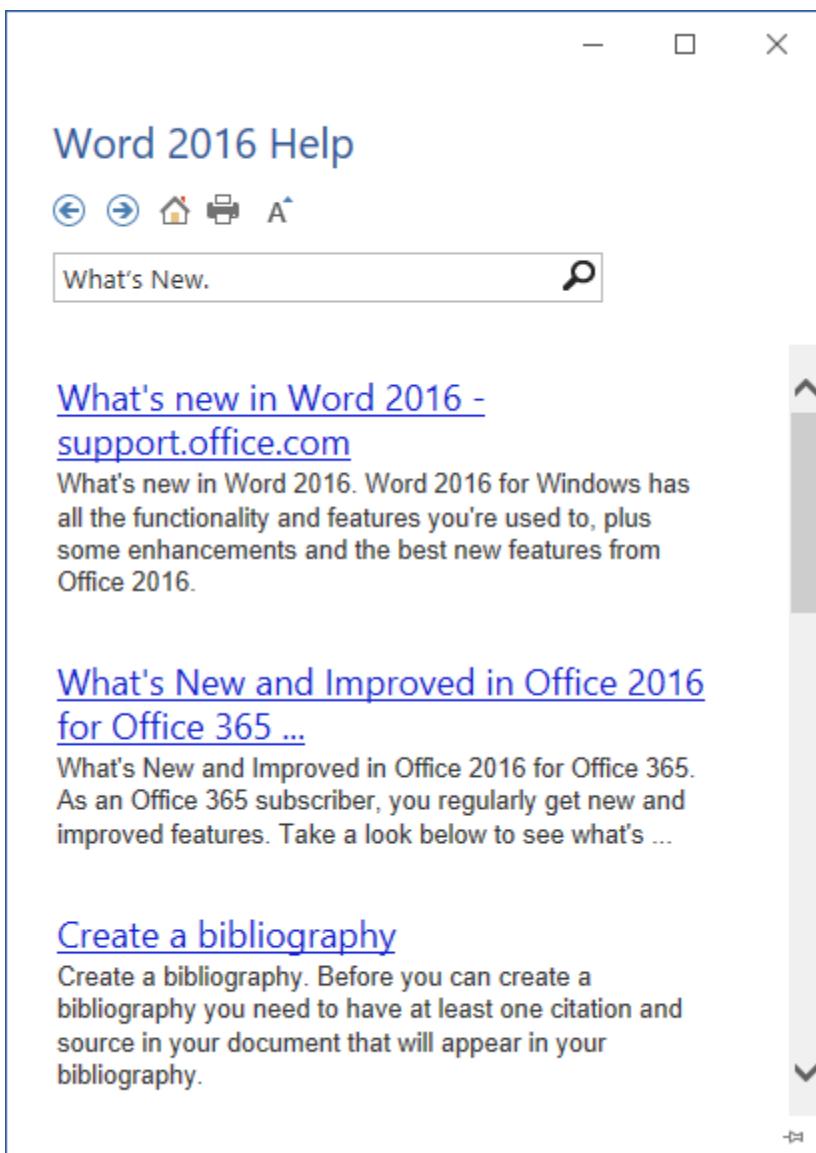
### Using Help within Microsoft Word

---

- Press **Ctrl+N** to display a new, empty document
- Press the **F1** key, which is the general get help key within most Microsoft products. This will display the **Help** window.



- Try typing in the words **What's New**.
-



- You will see the following information displayed.
-

The screenshot shows the Microsoft Word 2016 Help window. At the top, there are standard window controls (minimize, maximize, close) and a toolbar with icons for back, forward, home, print, and font size. Below the toolbar is a search bar containing the text "What's New." with a magnifying glass icon to its right. The main content area is titled "Word 2016 Help". Under this, there is a section titled "What's new in Word 2016 - support.office.com". A brief description follows: "What's new in Word 2016. Word 2016 for Windows has all the functionality and features you're used to, plus some enhancements and the best new features from Office 2016." Below this, another section is highlighted with a red border and titled "What's New and Improved in Office 2016 for Office 365 ...". Its description reads: "What's New and Improved in Office 2016 for Office 365. As an Office 365 subscriber, you regularly get new and improved features. Take a look below to see what's ...". At the bottom of the content area, there is a section titled "Create a bibliography" with its own description. On the right side of the help window, there is a vertical scroll bar.

[What's new in Word 2016 - support.office.com](#)

What's new in Word 2016. Word 2016 for Windows has all the functionality and features you're used to, plus some enhancements and the best new features from Office 2016.

[What's New and Improved in Office 2016 for Office 365 ...](#)

What's New and Improved in Office 2016 for Office 365. As an Office 365 subscriber, you regularly get new and improved features. Take a look below to see what's ...

[Create a bibliography](#)

Create a bibliography. Before you can create a bibliography you need to have at least one citation and source in your document that will appear in your bibliography.

- Click on the '**What's new and improved in Office 2016 ...**' topic and you will see a screen describing the new features of this version of Microsoft Word.

The screenshot shows a window titled "Word 2016 Help". At the top, there are several icons: a left arrow, a right arrow, a home icon, a print icon, and a font size icon. To the right of these icons is a search bar containing the text "What's New." followed by a magnifying glass icon. Below the title, the main content area features a large heading: "What's New and Improved in Office 2016 for Office 365". Underneath this heading, there is a paragraph of text. Further down, there are two more sections of text. At the very bottom of the window, there is a horizontal toolbar with several icons.

What's New and Improved in Office 2016 for Office 365

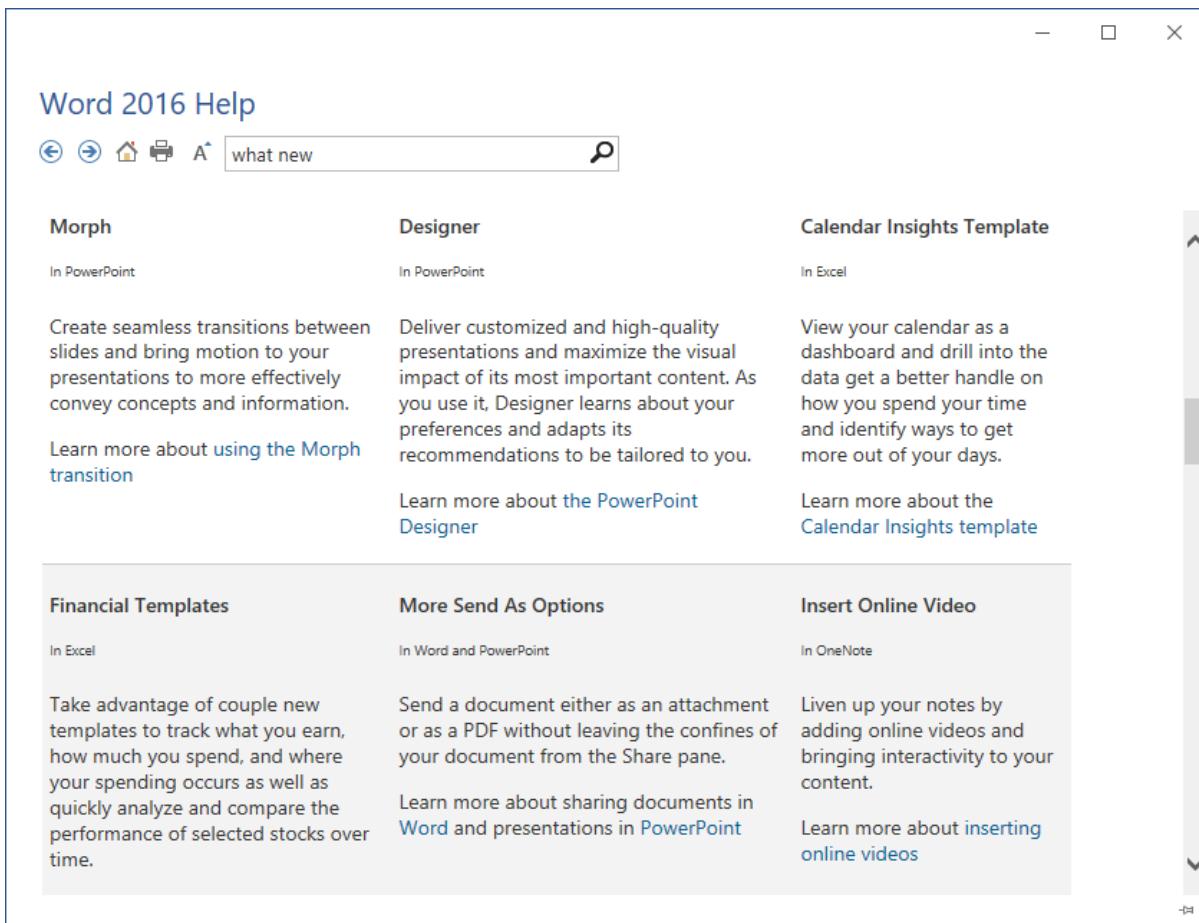
As an Office 365 subscriber, you regularly get new and improved features. Take a look below to see what's available to you today and what's coming. Not an Office 365 subscriber but using Office 2016? Find out what's available in your version. Need a subscription? Check out your options.

If you're new to Office or new to an app, check out the [Office 2016 Quick Start Guides](#). If you want to learn about available training, visit the [Office Training Center](#). If you want to find out why you should upgrade to Office 2016, watch this [video](#).

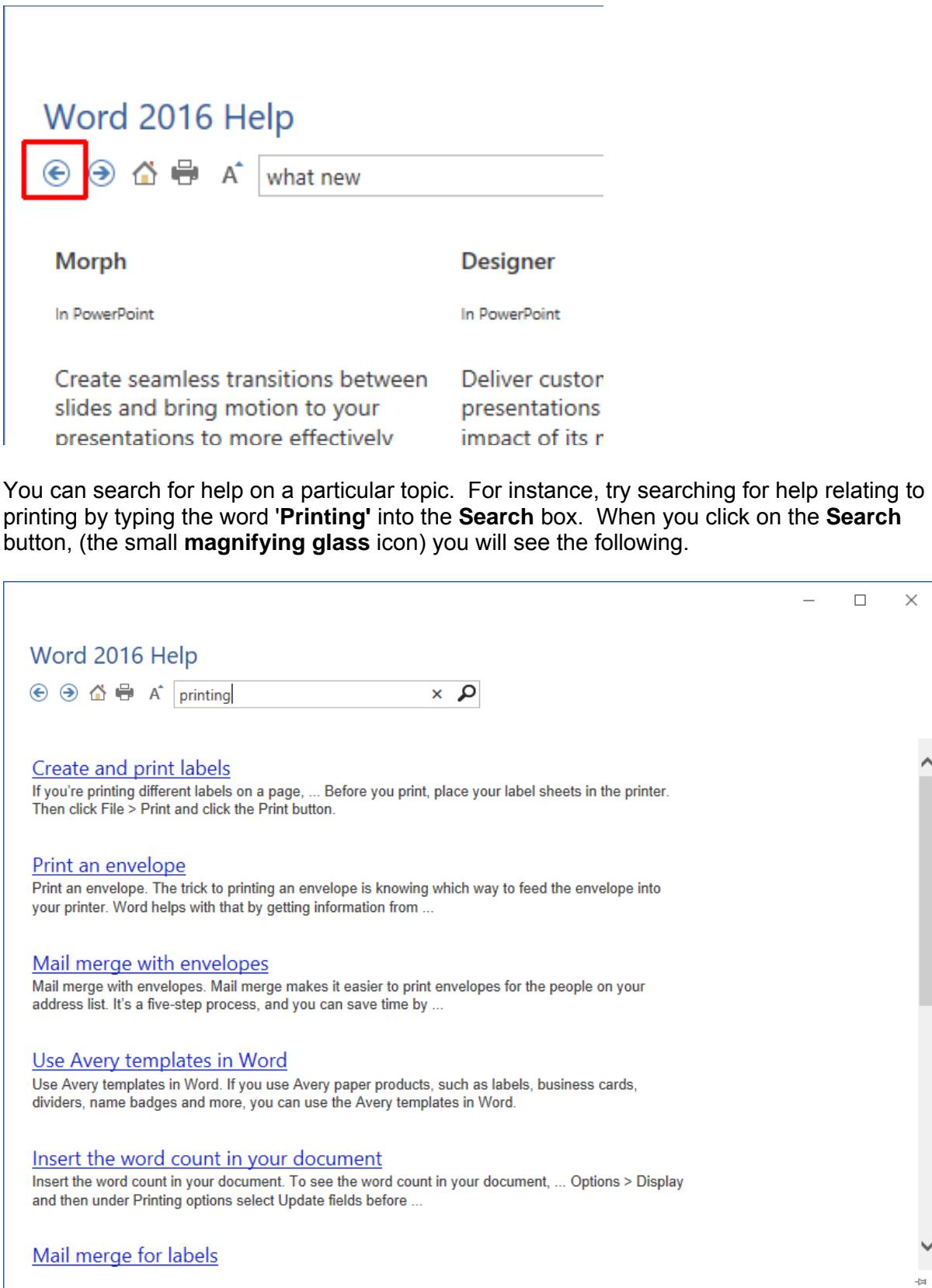
Need to install Office 2016? If you're an Office 365 Home, Personal, or University subscriber, learn more about [how to upgrade to Office 2016](#). If you're an Office 365 for Business subscriber, learn more about [how to get the new Office 2016 apps](#).

Interested in being one of the first people to try out new features and functionality? If you're an Office 365 Home, Personal, or University subscriber, you can choose to become an [Office Insider](#).

- Scroll down within this window to see more information. Do not read all the information, just scroll down and see what sort of information is available.



- You can use the **Back** button within the Help window to see previously viewed pages. Clicking on the **Home** button within the Microsoft Office help window will display the default starting page again.



The screenshot shows the Microsoft Word 2016 Help window. At the top, there is a navigation bar with icons for back, forward, home, print, and a magnifying glass search icon. A search box contains the text "printing". Below the search bar, the results are displayed in two columns:

Morph	Designer
In PowerPoint	In PowerPoint
Create seamless transitions between slides and bring motion to your presentations to more effectively	Deliver custom presentations with impact of its r

- You can search for help on a particular topic. For instance, try searching for help relating to printing by typing the word '**Printing**' into the **Search** box. When you click on the **Search** button, (the small **magnifying glass** icon) you will see the following.

**Word 2016 Help**

**printing**

**Create and print labels**  
If you're printing different labels on a page, ... Before you print, place your label sheets in the printer. Then click File > Print and click the Print button.

**Print an envelope**  
Print an envelope. The trick to printing an envelope is knowing which way to feed the envelope into your printer. Word helps with that by getting information from ...

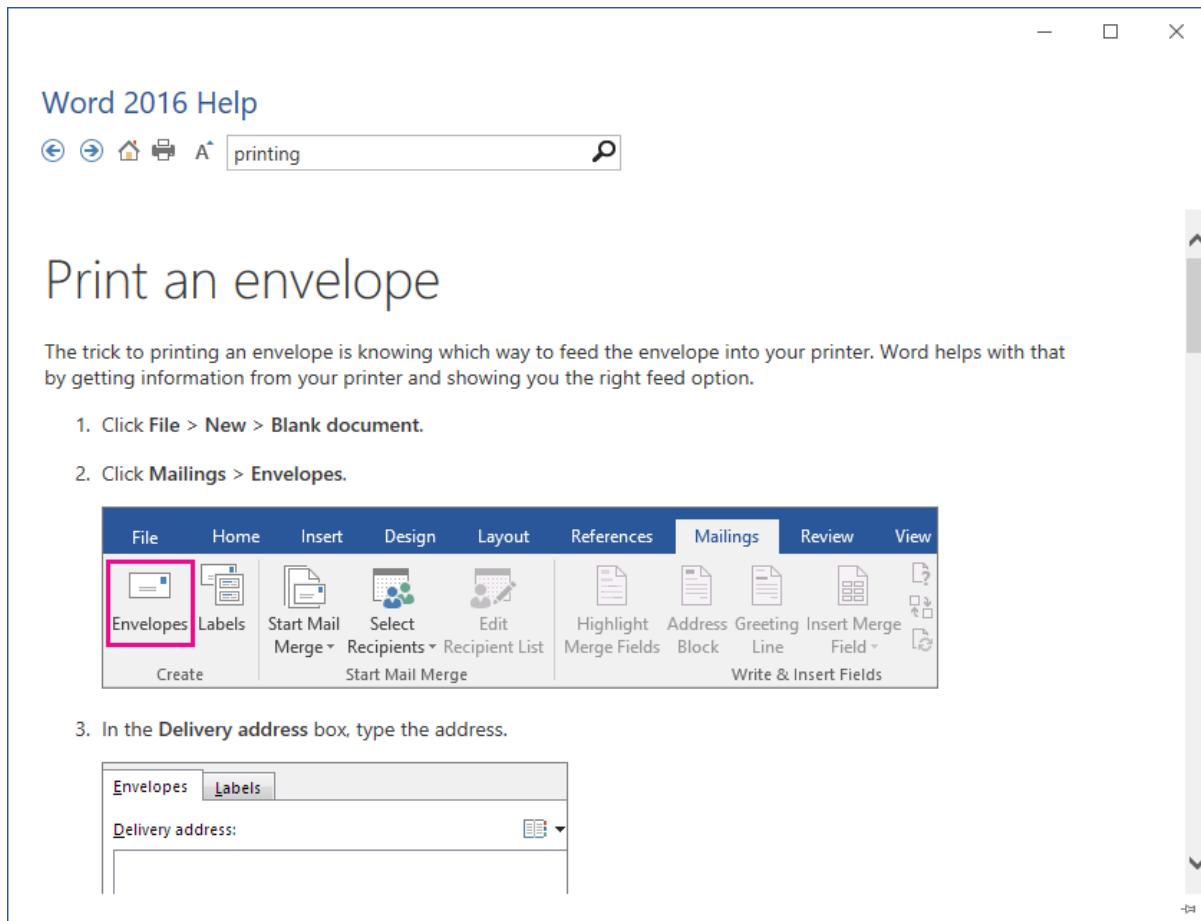
**Mail merge with envelopes**  
Mail merge with envelopes. Mail merge makes it easier to print envelopes for the people on your address list. It's a five-step process, and you can save time by ...

**Use Avery templates in Word**  
Use Avery templates in Word. If you use Avery paper products, such as labels, business cards, dividers, name badges and more, you can use the Avery templates in Word.

**Insert the word count in your document**  
Insert the word count in your document. To see the word count in your document, ... Options > Display and then under Printing options select Update fields before ...

**Mail merge for labels**

- Display information about a specific printing topic, such as '**Print for envelopes**'.



- Then use the **Printer** icon within the Microsoft Word **Help** window to print out a page of instructions.

## Word 2016 Help

← → ⌂ A printing

# Print an envelope

The trick to printing an envelope is knowing which way to feed the envelope into

- Before continuing, close the Help window.

### Using ‘Tell Me’ within Microsoft Word

- Open a document called **Tell Me**. As you can see this document is not formatted to display columns.

SEO, BROWSERS AND SEARCH ENGINES:

If you build it they will come: Err not really:

That was just a line in a film. You see this phrase repeated endlessly by website designers. It could not be further from the truth. If you want visitors to your website and if you want to be ranked highly in the search engines, you have to work at it, and keep working at it. Unlike painting a picture, website SEO is never finished, you need to keep up with changes in how the search engines rank websites.

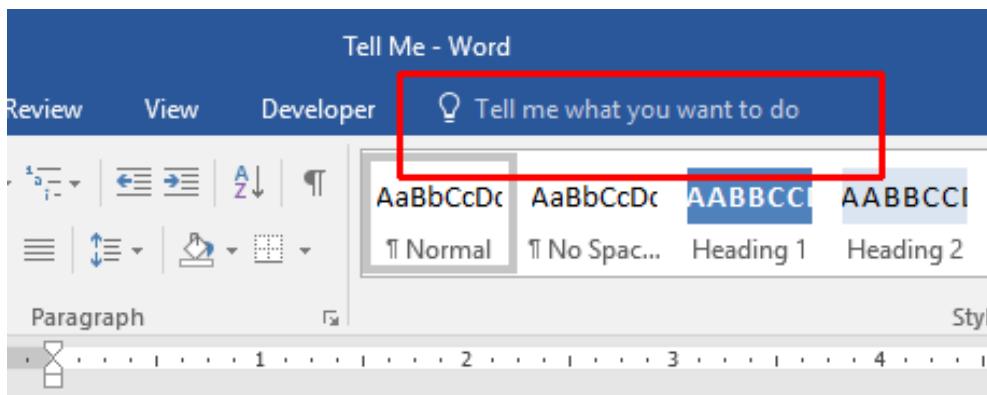
What is SEO?

SEO is short for search engine optimization. As the term implies, SEO is all about optimizing a website to gain maximum visibility within the search engine results. As we will see, SEO takes time and effort. Do not be fooled by e-mails turning up unannounced in your inbox, promising instant SEO results.

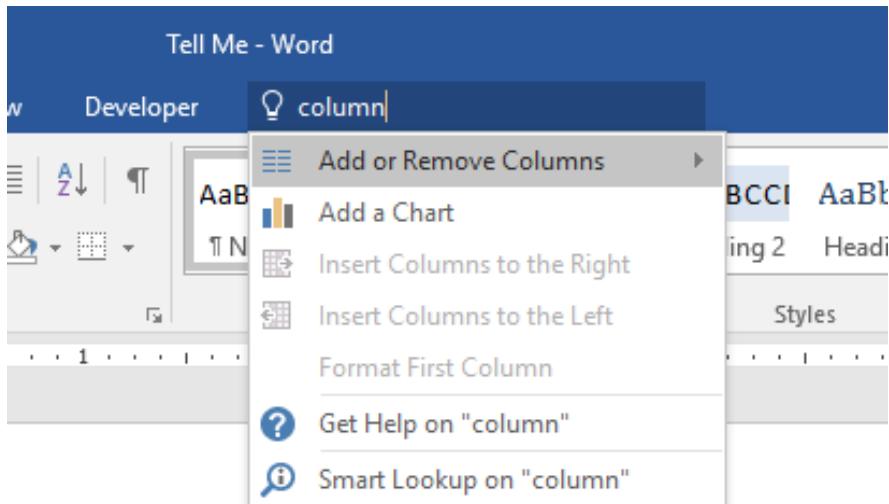
Onsite and offsite SEO:

When you are optimizing your website for search engine visibility there are two distinct aspects to the optimization.

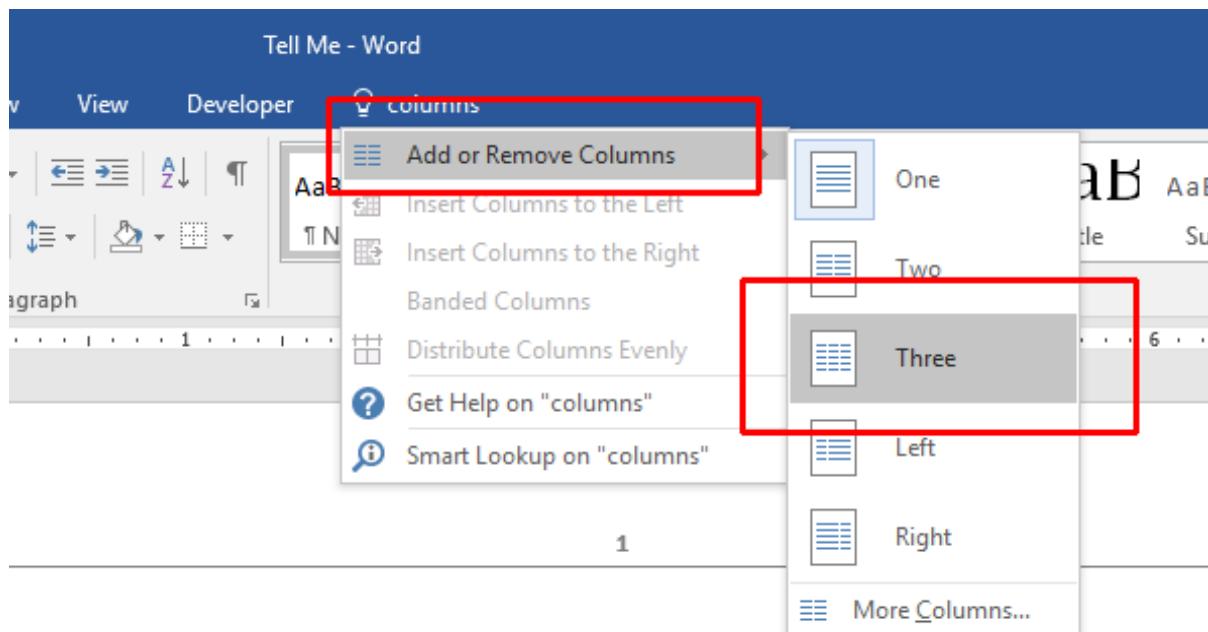
- If you look at your Microsoft Word screen there is an area called **Tell me what you want to do** towards the top-right of the screen.



- Click within the **Tell me what you want to do** area and type in the word columns. You will see the following.



- Click on the item that displays the text **Add or Remove Columns**. From the sub-menu displayed, click on the **Three** columns option.



- Your document will now look like this.

1

**SEO, BROWSERS AND SEARCH ENGINES:**

If you build it they will come:  
Err not really:

That was just a line in a film. You see this phrase repeated endlessly by website designers. It could not be further from the truth. If you want visitors to your website and if you want to be ranked highly in the search engines,

When you are optimizing your website for search engine visibility there are two distinct aspects to the optimization.

On-site optimization refers to any changes that you make to the actual content of the website. This on-site optimization may relate to the text that your visitors can see when they visit your website or it may relate to the code behind the website that the search engine will

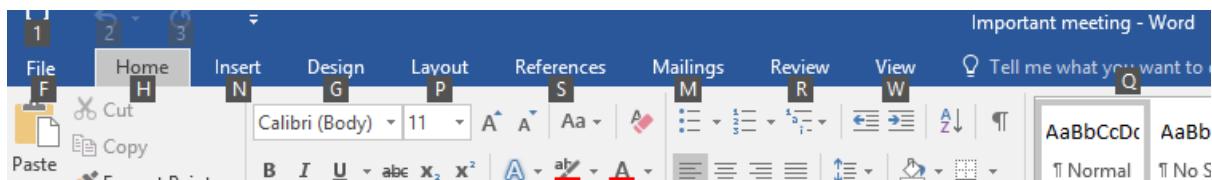
requesting links from other websites to your website. In addition, this now includes activities ranging from posting videos on YouTube through to setting up Facebook and Twitter accounts.

The single most important offsite activity is the acquiring of links from other websites, to your website. Within reason the more of these the better. However, it is also important that these

- Without knowing how to format a document in three column format, you have achieved this task, simply by asking about it.

## Alt key help

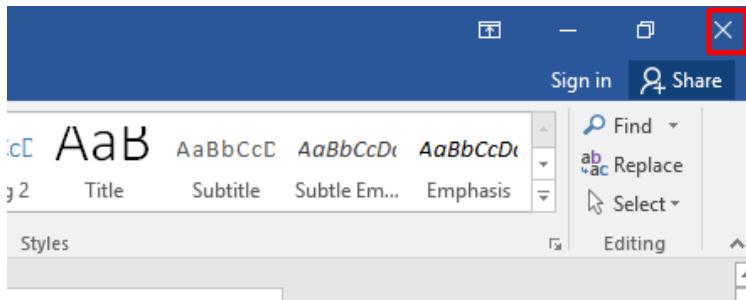
- Press the **Alt** key and you will see numbers and letters displayed over icons, tabs or commands, towards the top of your screen.



- If you type in a number or letter you will activate a command. Press the **Alt** key again and the extra help will no longer be displayed.
- Press the **Alt** key again and you will see an **N** displayed over the **Insert** tab. Press **N** and you will see the contents of the **Insert** tab displayed.
- This is a very easy way of learning keyboard shortcuts. You now know that **Alt+N** will display the **Insert** Tab.
- Click on the **Home** tab before continuing.

## Closing Microsoft Word

- To close the Microsoft Word program, click on the **Close** icon, displayed at the top-right of the Word window.



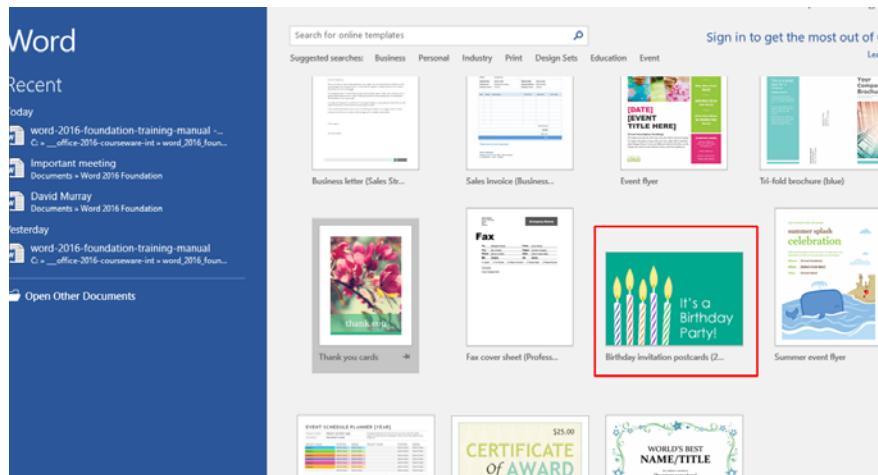
- Close the Word program

**TIP:** The keyboard shortcut to close the Word program is **Alt+F4**.

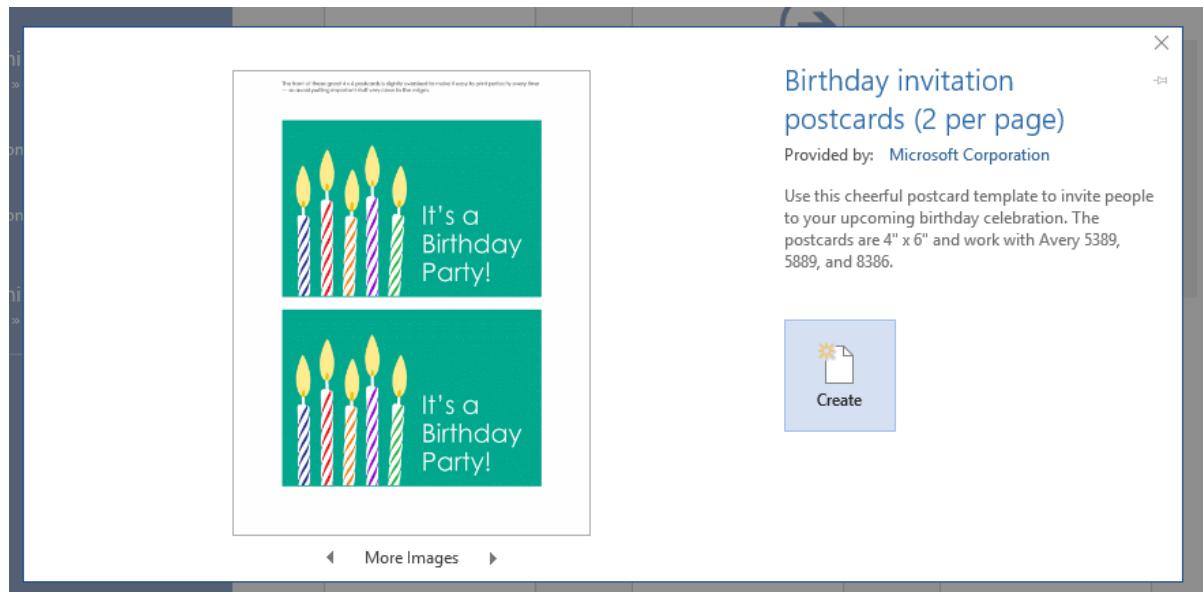
# Using templates to create documents

## Creating new documents using different templates

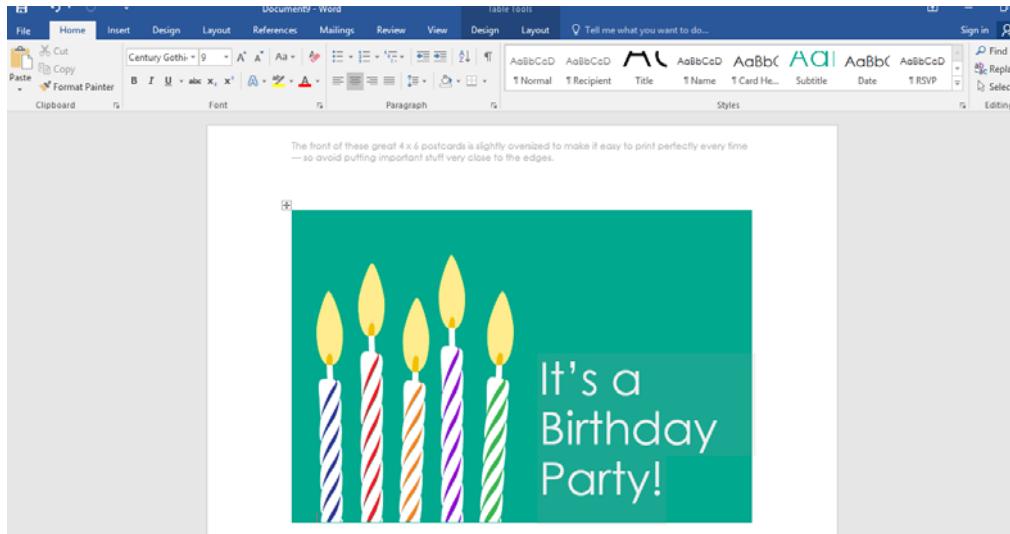
- Re-open the Microsoft Word program. By default, the Word program opens and displays a screen displaying a number of different templates that you can use to create a new document.



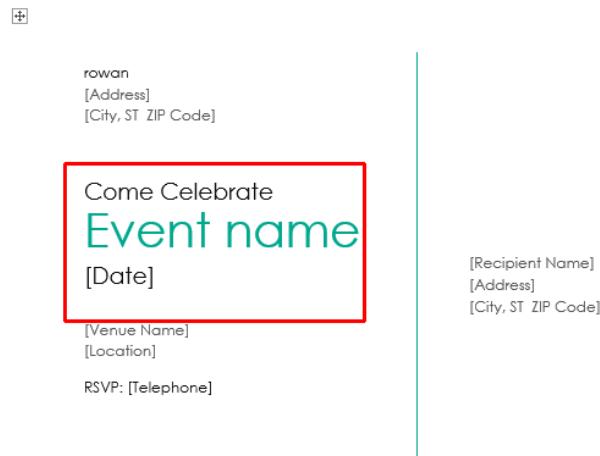
- If necessary, scroll down the template thumbnails, until you see the **Birthday Invitation** template.
- Click on this template to display a preview and details about the template, as illustrated.



- Click on the **Create** button. Your screen will now display a new document, based on the selected template.



- Click within the **Birthday Party Event Name** area and you will see that this section becomes highlighted as illustrated below.



- Type in the event name for instance you could use the words:

**Romans Birthday Party**

- Click within the **Date** area and again this section will become highlighted. If you look carefully there is a drop-down to the right of this area and if you click on this a calendar will be displayed allowing you to select the date.



- Use the calendar to set a date for the birthday party.
- Click within the **Location** field and enter a fictitious address for the birthday party

Come Celebrate  
**Romans**  
**Birthday Party**

September 7, 2015

[Venue Name]  
[Location]

RSVP: [Telephone]

[Recipient Name]  
[Address]  
[City, ST ZIP Code]

- Finally click within the email address or telephone section and enter fictitious contact details.

Come Celebrate  
**Romans**  
**Birthday Party**

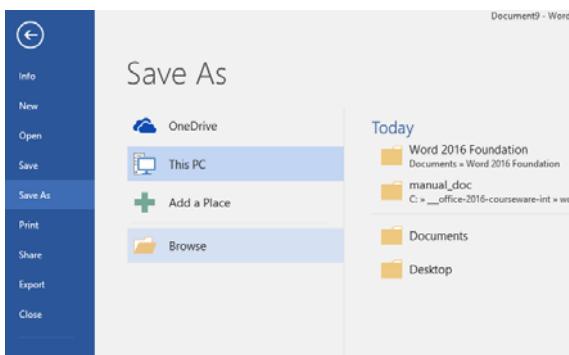
September 7, 2015

[Venue Name]  
[Location]

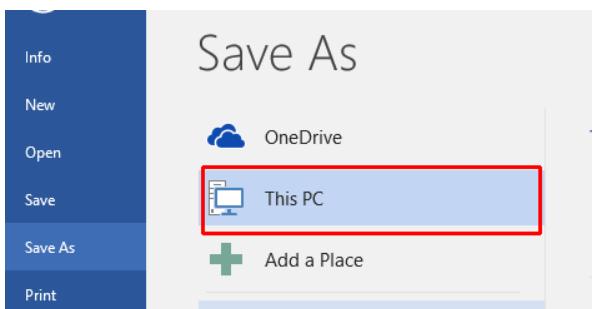
RSVP: [Telephone]

[Recipient Name]  
[Address]  
[City, ST ZIP Code]

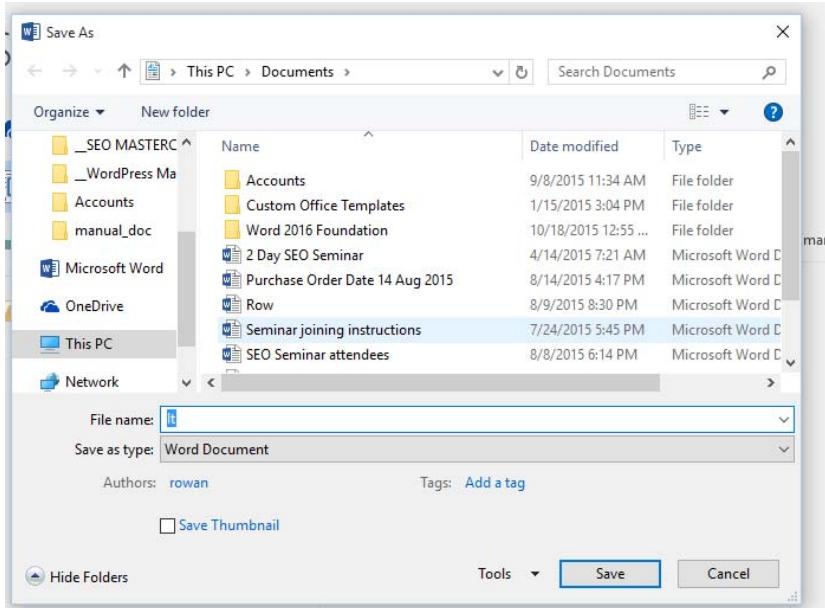
- That's it you have now created your birthday party invitation using this template.
- In order to save your new document, click on the **Save** icon displayed at the top left of the screen which will display the **Save As** screen.



- Click within the **This PC** section.



- Click on **My Documents**. This will display the **Save As** dialog box.



If necessary scroll down so that you can see the **Word 2016 Foundation** folder, and then double-click on this folder to change to that folder.

- Enter a file name within the file name section. In this case use the file name:

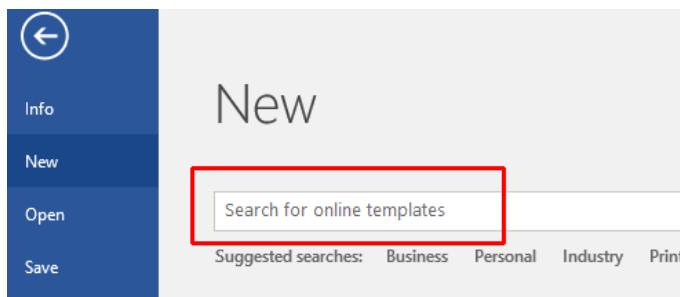
**Birthday Invitation**

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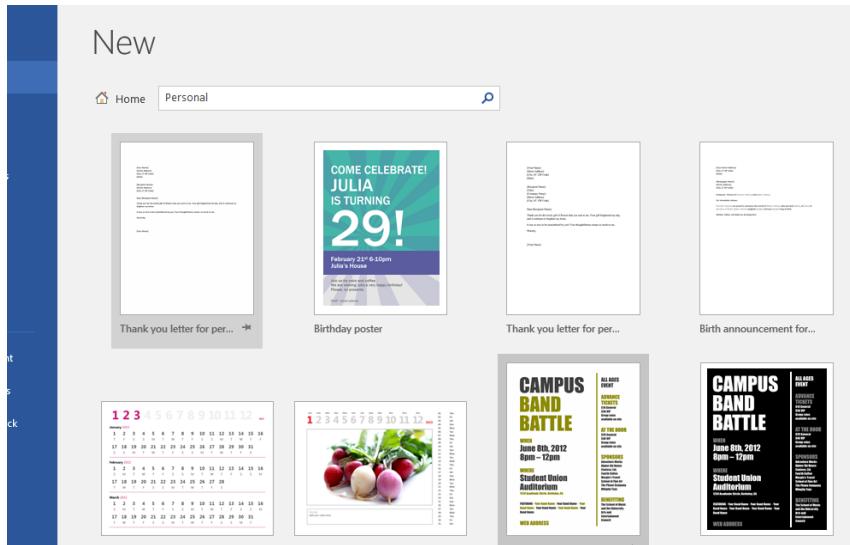
- Click on the **Save** button to save your document.
- To close the document, click on the **Close** icon displayed at the top right of your screen.

## Using online templates

- Click on the **File** tab and then click within the **New** section which will display a screen as illustrated below. You will see there is a section called **Search For Online Templates**. Beneath this there are some suggested searches you can use. Enter the word cards and then click on the search button (the small magnifying glass).



- A screen will be displayed containing lots of different templates that you can browse through and use.



- Experiment with choosing one of these new templates and creating a document with it.
- When you have finished experimenting close any documents you have created without saving them.

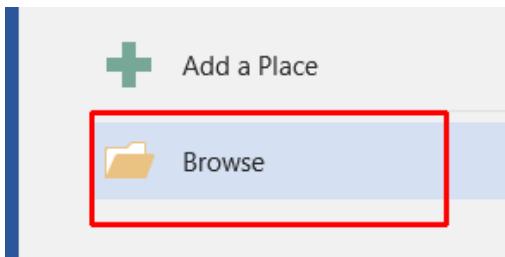
# Manipulating Text

## Select, then format

- Remember the general rule when using Microsoft Windows or Windows Applications. Normally you need to select an item first (so that Windows knows what you are interested in), and then format it.

## Selecting text

- If necessary, start the Word program.
- Press **Ctrl+O**, which is the keyboard shortcut to open a document.
- This will display the **Open** screen.
- Click on **Computer**.
- Click on the **Browse** button.

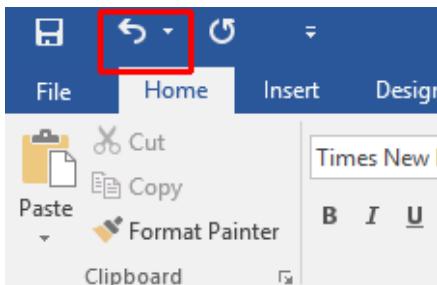


- This will display the **Open** dialog box.
- If necessary, change to the **Documents** folder.
- If necessary, scroll down until you can see the **Word 2016 Foundation** folder.
- Double click on the **Word 2016 Foundation** folder, to change to that folder.
- Double click on a file called **Editing** to open that file.
- Click once in the middle of a word within your document. Press the **Shift** key down (and hold it down). Press the **Left arrow key** or **Right arrow key** once. Then let go of the **Shift** key. As you can see you have just selected a character.
- Repeat the last operation using a different word, but this time press the arrow key a few times. This allows you to select more than one character.
- Selecting a word is even easier. Double click on any word within the document. The word is now selected.
- Experiment with selecting to the beginning of a line. To do this click within any line of text. While keeping the **Shift** key pressed, press the **Home** key. Release the **Shift** key.

- Experiment with selecting to the end of a line. To do this click within any line of text. While keeping the **Shift** key pressed, press the **End** key. Release the **Shift** key.
- Experiment with selecting an entire line of text. To do this move the mouse pointer to the left of the line that you wish to select, until the mouse pointer changes from an I bar shape, to an arrow shape pointing upwards and to the right. You are now in the “**Selection Bar**”, a special screen area. Click once with the mouse button to select the line.
- Experiment with selecting a sentence. To do this, move the mouse pointer within the sentence which you wish to select. Depress the **CTRL** key and then click within the sentence.
- Experiment with selecting a paragraph. To do this triple click within a paragraph.
- Experiment with selecting the entire document. To do this press **Ctrl+A**.

## Inserting, deleting, undo and redo

- Click at the very start of the text within the document and then press the **Enter** key twice. This will add some space to the top of the document.
- Type in your full name and then press the **Enter** key twice to insert some space.
- Within the first paragraph click just before the word '**Windows**'. Type in the word '**Microsoft**' and press the **Spacebar**. As you can see inserting a word within a paragraph is easy.
- Select your name at the top of the document and delete it, by pressing the **Delete** key.
- Click on the **Undo** icon and undo this deletion. Your name reappears!



- Click on the **Redo** icon. What happens?

## Copying text within a document

- Select the first paragraph. Press **Ctrl+C**. This copies the selected text into the Clipboard.
- Click at the end of the document.
- Press the **Enter** key to insert a space.
- Press **Ctrl+V**. This pastes the text from the Clipboard to the current position of the 'Insertion point'.

**TIP:** The 'Insertion Point' is indicated by the flashing, vertical cursor.

- Click on the **Undo** icon to reverse this action.

### Moving (cutting) text within a document

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- Select the first paragraph. Press **Ctrl+X**. This cuts (i.e. moves) the selected text onto the Clipboard.
- Click at the end of the document.
- Press the **Enter** key to insert a space.
- Press **Ctrl+V**. This pastes the text from the Clipboard to the current position of the Insertion point.
- Click on the **Undo** icon to reverse this action.
- Save your changes and close the document.

# Microsoft Word 2016 Text Formatting

## What is text formatting?

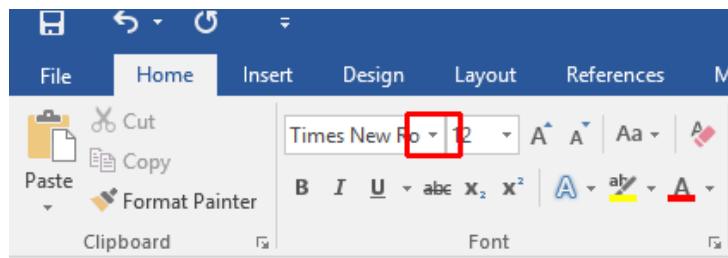
- You can format a document at different levels within Microsoft Word. The most basic level is called text formatting. This relates to formatting characters and words within a document and covers the font type, font size, font color and font attributes such as bold italic or underlining.

## Font type

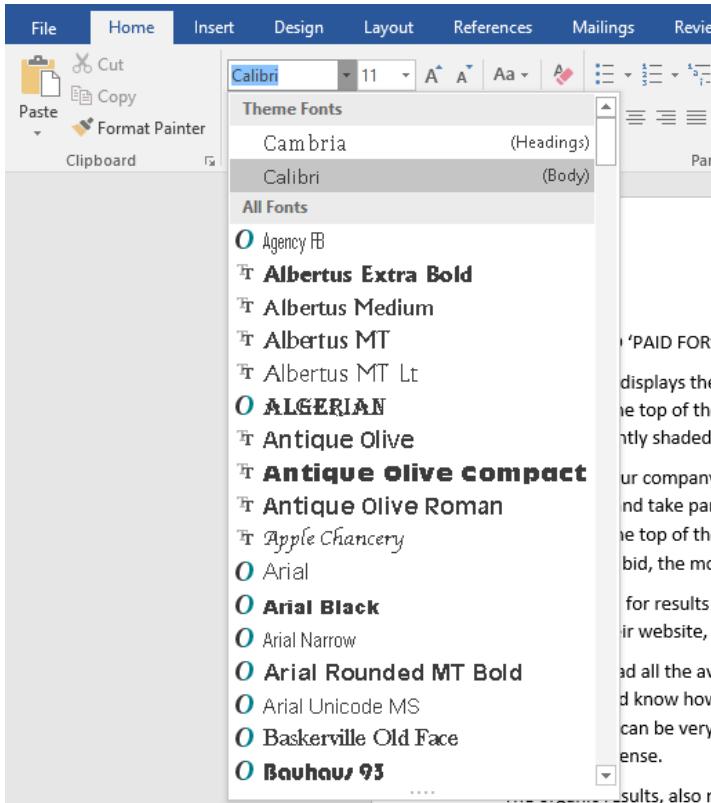
- Open a document called **Text formatting**.

REMEMBER:

- By default, Microsoft Word 2016 uses a font called **Calibri**.
- Make sure that the **Home** tab is displayed.
- Select the paragraph starting with the text **FONT TYPE** within your document (by quickly clicking three times within the paragraph) and experiment with applying different font types. To do this, make sure that the **Home** tab is selected, then click on the **down arrow**, to the right of the text within the **Font** control.



- You will be able to select a different font from the drop down list supplied.

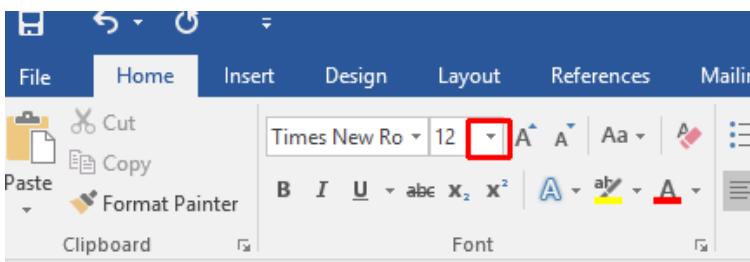


- Experiment with formatting your paragraphs using different fonts. You can also experiment with applying different font types to individual words or sentences.

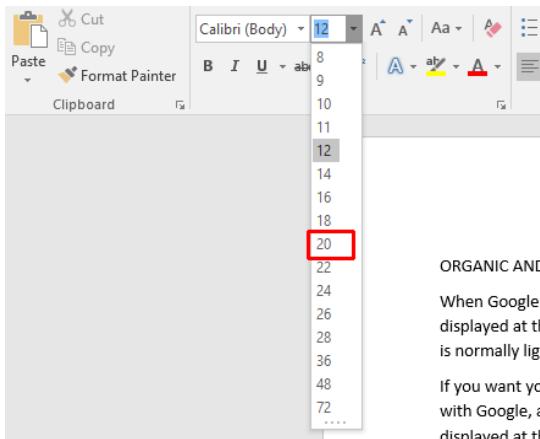
**TIP:** This is just an exercise. In real life do not have lots of different fonts all mixed up within a document. It looks cheap and conveys a very bad visual impression!

## Font size

- The font size refers to the height of the text. Below 8 pt font size text is almost unreadable, so try and use a font size that is easy to read on the screen and also easy to read when printed.
- Make sure that the **Home** tab is displayed. Select the paragraph starting with **FONT SIZE**. Click on the **down arrow** to the right of the **Font Size** control.

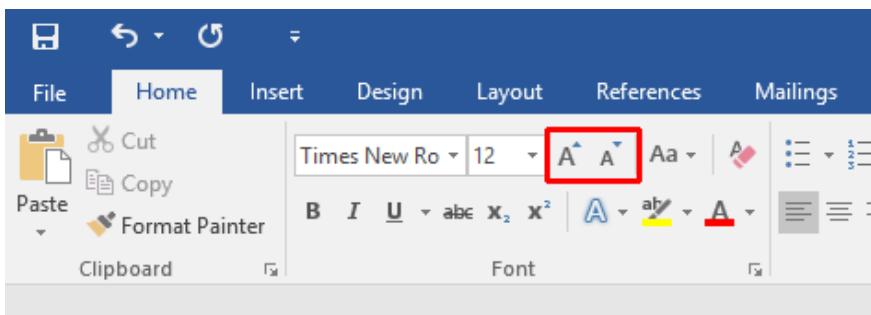


- This will display a drop down from which you can select the required font size. Set the font size to **20**.



## Decrease and Increase font size icons

- Experiment with selecting text and then clicking on the **Decrease Font Size** and **Increase Font Size** icons.



## Font size keyboard shortcut

- Make sure that the paragraph starting with the text '**FONT SIZE**' is selected. Press down the **Ctrl** key and while keeping the **Ctrl** key pressed down, press the '**closing square brackets**' key **]**. While keeping the **Ctrl** key pressed down, repeatedly press the '**closing square brackets**' key. As you can see, each time you press the **]** key, the text gets bigger.

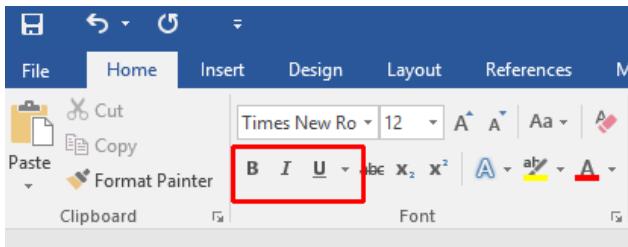
To make the selected text smaller, use the **Ctrl+[** keys.

## Bold, italic and underline

- You can add emphasis to parts of your text by displaying them in Bold, Italic or Underlined, or in a combination of these attributes. Select a word within the paragraph relating to **bold, italic or underline**.

**TIP:** To select a word, double click on the word.

- To format the selected word as bold, italic or underlined, click on the icons displayed on the **Home** tab.



**TIP:** You can combine these attributes by clicking on the **Bold** icon and then the **Italic** icon.

- To remove this formatting from a word, Select the word and re-click on the **Bold**, **Italic** or **Underline** icon.
- Experiment with applying this formatting to words or entire paragraphs.

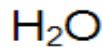
## Subscript and superscript

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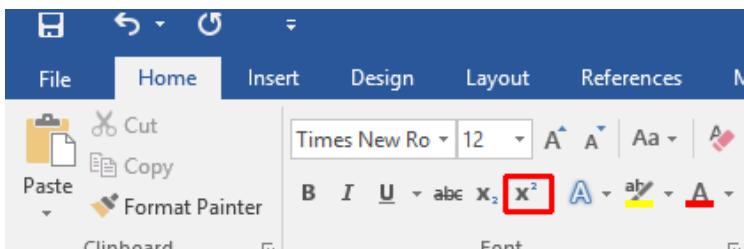
- Sometimes you need to display a character above or below the normal text line. Superscript refers to characters displayed above the normal line. An example would be the famous Einstein equation below.

$$E=MC^2$$

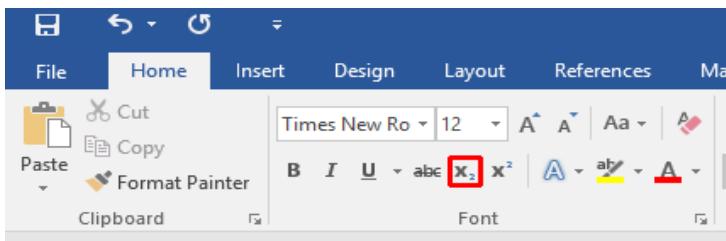
Subscript refers to text displayed below the normal line of text. An example would be the chemical formula for water.



- Within the paragraph relating to subscript and superscript, select the 2 within Einstein's equation. To format this as superscript, click on the **Superscript** icon in the **Font** section of the **Home** tab.

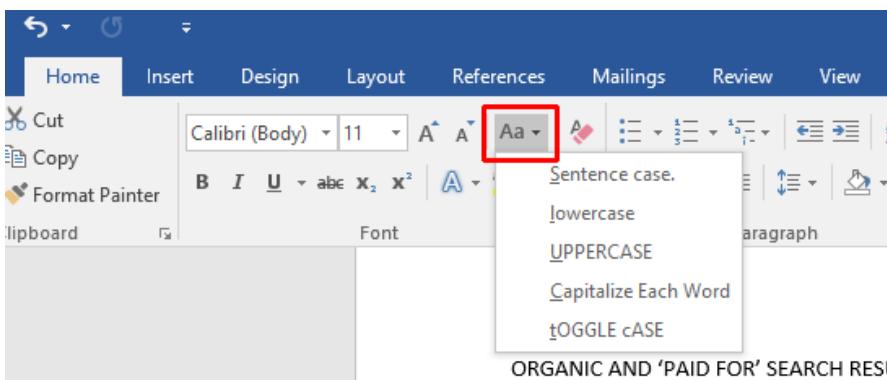


- Select the 2 within the formula for water. To format this as subscript, click on the **Subscript** icon in the **Font** section of the **Home** tab.



## Case changing

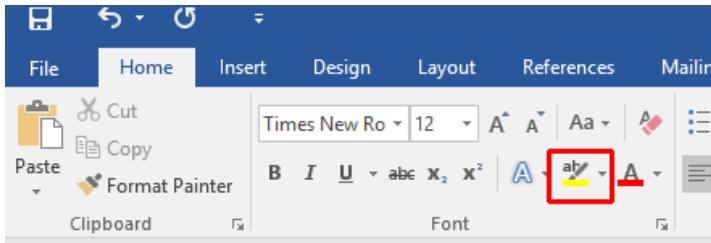
- This feature allows you to select a portion of text and then change the capitalization within that text. For instance, you could select a heading within your document and format it to display as all upper case letters.
- It is also very useful if you have accidentally pressed the **Caps Lock** key and have then typed in text with the capitalized appearing reversed. This feature allows you to correct this mistake without having to delete the text and start again!
- Select the entire paragraph relating to case changing. Within the **Font** section of the **Home** tab click on the **Change Case** icon. This will display a drop down list of options. Click on the **UPPERCASE** command.



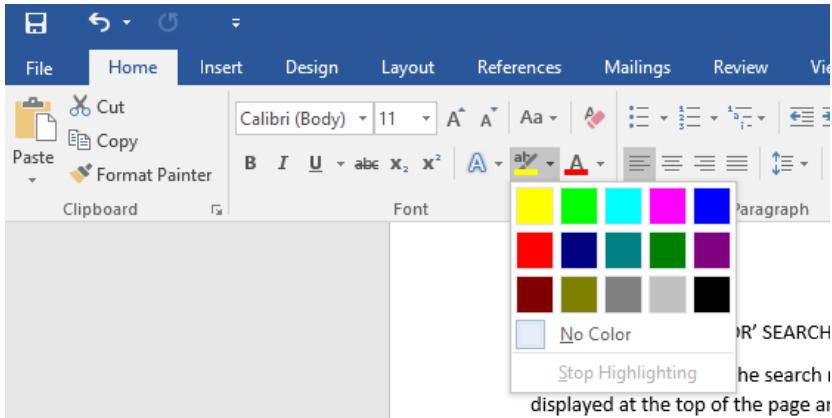
- Experiment with applying the other case change options to this paragraph.

## Highlighting

- The highlighting feature is great if you are reviewing a document and is used in the same fashion as you would use a pen highlighter on a printed copy. You can change the highlighting color but if you intend to print the document in black and white, do not use a very dark highlighting color, as you may find the highlighted words are blacked out and unreadable.
- Within the paragraph relating to highlighting, select some text and then click on the **Text Highlight Color** icon (located in the **Font** section of the **Home** tab). This will apply highlighting to the selected text.



- To change the highlighting color, click on the **down arrow** to the right of this icon. You can click on one of these colors to change the highlighting color the next time you apply highlighting.



- Select another portion of text and try applying a different highlight color.

**TIP:** To remove highlighting from highlighted text, select the text and then click on the **down arrow** to the right of the **Highlight** icon. Select **No Color**.

## Font color

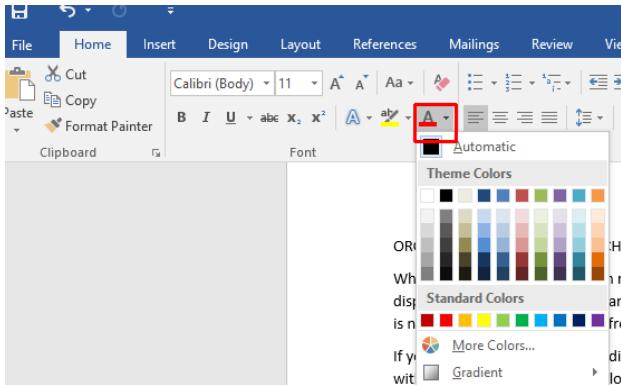
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- You can apply different colors to your text which can add impact to your documents if you are going to print them using a color printer. Do not use too many colors on a single page as this can look messy. The rule with color is that less is good.

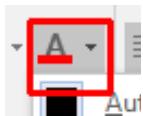
Be careful when using faint colors which may not show up well when printed.

Finally consider that some people have various types of color blindness and may not be able to read some colors as others would.

- To change the font color, click on the **down arrow** to the right of the **Font Color** icon. You can click on one of these colors to change the font color the next time you are using the **Font Color** icon.



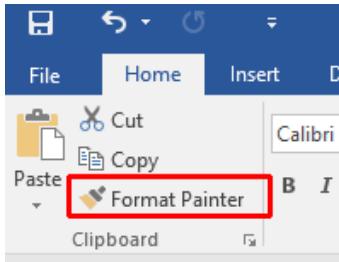
- Within the paragraph relating to Font Color, select some text and then click on the **Font Color** icon. This will apply color to the selected text.



- Experiment with applying different font colors to different words within the paragraph.

## Copying text formatting

- This feature allows you to pick up the formatting that has been applied to one portion of text and apply that formatting to another portion of text.
- Click within the paragraph relating to '**Copying text formatting**'. Click on the **Format Painter** icon (displayed on the **Home** tab within the **Clipboard** section).



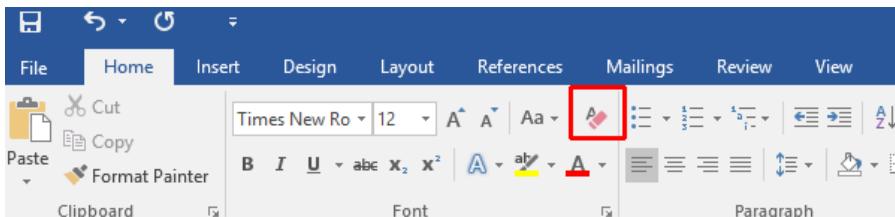
You will notice that the shape of your mouse pointer has changed.

- Move the mouse pointer to the start of a different paragraph within the document and while pressing the mouse key down drag to the end of that paragraph and then release the mouse button. The formatting contained within the original paragraph is now copied to the second paragraph. The mouse pointer now displays its original shape.

**TIP:** If you double click over a paragraph that you want to copy text formatting from, then the mouse pointer changes shape until you press the **Esc** key. This means that you can copy formatting to more than one portion of text at a time.

## Removing formatting

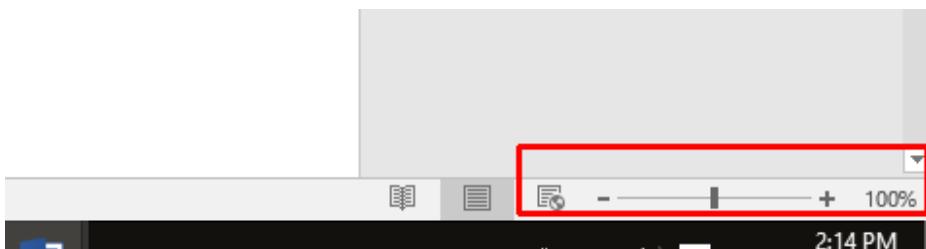
- This feature can be very useful if you get yourself into a mess with your formatting, or if you receive a document from someone else that has been 'over formatted'.
- Select a portion of text and apply formatting such as bold, italic and underlining.
- Click on the **Clear all Formatting** icon. The formatting is removed.



- Save your changes and close the document.

## Using Zoom

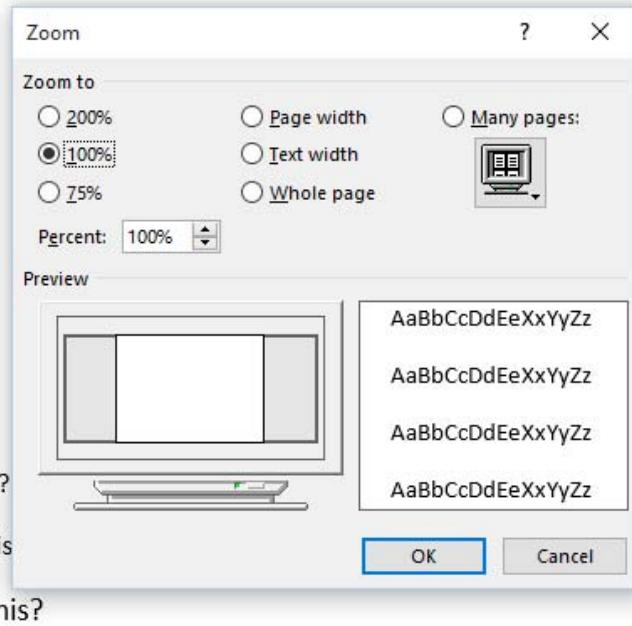
- Open a document called **Zoom**. This document contains some very small text!
- Drag the slider control, displayed at the bottom-right of the document to make the document display the page at a larger zoom level. Experiment.



- You can double click on the **Zoom percentage** number displayed at the bottom-right of the screen.



- This displays the **Zoom** dialog box.



- You can use the **Zoom** dialog box to display the page at pre-set zoom levels. You can type a value into the percentage box. As you increase the percentage value, the screen magnifications is increased.
- Experiment with using different zoom levels.
- Reset the zoom level back to **100%**.
- Save any changes you have made and close the document.

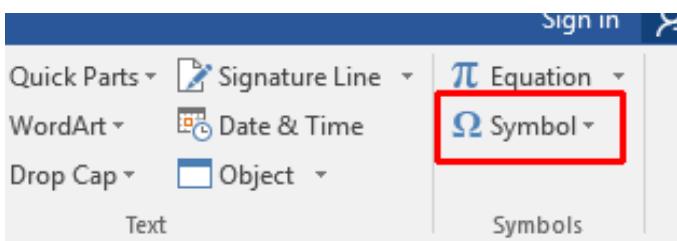
## Inserting special characters and symbols

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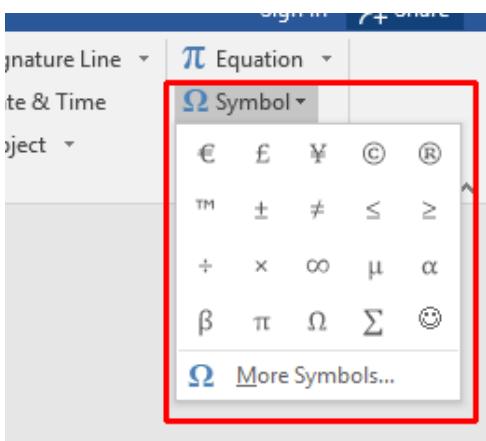
- The keyboard can only contain a limited number of different letters, numbers and other items such as alternative currency symbols and the (@) sign. You can insert many more symbols and special characters if you wish, examples of which include:

©    TM    Σ    Ω    €    ®    ¥

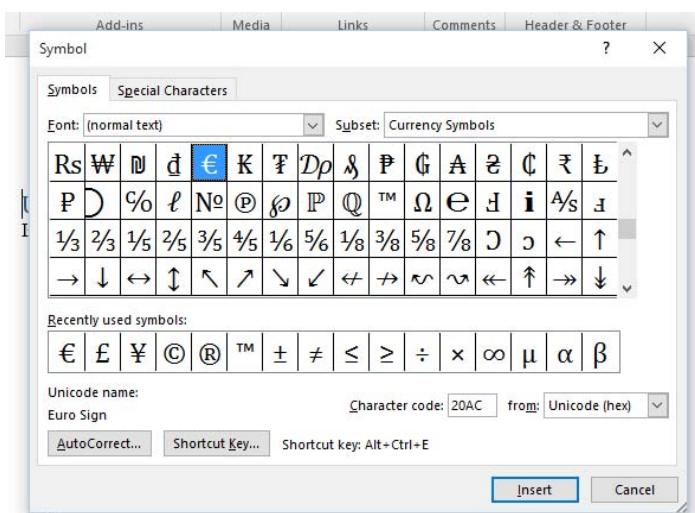
- Open a document called **Symbols**. This document contains a number of symbols and special characters.
- Click to the right of the first symbol,
- Click on the **Insert** tab. You will see the **Symbol** button as illustrated (displayed at the right end of the Ribbon).



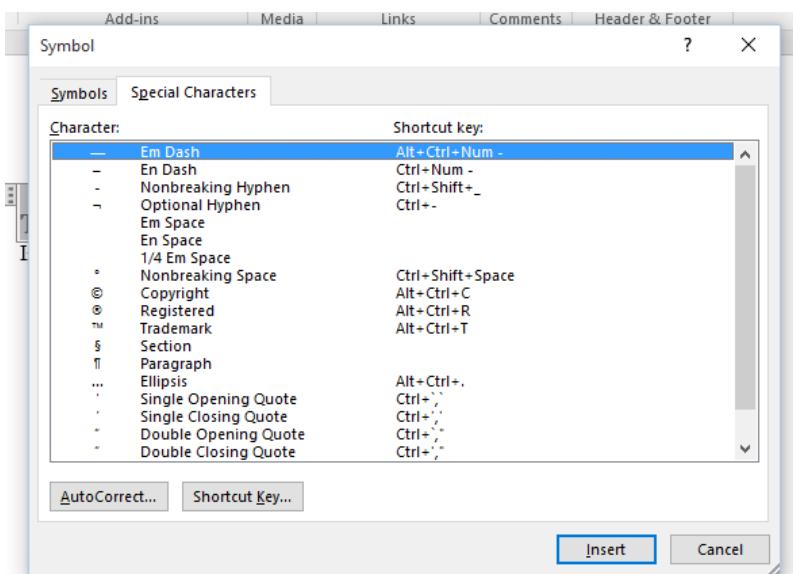
- Clicking on the **Symbol** command will display a drop down list of symbol options, as illustrated.



- Clicking on any one of these will insert the symbol that you clicked on (at the Insertion point).
- Clicking on **More Symbols**, will display additional symbols and options, as illustrated.



- If you click on the **Special Characters** tab within this dialog box, you will see a list of special characters. As you can see, many of these special symbols have a shortcut key displayed to the right of the special character, within the dialog box. These can be useful if you need to insert a special character on a regular basis.

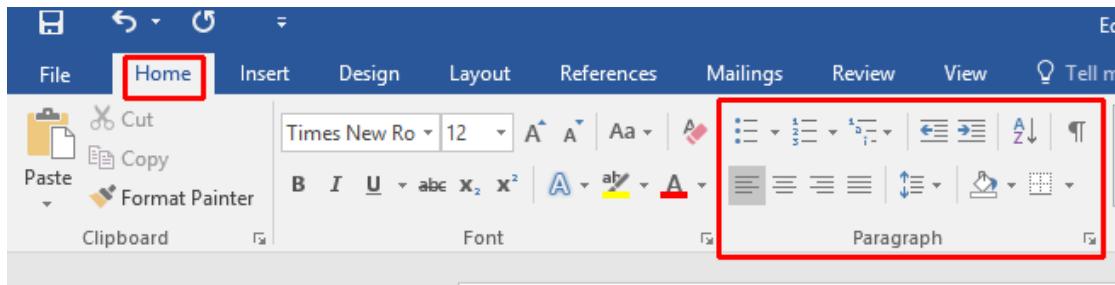


- Work through the exercises contained within the **Symbols** document. When you have finished, save your changes and close the document.

# Microsoft Word 2016 Paragraph Formatting

## What is paragraph formatting?

- Paragraph formatting includes items such as alignment and indenting as well as numbering and bulleting of lists. If you click on the **Home** tab, you will see a **Paragraph** section within the **Ribbon**.



**TIP:** To select a paragraph **triple click** within the paragraph.

## Paragraph marks

- To insert a paragraph mark, press the **Enter** key. This inserts a single paragraph mark. Often you will insert two paragraph marks to end one paragraph and insert a space on the screen before starting the next paragraph mark.
- To remove a paragraph mark, click at the end of a paragraph and press the **Del (Delete)** key.

**TIP:** To see a paragraph mark, click on the **Show/Hide** icon and you will see the paragraph break as illustrated below. This makes it easier to identify and then remove the paragraph break.



A paragraph break looks like this when you click on the Show/Hide icon ¶  
Remember to re-click on the icon to stop the display of non-printing characters ¶

- Open a document called **Paragraph Formatting**.
- Click on the **Show/Hide** icon and you will be able to see the paragraph marks within the document. Click at the end of a paragraph and press the **Enter** key. You will see a new paragraph mark displayed. Press the **Backspace** key to delete this paragraph mark.

## Soft paragraph (line break) marks

- When you press the **Enter** key you insert a paragraph mark. If you press the **Shift+Enter** keys you insert a soft paragraph mark, which is also known as a line break.

The visual effect is often the same, but when you insert a line break, then the text after the line break (up to the next paragraph mark) will be treated as a single paragraph. Click on the **Show/Hide** icon and you will be able to see the soft paragraph marks within the document. Re-click on the icon and you will no longer see the soft paragraph marks.

- To remove a soft paragraph mark, click at the end of a line break and press the **Del (Delete)** key.

**TIP:** To see the line break, click on the **Show/Hide** icon and you will see the line break as illustrated below. This makes it easier to identify and then remove the line break.

A line break looks like this when you click on the Show/Hide icon  
Remember to re-click on the icon to stop the display of non-printing characters

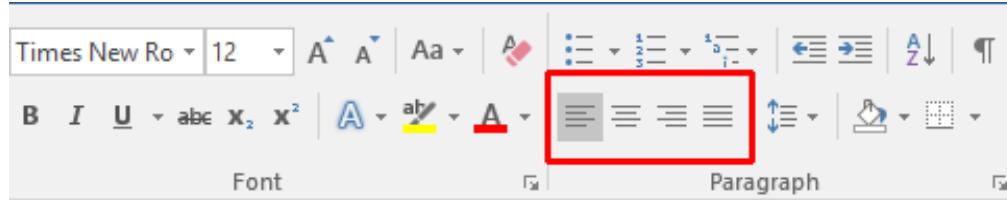
- Click at the end of a sentence within a paragraph. Insert a soft paragraph line break. Insert another soft paragraph line break and notice that this type of mark looks different from a paragraph mark. Delete the two soft paragraph line breaks.
- Click on the **Show/Hide** icon so that the marks are no longer visible.

## Recommended techniques for aligning and indenting text

- Text can be aligned to the left or to the right. It can also be centered or justified. If you justify text, Microsoft Word inserts extra spaces into the lines of text so that the left and right edges of the text line up vertically, you do not see a ragged edge down the right side of the text.
- When aligning text use the tools that are built into Microsoft Word. For instance, if you wish to center a paragraph, as we shall see you could click within the paragraph and then click on the **Center** icon. You should not insert spaces or tab stops and try and line up paragraphs visually.
- The same advice applies to indenting. There are indent icons you can use.

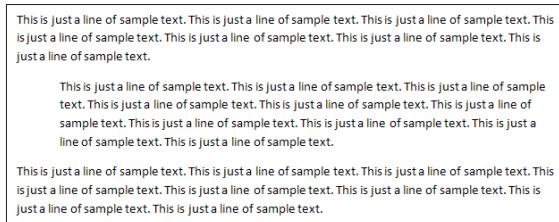
## Aligning text

- Click within a paragraph. Experiment with using the alignment icons displayed within the **Home** tab.

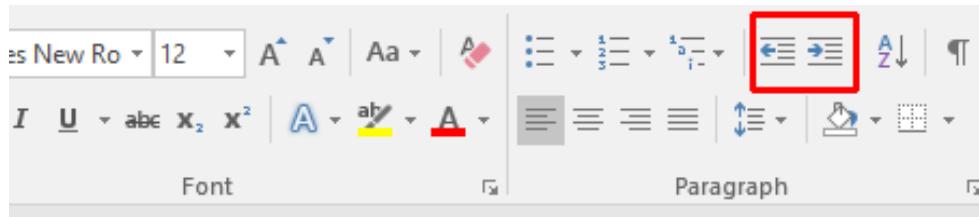


## Indenting paragraphs

- It is easy to indent a paragraph. You would normally indent a paragraph from the left by a specified amount, but you can also indent from the right. You may wish to format your text using hanging indents, as illustrated below.

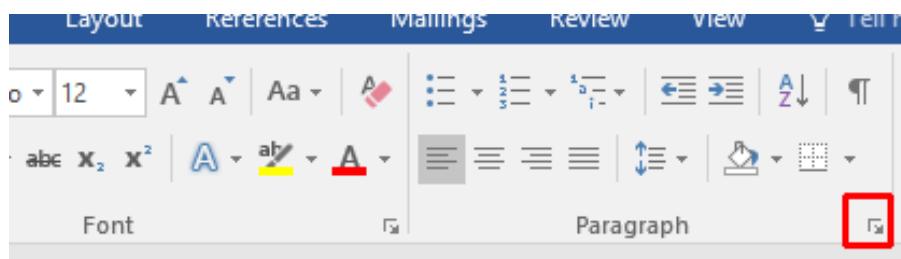


- Click within a paragraph that is aligned to the left. Experiment with using the **Increase Indent** and the **Decrease Indent** icons displayed within the **Home** tab.

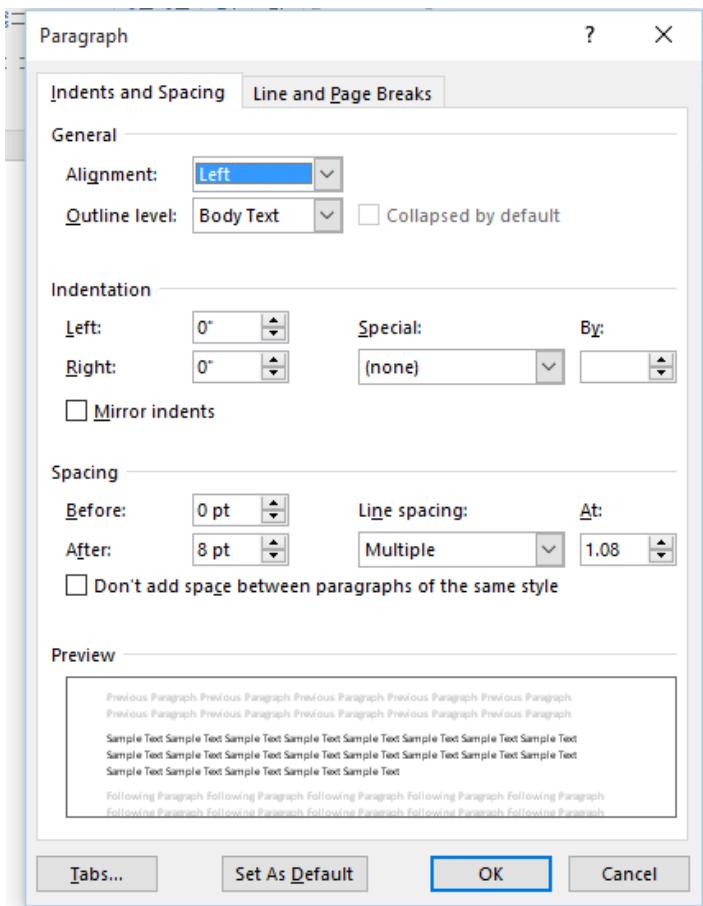


**TIP:** Each time you click on the **Increase Indent** icon; the paragraph is indented further to the right.

- Click within another paragraph that is aligned to the left. Click on the **Paragraph Dialog Box Launcher**.

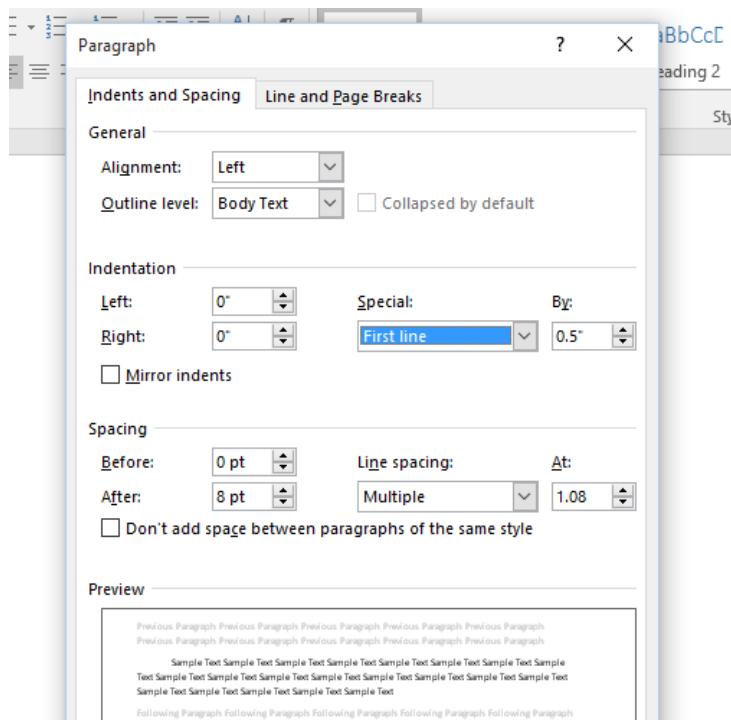


This will display the **Paragraph** dialog box.



You can use this dialog box to set exact left or right indents. Experiment with setting both left and right indents for this paragraph.

- Use the **Undo** icon to reverse these left and right indents. Click on the **down arrow** next to the **Special** section of the dialog box. Select **First Line**.

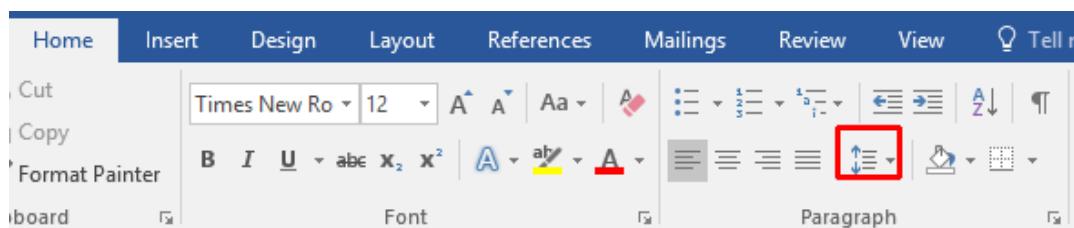


Your paragraph will now look something like this. The first line is indented, while the rest of the paragraph is not indented.

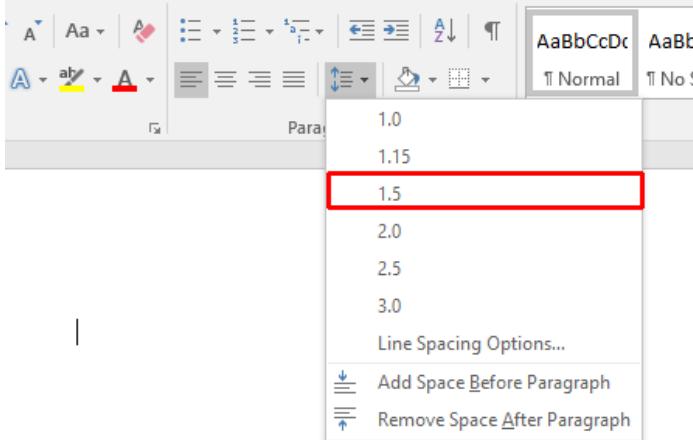
Floppy disks are also known as diskettes. They are very slow compared to hard disks or CD-ROMs, and hold relatively small amounts of data (1.44 Mbytes). Sometimes people will backup (i.e. copy) important data from their hard disk to floppy disks. However, as diskettes are notoriously unreliable this is not the best way of backing up valuable data (but is better than nothing).

## Applying single or double line spacing within paragraphs

- Within a paragraph you can adjust the spacing between the lines of that paragraph.
- NOTE:** Do not confuse adjusting line spacing within a paragraph with adjusting the spacing between each paragraph.
- Click within a paragraph. On the **Home** tab, within the **Paragraph** section, click on the **Line and Paragraph Spacing** icon.



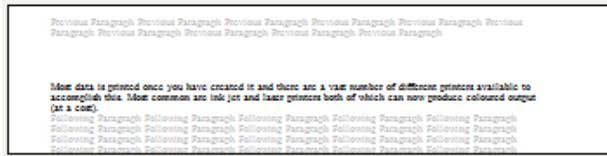
This will display a drop down list, from which you can select line spacing options.



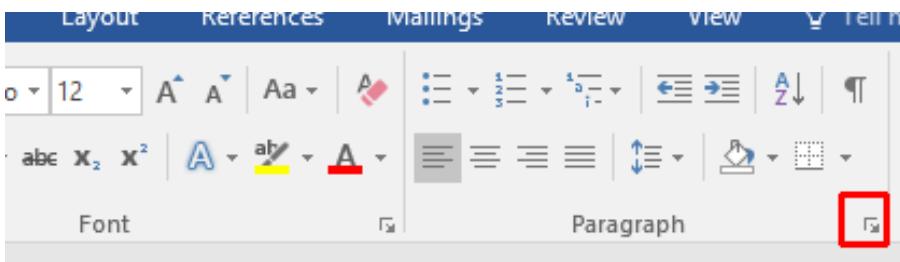
- Select 1.5 and look at what happens to the formatting of your paragraph.

## Applying spacing above or below paragraphs

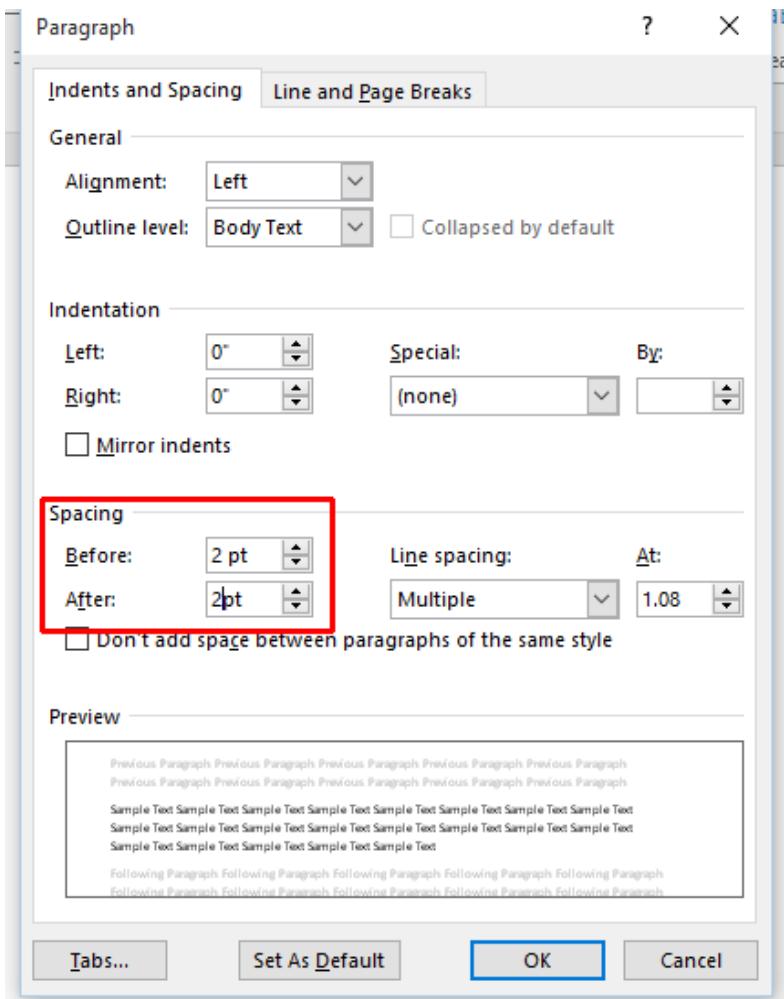
- You can adjust the spacing between your paragraphs. This can sometimes make long documents clearer, or can be used to bring attention to certain paragraphs within a document. In the example below we have increased the spacing before a paragraph.



- Select a paragraph within your document. Within the paragraph section of the **Home** tab, click on the **Paragraph Dialog Box Launcher**.



- Within the **Spacing** section of the **Paragraph** dialog box, use the **Before and After** control to set the space that will be inserted before and after the paragraph. Experiment with inserting different amounts of spacing and look at the effect.

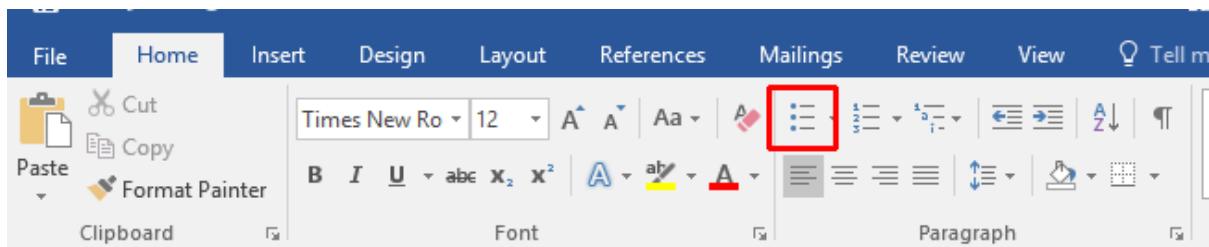


## Using paragraph spacing rather than using the Return key

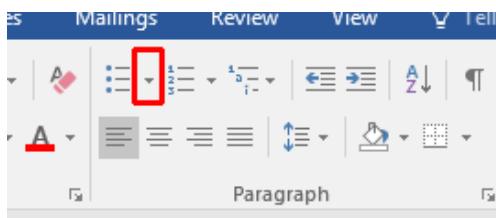
- It is considered better practice to use Word templates with fairly large pre-set paragraph spacing. This means there is less need to press the **Return** key to insert visual spacing between each paragraph.

## Applying bullets to a list

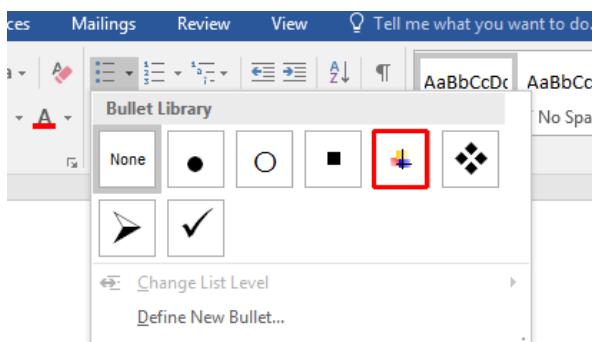
- You can easily format a list to display using bullet points. Scroll down your document and you will find a list of first names. Select the list of first names by clicking in front of the first name and then while pressing the mouse button, drag the mouse pointer to the end of the last name in the list.
- Click on the **Bullets** icon (located within the **Paragraph** section of the **Home** tab). The list will then be displayed as a bulleted list.



**TIP:** If you have time, click on the **down arrow** to the right of the bullets icon.

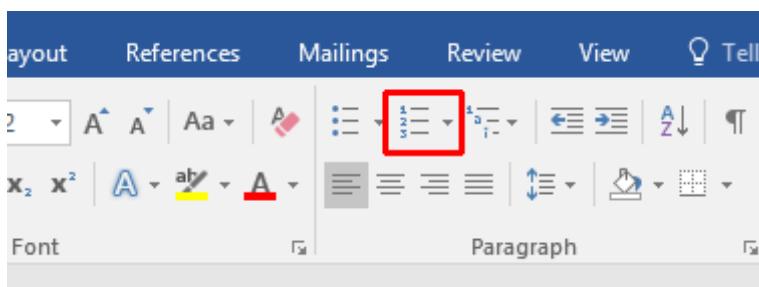


- This will display a drop down menu allowing you to use different types of bullets.



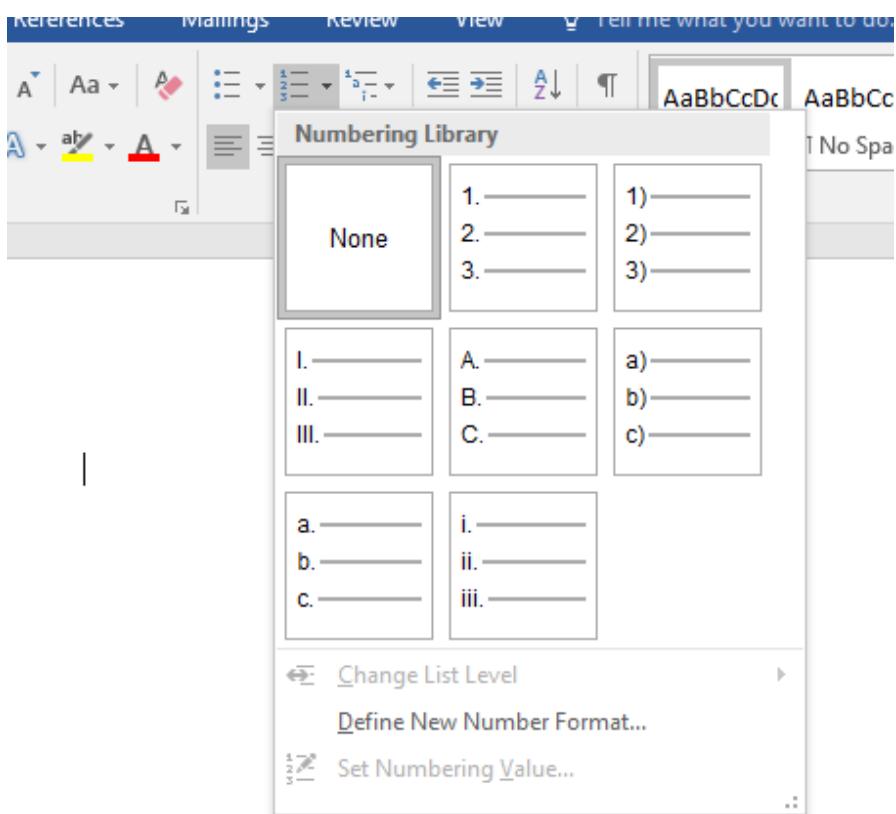
## Applying numbering to a list

- Microsoft Word can automatically number a list for you. Select the list of second names.
- Click on the **Numbering** icon (located within the **Paragraph** section of the **Home** tab). The list will then be displayed as a numbered list.



**TIP:** If you have time, click on the **down arrow** to the right of the numbering icon.

This will display a drop down menu allowing you to use different types of numbering styles.



**NOTE:** If you add a name to the end of your list it will automatically be assigned the next sequential number. If you delete a name within the list, then the whole list will be automatically renumbered. Experiment with adding and deleting items within the list.

- Save your changes and close the document.

## Modifying bullet and numbering formatting

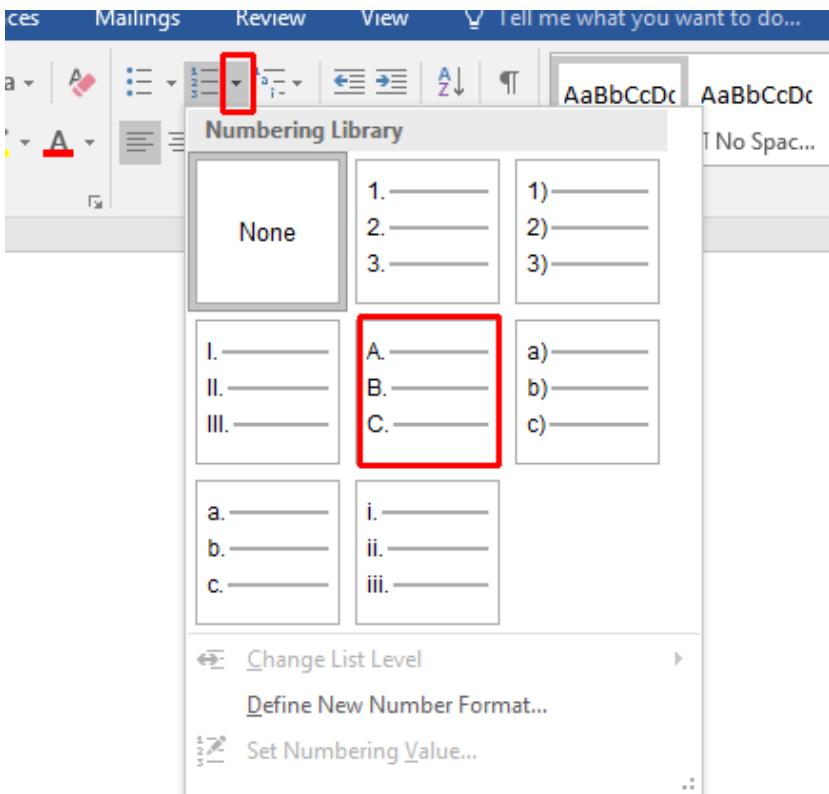
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- Open a document called Modifying bullet and numbering.
- Select the items within the numbered list as illustrated.

### Numbered List

- i. Red
- ii. Green
- iii. Blue
- iv. Yellow

- Click on the down arrow to the right of the **Numbering** icon. Select a different numbering format, as illustrated.
-

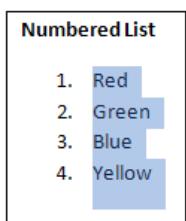


- Use the same technique to modify the bullet formatting, but this time click on the **down arrow** to the right of the **Bullet** icon.
- Save your changes and close the document.

### Removing bullet or numbering formatting

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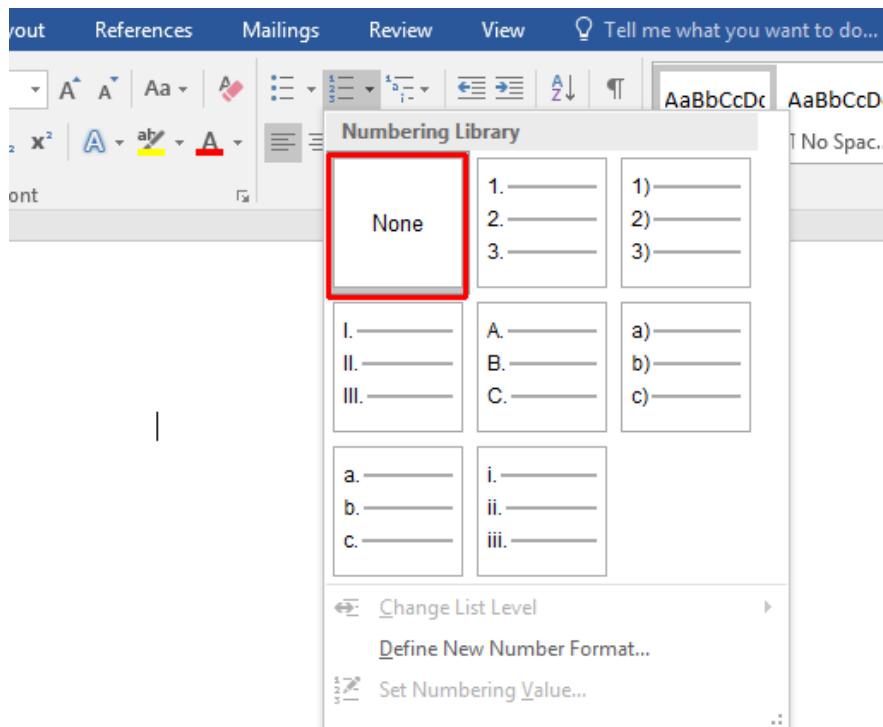
- Open a document called Removing bullets and numbering.
- Select the items within the numbered list as illustrated.



- Click on the **Numbering** icon to remove the numbering formatting.

**NOTE:** You can also click on the **down arrow** to the right of the **Numbering** icon and from the drop down menu displayed, click on **None**.

---



- Select the bulleted items within the document and click on the **Bullets** icon to remove the bullet formatting.

**NOTE:** You can also click on the **down arrow** to the right of the **Bullets** icon and from the drop down menu displayed, click on **None**.

- Save your changes and close the document.

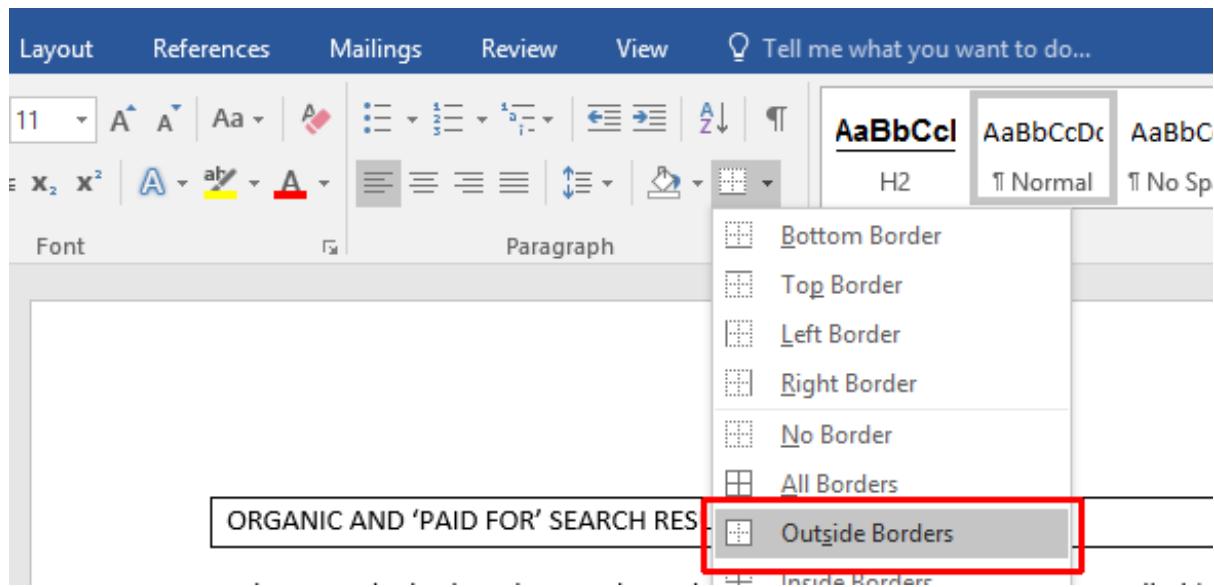
# Borders and shading within Microsoft Word 2016

## Using borders and shading

- You can display a border around a paragraph to add more impact to that paragraph. You can also add shading. To emphasize a paragraph, you could reverse the normal color display, so that text within that paragraph is displayed as white text on a black background.

## Adding a border

- Open a document called **Borders and shading**.
- Click within the header (containing the words **Computer Memory**).
- Within the **Paragraph** section on the **Home** tab, click on the **Down arrow** to the right of the **Border** icon. This will display a drop down list from which you can select the type of border you wish to apply. In this case select the **Outside Borders** command.



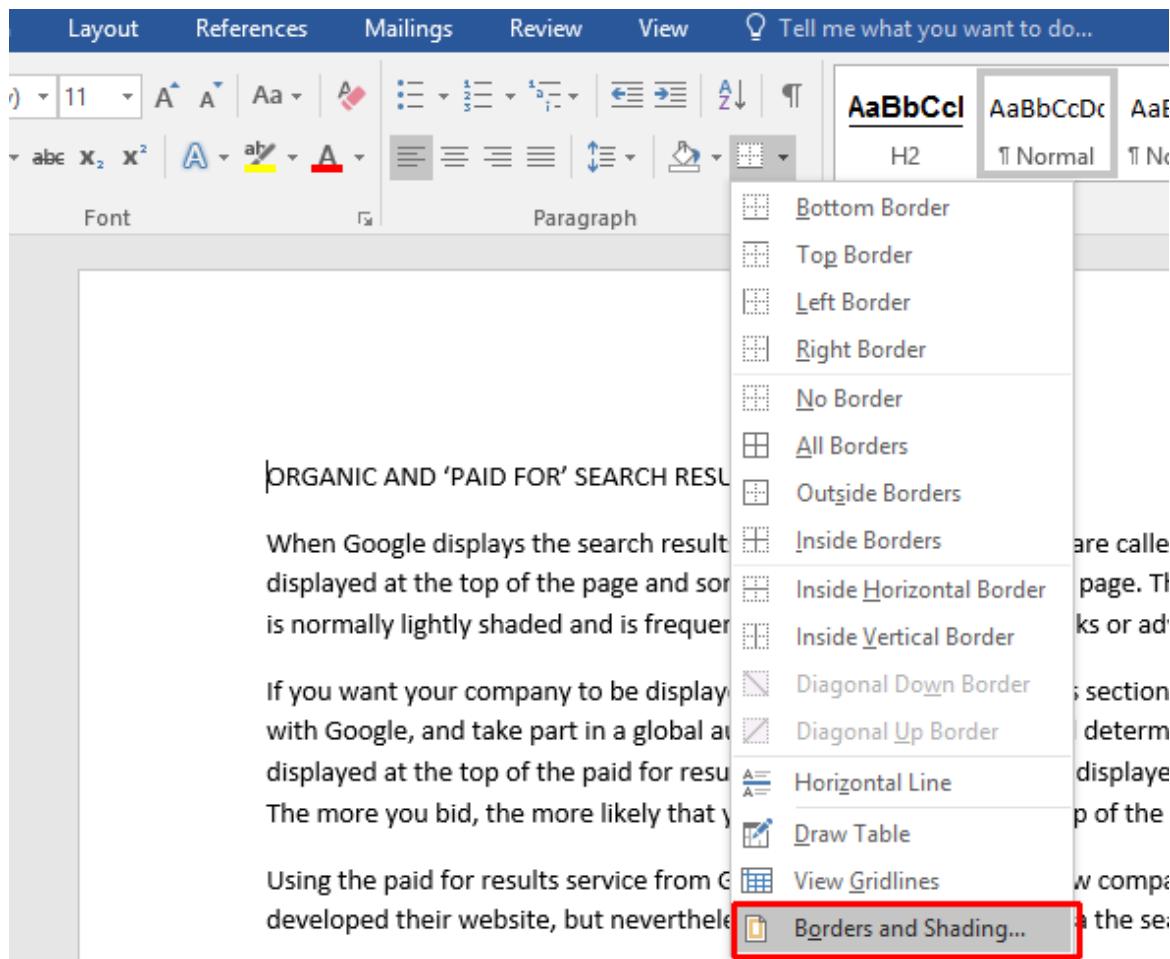
A border will be applied around this paragraph.

**Computer Memory**

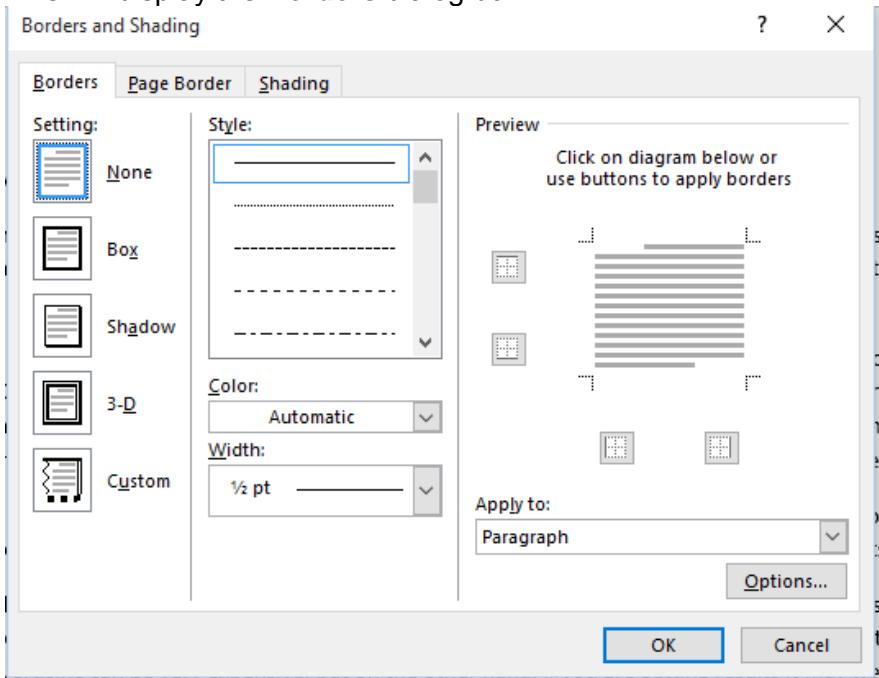
- Click within the next paragraph. Apply a bottom border to this paragraph. Click on the **Undo** icon to remove this border. Experiment with applying some of the other border types (after each change click on the **Undo** icon).

## Modifying borders

- Click within a paragraph which does not have a border applied to it. Within the **Paragraph** section on the **Home** tab, click on the **Down arrow** to the right of the **Border** icon. From the list displayed, select the **Borders and Shading** command.

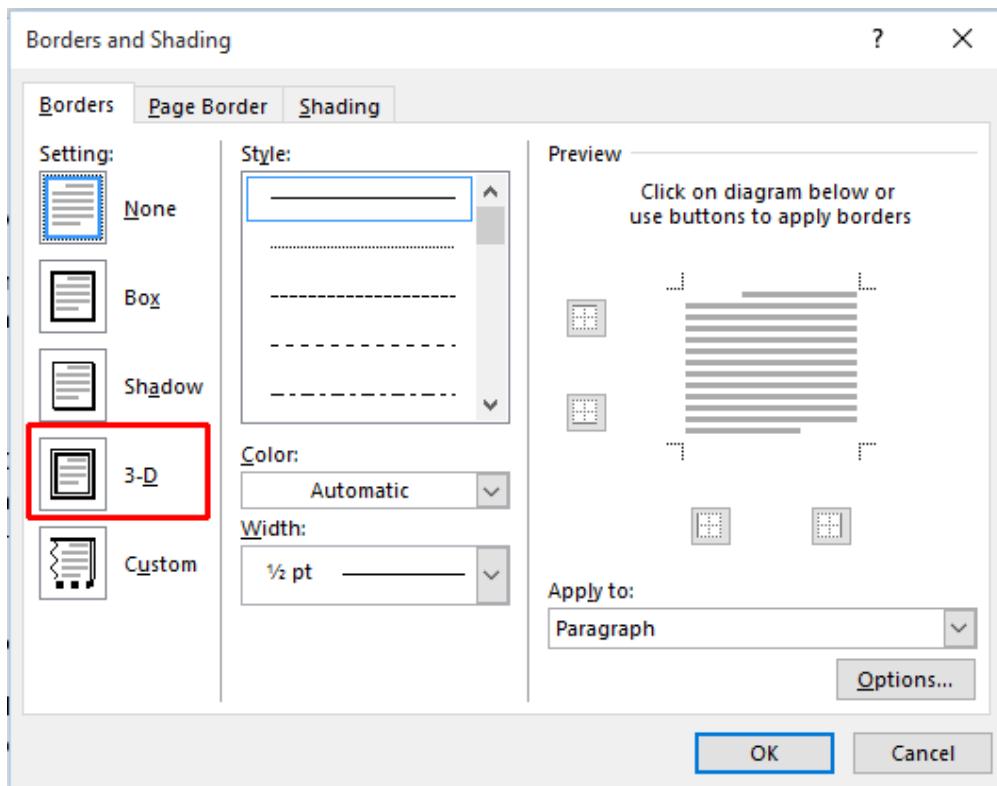


- This will display the **Borders** dialog box.

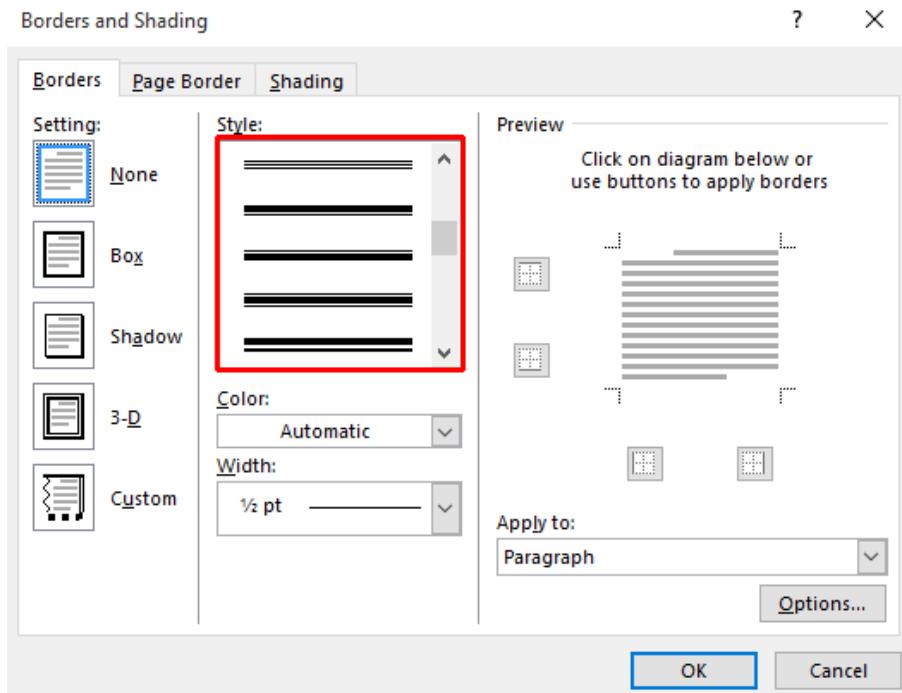


You can use this dialog box to change the shading setting, style, color and width.

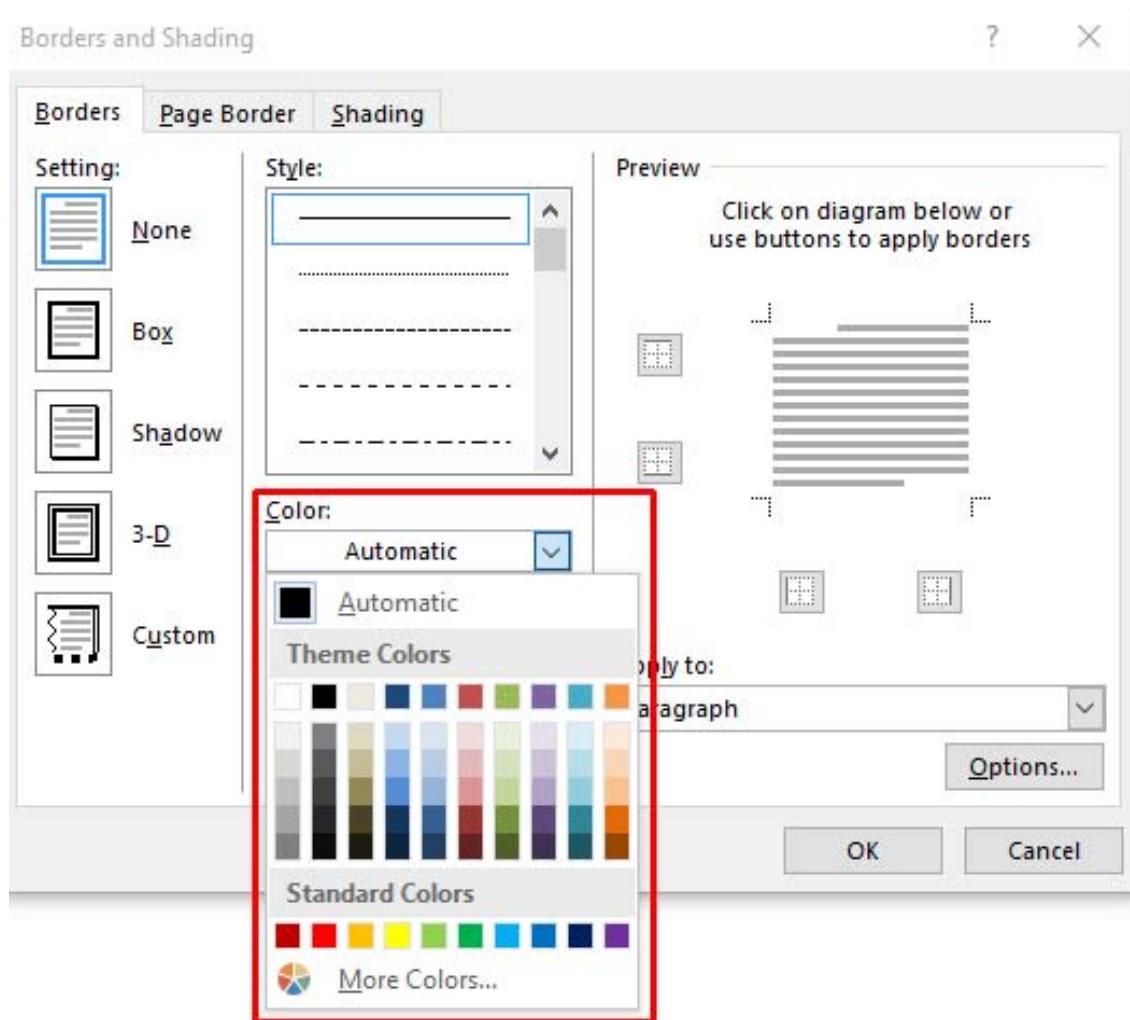
- From the **Setting** section of the dialog select the **3-D**.



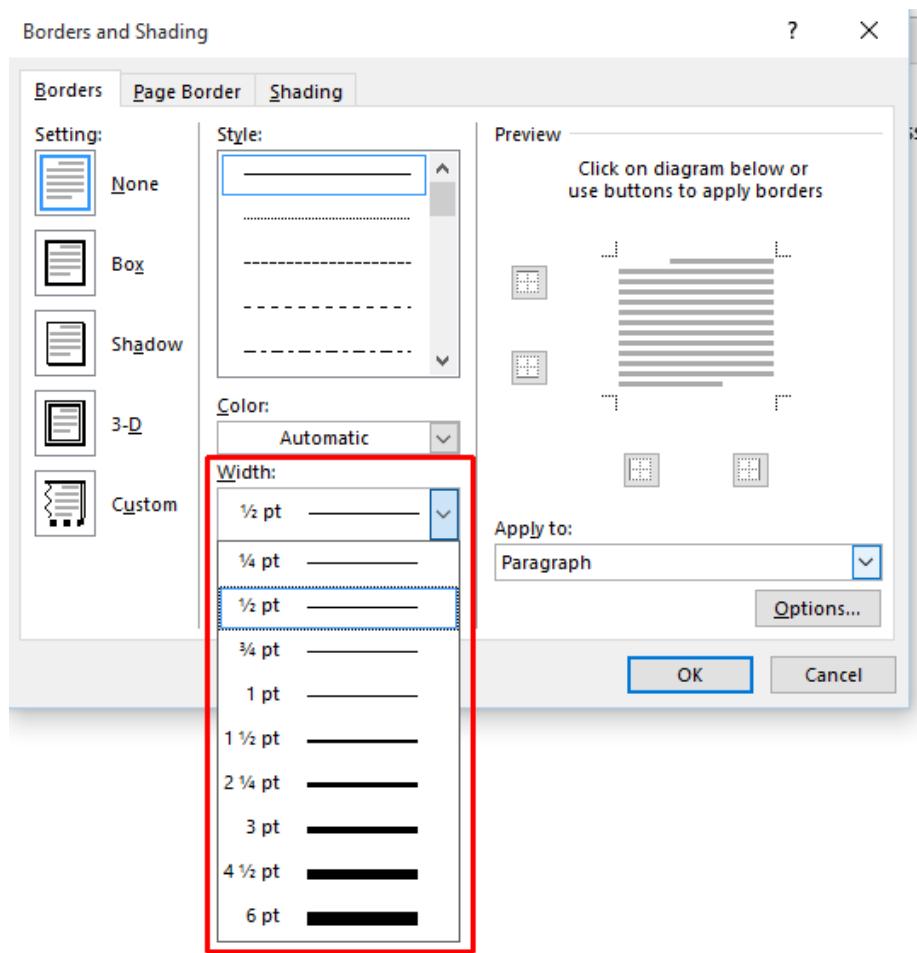
- Use the **Style** section of the dialog to select a different border style.



- Click on the **down arrow** to the right of the **Color** section to display a list of colors. Select a color.



- Click on the **down arrow** to the right of the **Width** section to display a list of widths. Select a width.

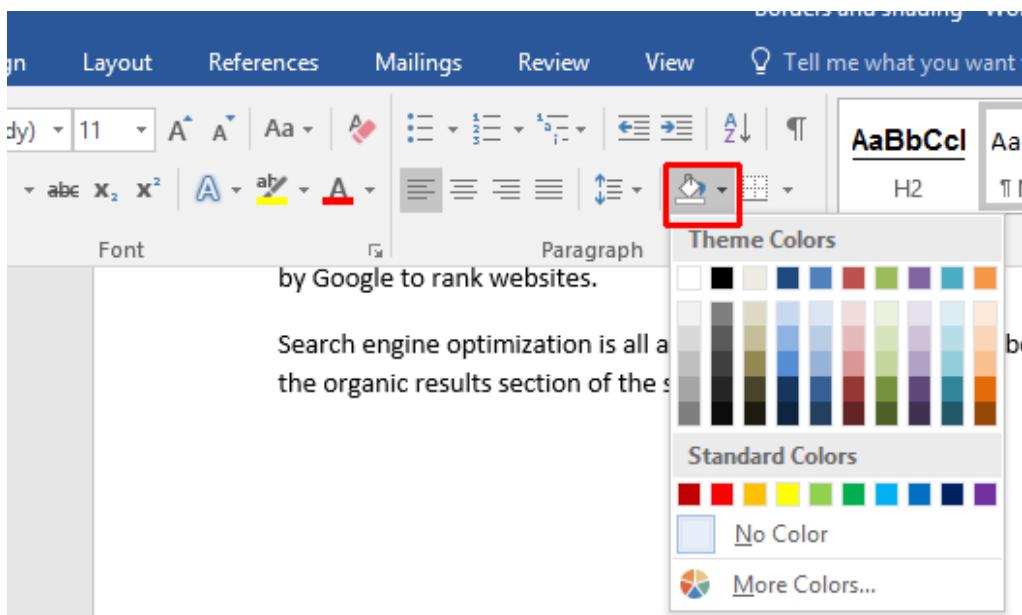


- Click on the **OK** button to close the dialog box and apply the border.

## Adding shading

---

- Click within a paragraph.
- Within the **Paragraph** section on the **Home** tab, click on the **Down arrow** to the right of the **Shading** icon. This will display a drop down list from which you can select the color of the shading you wish to apply.



- Click on the **Undo** button and apply a different color of shading.

**TIP:** Try applying **Black** shading.

As you are applying black shading to be used as a background for black text, you might expect the text to become invisible (i.e. black text on a black background). In fact, Microsoft Word automatically reverses the text color in this case so that you see white text on a black background.

Read Only Memory (ROM) as the name suggests is a special type of memory chip which holds software which can be read but not written to. A good example is the ROM-BIOS chip, which contains read-only software. Often network cards and video cards also contain ROM chips.

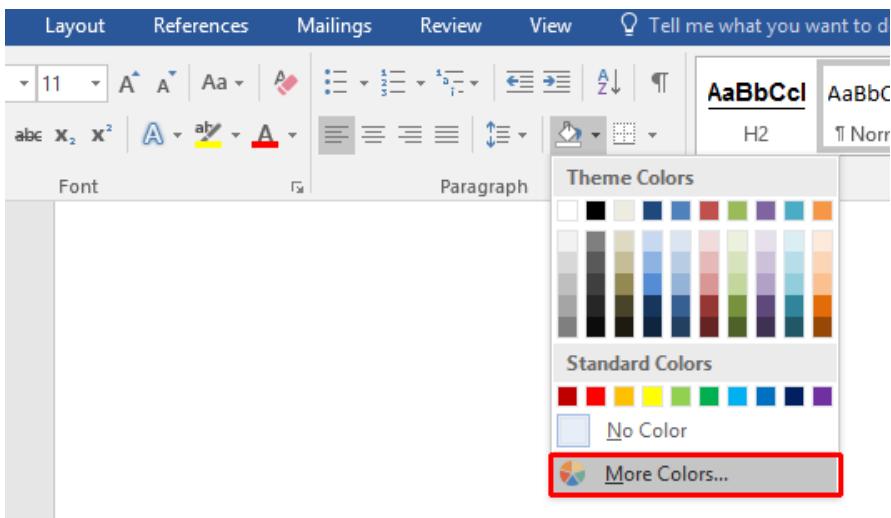
The 'Read Only Memory Basic Input Output System' chip is a chip located on the computer's system (mother) board, which contains software. This software performs a variety of tasks. When you first switch on the computer the ROM-BIOS software performs a self-diagnostic to check that the computer is working OK. This software then loads your operating system from the disk into the RAM.

Most modern computers are actually supplied with a flash BIOS rather than a ROM-BIOS. This chip contains exactly the same type of in-built software, but has the advantage that the software on the chip can be upgraded. This upgrade is achieved by simply running a small program supplied by the computer manufacturer.

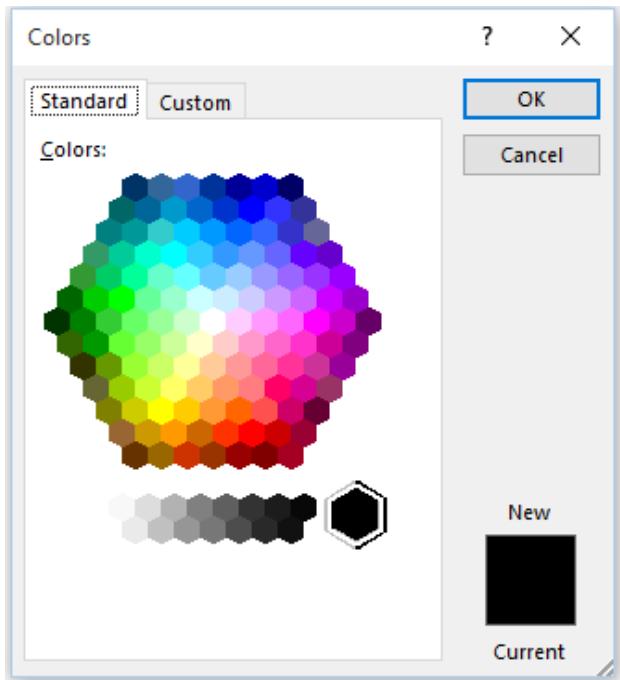
## Modifying your shading

---

- Click within a paragraph. Within the **Paragraph** section on the **Home** tab, click on the **Down arrow** to the right of the **Shading** icon. From the list displayed, select the **More Colors** command.



- Select a color.



- Click on the **OK** button

## Applying borders to selected text

---

- You can apply borders and shading to an entire paragraph. However, if you select a word or portion of text within a paragraph, then you can apply border and shading to just the selected text. Try experimenting with selecting words or sentences within your document and apply a border and shading effect.
  - Save your changes and close the document.
-

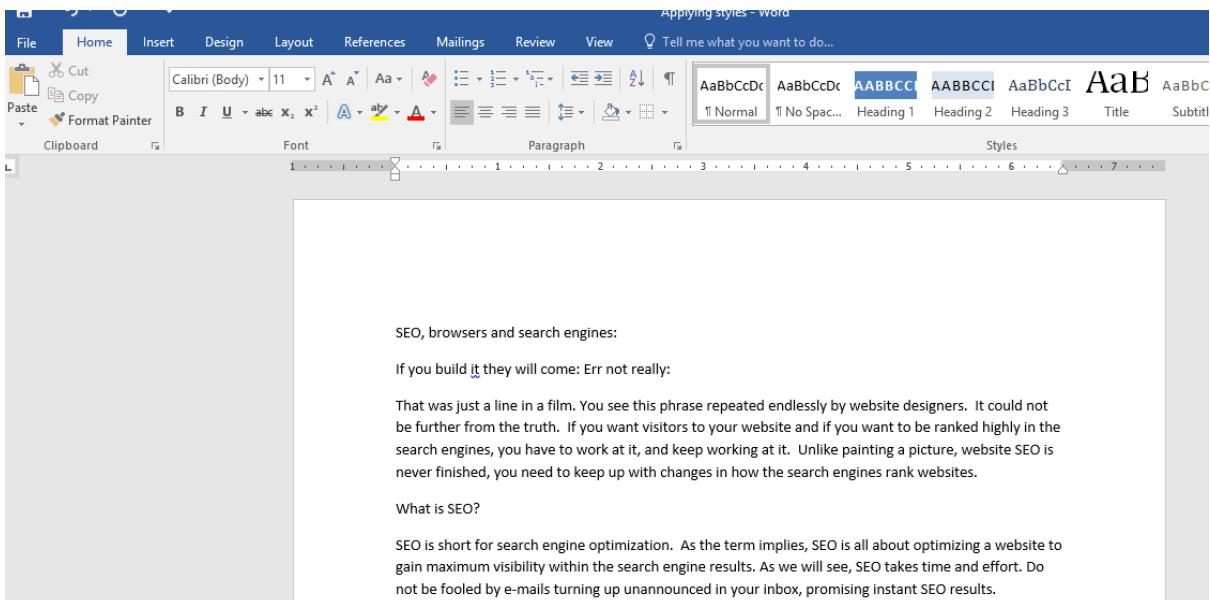
# Microsoft Word 2016 Styles

## What are styles?

- Styles are a collection of formatting instructions that have a name and can be applied to parts of your document to impose consistent formatting. An example would be header styles which can be used to add an ordered structure to long documents.

## Applying styles

- Open a document called Applying styles.



- Click within the first line.

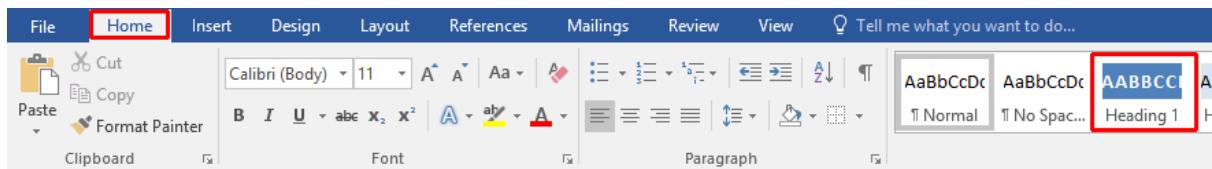
SEO, browsers and search engines:

If you build it they will come: Err not really:

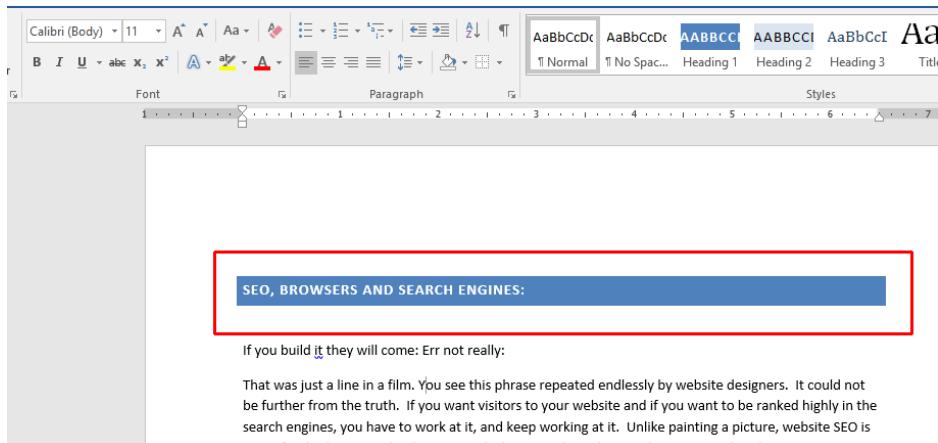
That was just a line in a film. You see this phrase repeated endlessly by website designers. It could not be further from the truth. If you want visitors to your website and if you want to be ranked highly in the search engines, you have to work at it, and keep working at it. Unlike painting a picture, website SEO is never finished, you need to keep up with changes in how the search engines rank websites.

What is SEO?

- Under the **Home** tab, click on **Heading 1** style.



- Your document will now look like this.



- Click within the line containing the heading **WHAT IS SEO?**
- Under the **Home** tab, click on **Heading 2** style.

## SEO, BROWSERS AND SEARCH ENGINES:

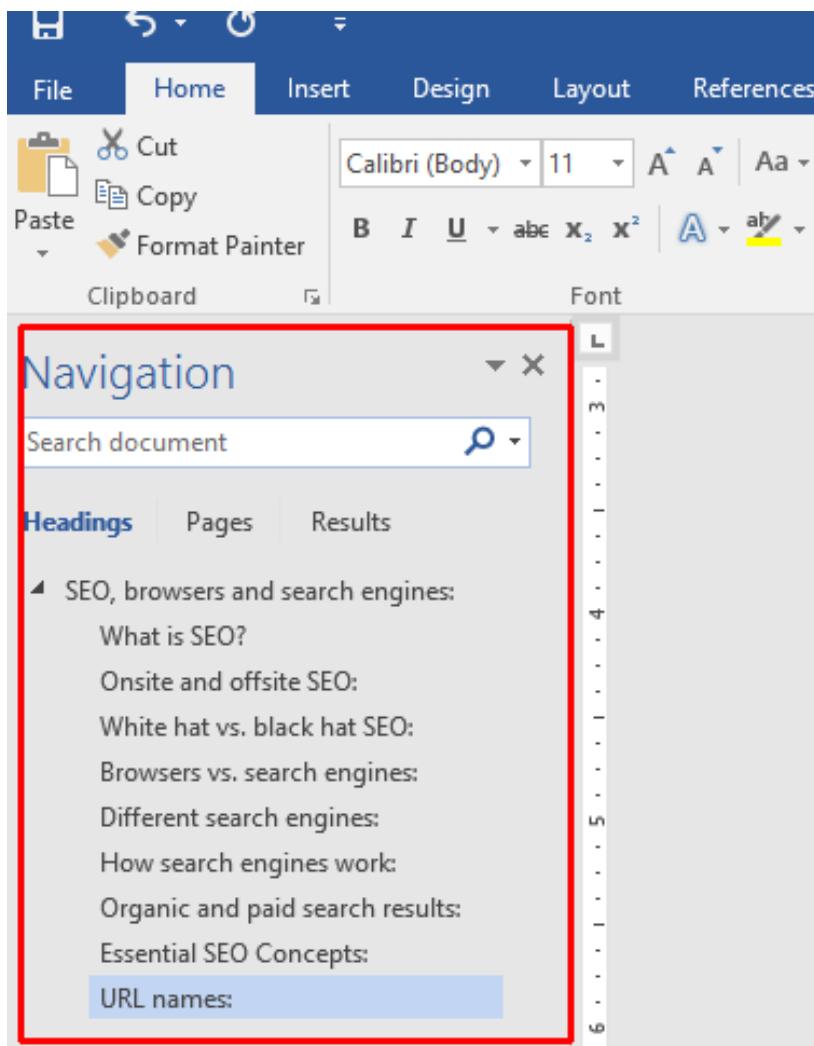
If you build [it](#) they will come: Err not really:

That was just a line in a film. You see this phrase repeated endlessly by website design  
be further from the truth. If you want visitors to your website and if you want to be ra  
search engines, you have to work at it, and keep working at it. Unlike painting a pictur  
never finished, you need to keep up with changes in how the search engines rank web

### WHAT IS SEO?

SEO is short for search engine optimization. As the term implies, SEO is all about optim  
gain maximum visibility within the search engine results. As we will see, SEO takes tim

- Experimenting with applying other styles to the rest of the headers within the document.  
Within this document all the headings are displayed in uppercase text.
  - You will be able to see the styles, displayed to the side of the screen.
-

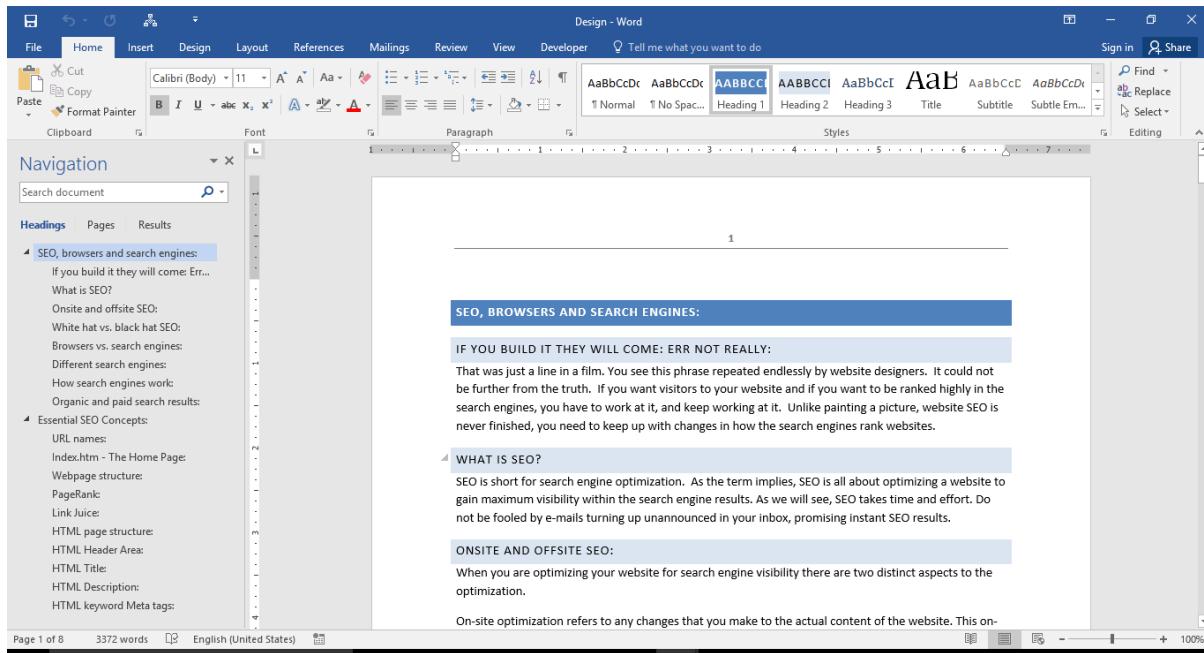


- Save your changes and close the document.
-

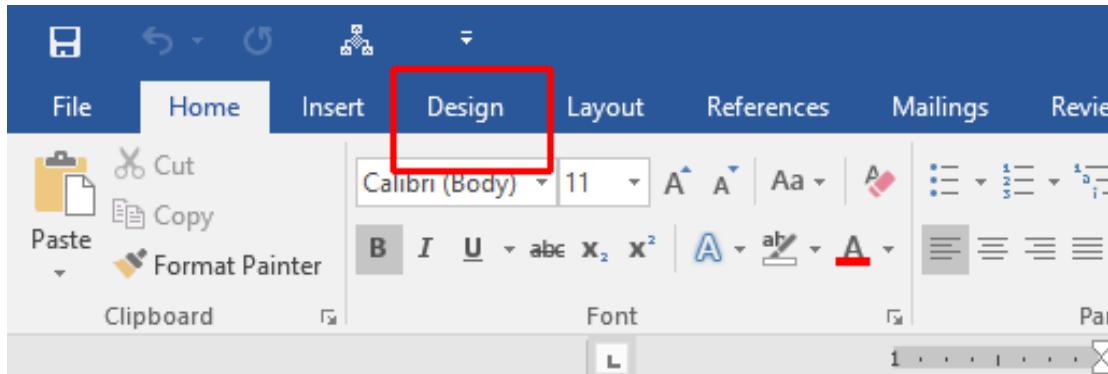
# Using Word 2016 Design Themes

## Applying a Design Theme

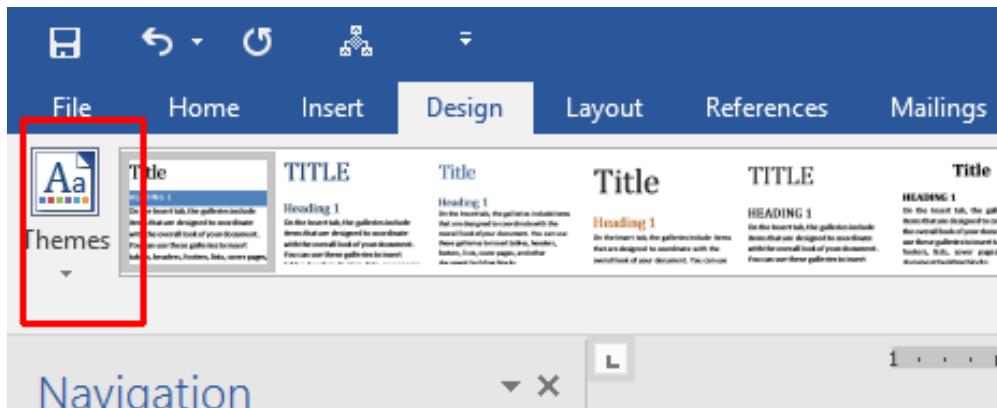
- Open a document called **Design**. The document will look like this.



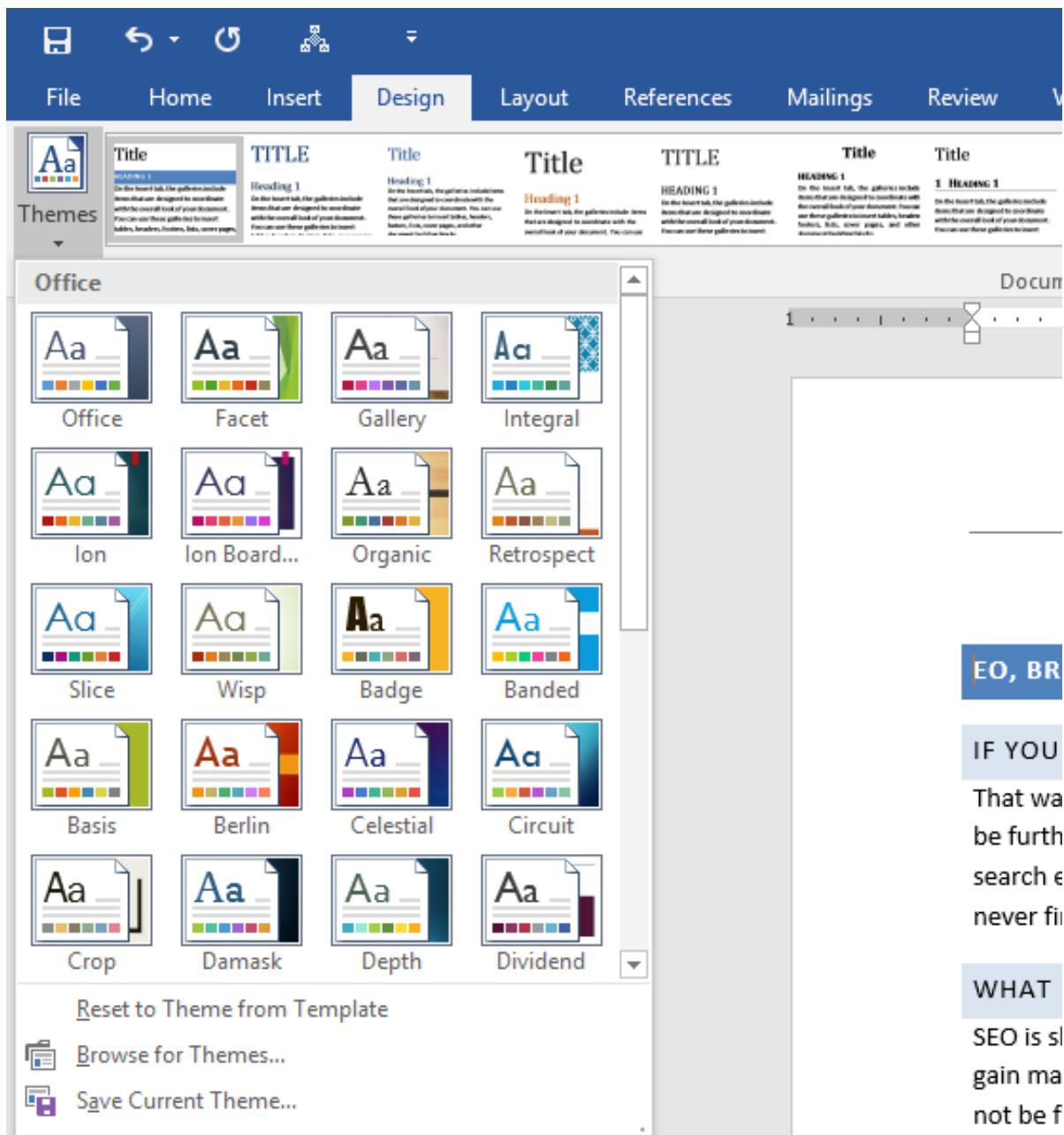
- Click on the **Design** tab.



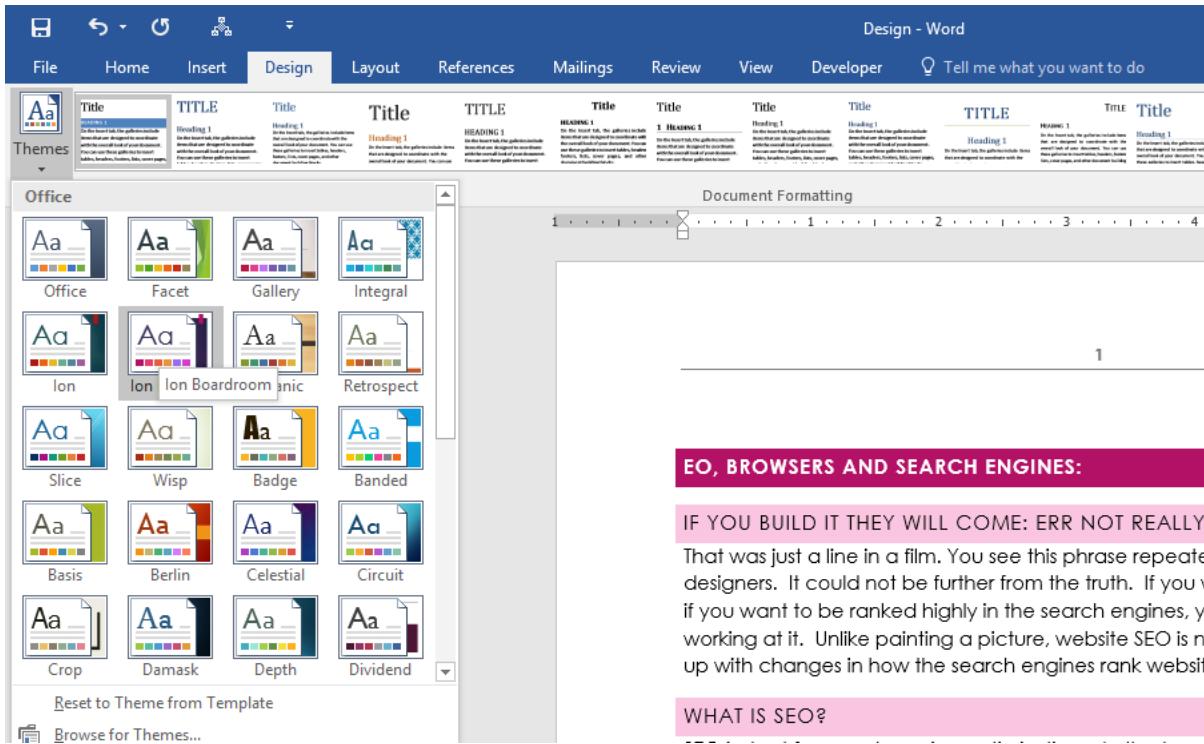
- Click on the **Themes** button (at the left side of the ribbon)



- This will display a drop down displaying different themes.



- Slowly move the mouse pointer over the theme thumbnails displays and as you move the mouse pointer, you will see the different themes applied to your document. As you can see the Headings are formatted differently when you use different themes.
- When you find a theme you like click on it and the theme will be applied, as shown in the example below.



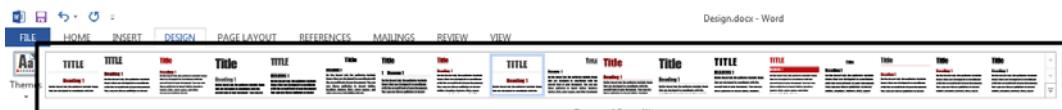
### EO, BROWSERS AND SEARCH ENGINES:

#### IF YOU BUILD IT THEY WILL COME: ERR NOT REALLY:

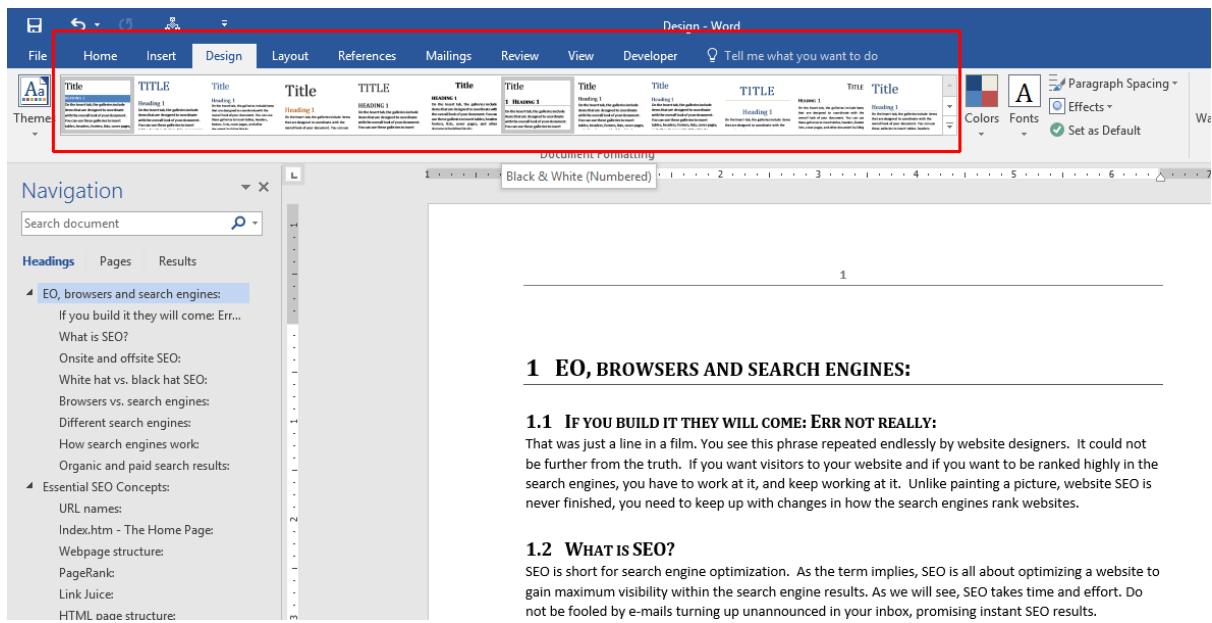
That was just a line in a film. You see this phrase repeats designers. It could not be further from the truth. If you've if you want to be ranked highly in the search engines, you're working at it. Unlike painting a picture, website SEO is not up with changes in how the search engines rank websites.

#### WHAT IS SEO?

- Next move the mouse over the **Document Formatting** thumbnails, and as you move the mouse changes will be applied to the document.

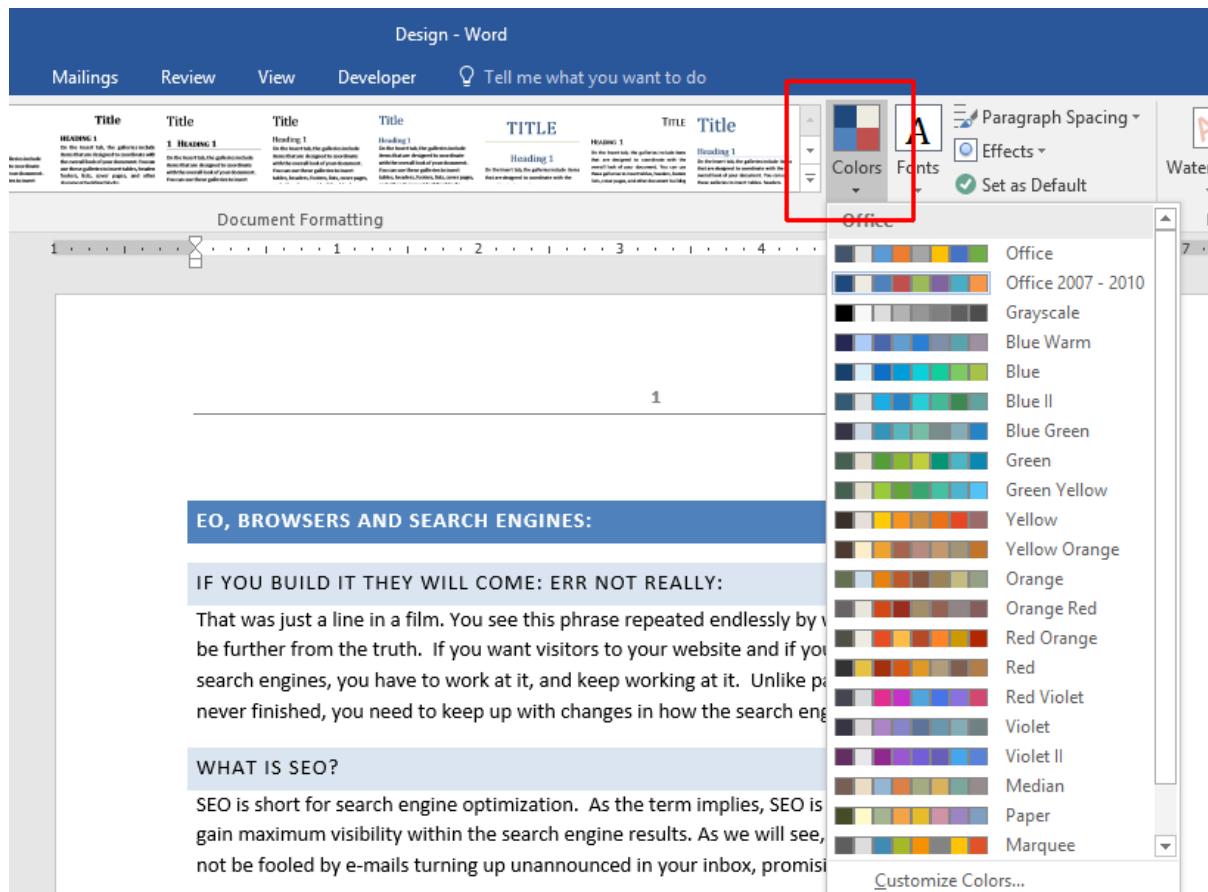


- Click on the formatting effect you like to apply it to the document.
- An example is shown below.



## Applying a theme color

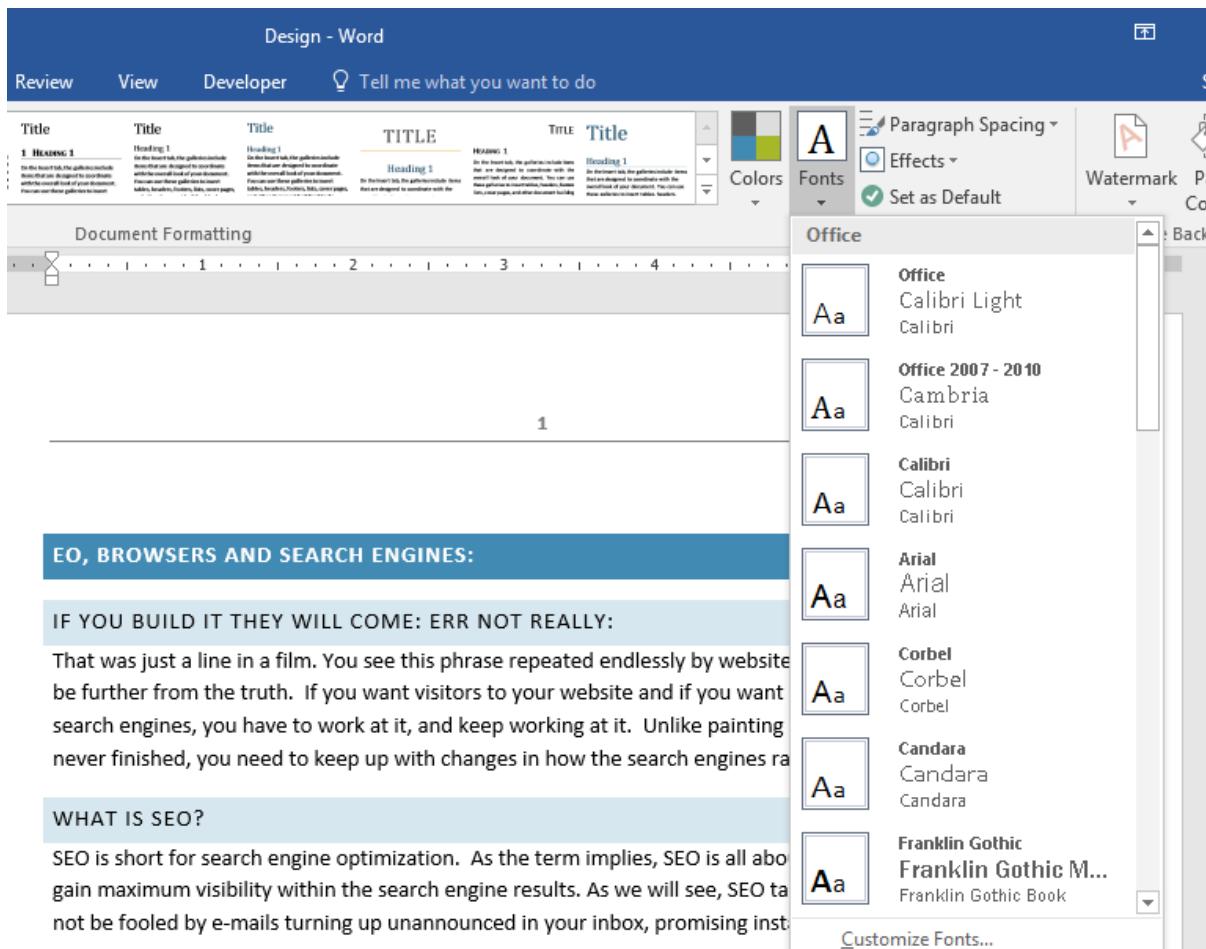
- Click on the **Colors** button under the **Design** tab. A drop down list of colors is displayed. As you move the mouse pointer down the list, different formatting options will be displayed.



- Apply a color of your choice.

## Apply a customized font

- Click on the **Font** button under the **Design** tab.



- As you move the mouse pointer down the list, different fonts will be applied. Click on a font you like to apply it to the document.
- Save your changes and close the document.

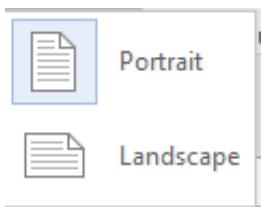
# Microsoft Word 2016 Page Formatting

## What is Page formatting?

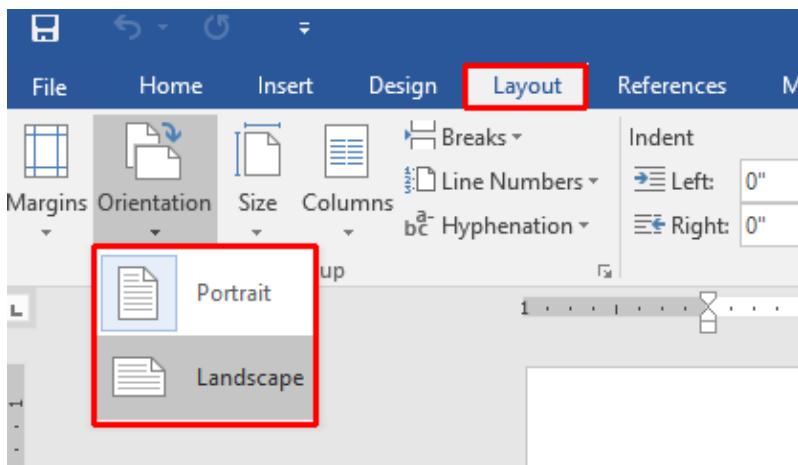
- Page formatting relates to formatting that normally affects the whole page, such as page orientation. The page is either **Portrait** or **Landscape** orientated. It also includes items such as page size and margins.

## Page orientation

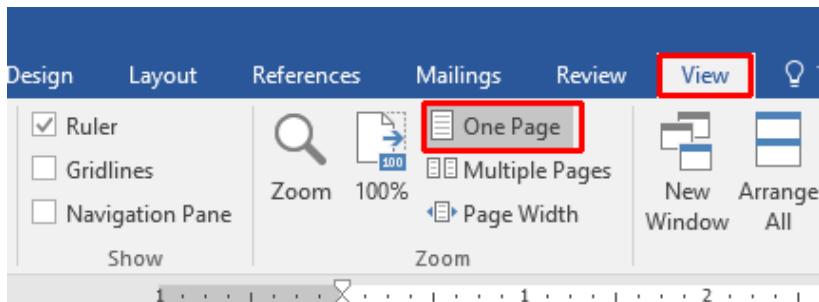
- Normally your Microsoft Word document will be displayed in **Portrait** page orientation, which is like looking at a photograph, where the long edge is the vertical line. You may change to **Landscape** orientation for certain types of documents such as notices.



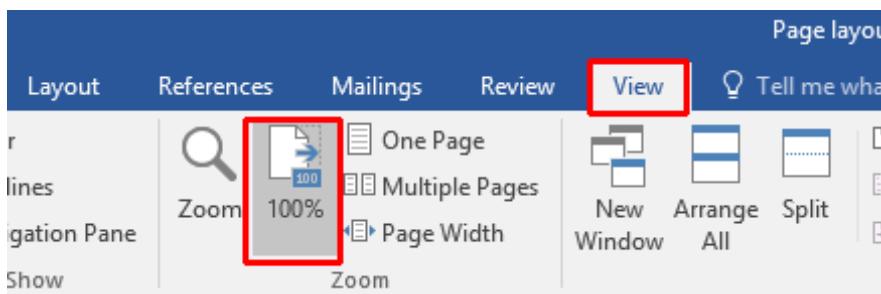
- The physical size of the paper used within printers varies from country to country. In the United States the normal paper size is called '**Letter**' size and the dimensions are measured in inches. '**Letter**' sized paper is shorter but wider than '**A4**' sized paper.
- In Europe and many other places, the paper size used within computer printers is normally called A4 sized paper. This may be measured in inches or centimeters (depending on the country). A4 sized paper is longer and slightly narrower than 'letter' sized paper.
- Open a document called **Page layout**.
- Click on the **Layout** tab. Within the **Page Setup** section click on the **Orientation** button. A drop down list allows you to select either **Portrait** or **Landscape** page orientation. Select **Landscape**.



- Your document will now be displayed in landscape view.
- To see the effect better click on the **View** tab and click on the **One Page** button.



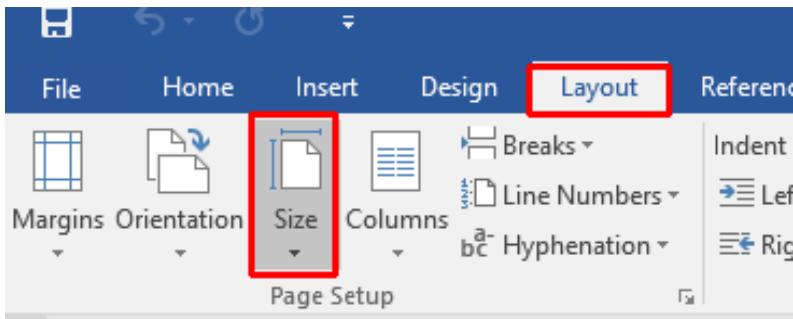
- Reset the page orientation back to **Portrait** orientation.
- Click on the **View** tab and click on the **100%** button.



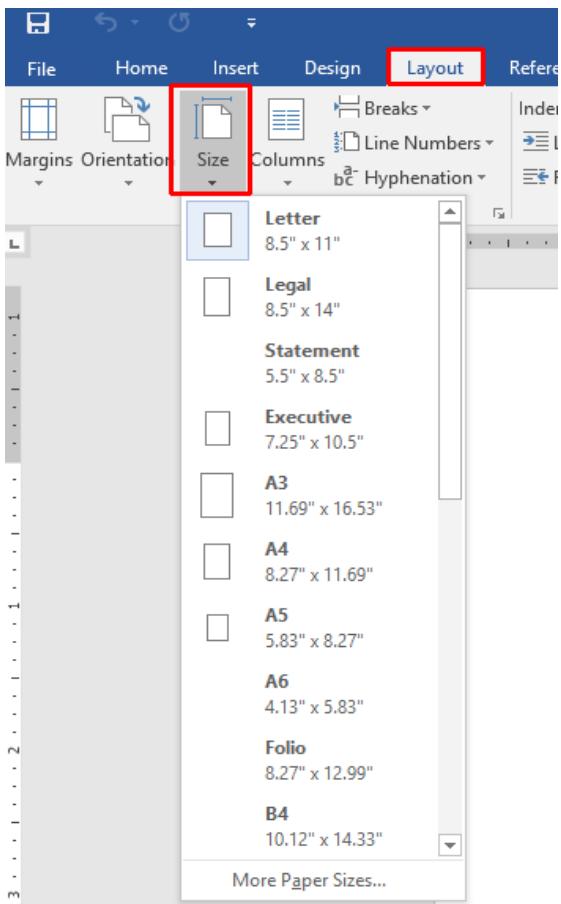
## Changing the page size

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- Experiment with changing the page size. To do this click on the **Layout** tab and from within the **Page Setup** section of the Ribbon, click on the **Size** icon, as illustrated.



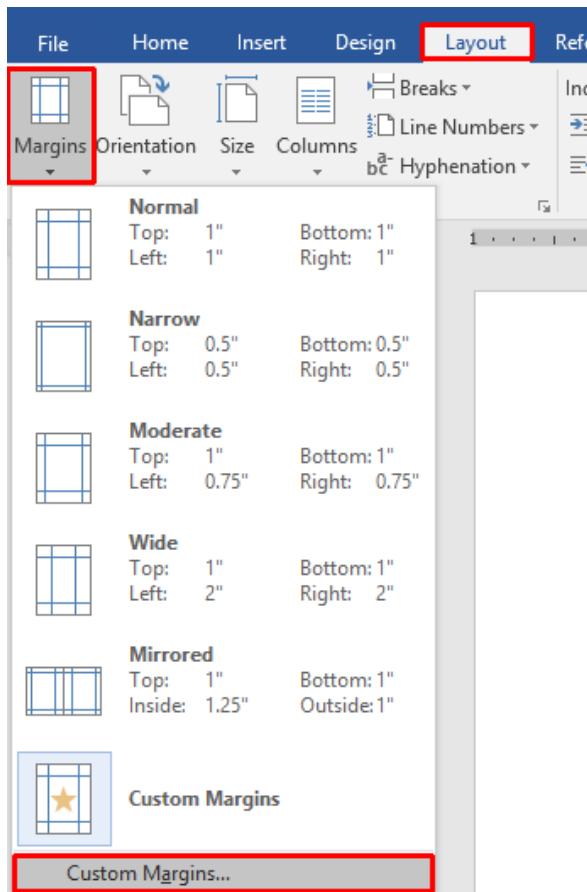
- You can click on an item within the drop down list to change the page size.



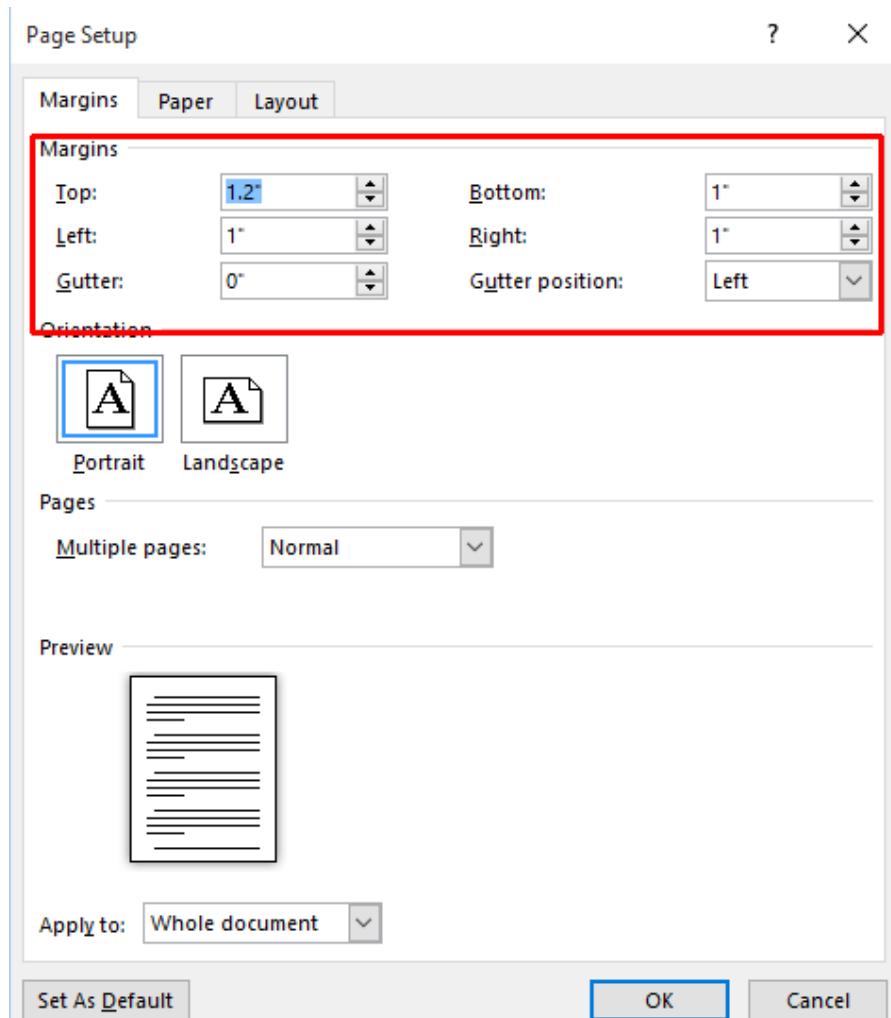
## Page margins

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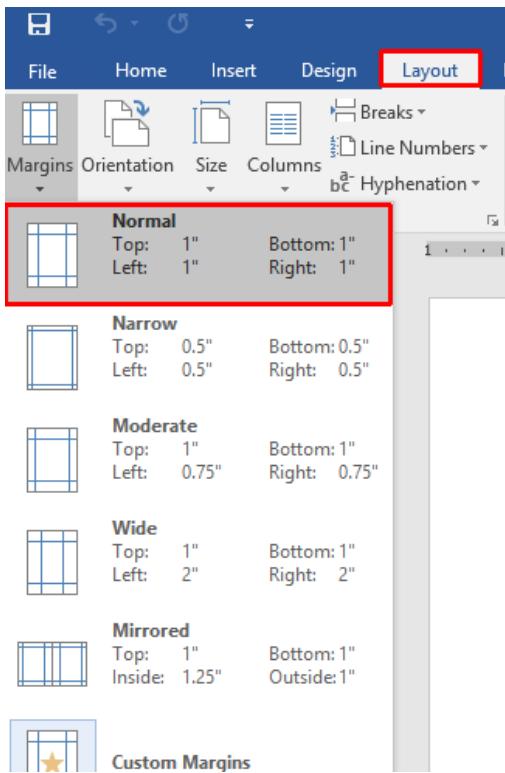
- Your document has a top, bottom, left and right margin. This is the space between the edge of your text and the edge of your page. Each margin may be increased or decreased. Be careful not to decrease it too much or you may have problems printing the documents.
- To modify your page margins, click on the **Layout** tab. From the **Page Setup** section, click on the **Margins** button. A list of pre-set options is displayed, as illustrated.



- Experiment with applying these different pre-set margin options.
- To create your own custom margins, click on the **Custom Margins** command displayed at the bottom of the **Margins** drop down list. This will display the **Page Setup** dialog box, allowing you to set exact values for the margins. Experiment with setting different margins values.



- Before continuing, reset the margins to the Microsoft Word default values by clicking on the **Margins** button and selecting the **Normal** margin command.



## Inserting Page Breaks

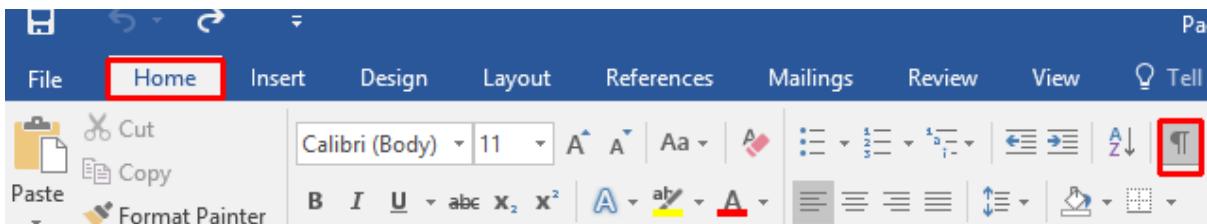
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- When you start typing into a document, the text normally starts at the top-left of the page and as you type more words they are displayed on the line moving towards the right of the page. When the words you are typing reach the right side of the screen they automatically drop down to the next line. If you continue typing you eventually fill that page, at which point Microsoft Word automatically moves on to the next page. These automatic page breaks that are inserted by Microsoft Word are called 'soft' page breaks. Sometimes you wish to force Microsoft Word to leave a blank area displayed at the bottom of one page and the next text to be displayed on a new page. To do this you need to insert a manual page break (sometimes called a hard page break).
- Insert a few page breaks into your document. To do this click at the point you wish to insert the page break and then press **Ctrl+Enter**.

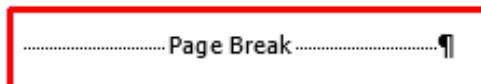
## Deleting Page Breaks

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- Normally you do not see the page break within a document, only the effect of the page break.
- Click on the **Home** tab and from within the **Paragraph** group, click on the **Show / Hide** icon.



- Any page breaks within the document will now be displayed as illustrated below.



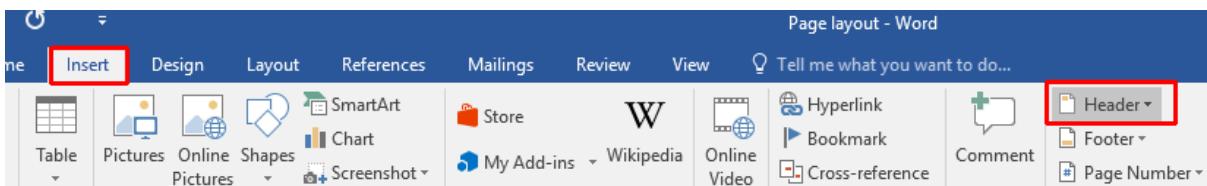
- To remove a page break, click to the right of the page break and press the **Backspace** key.

### **Use page breaks rather than repeatedly pressing the Return key**

- If you wish to insert a new page, always use the 'page break' method. Never keep pressing the **Return** key until Word skips to a new page.

### **Headers and Footers**

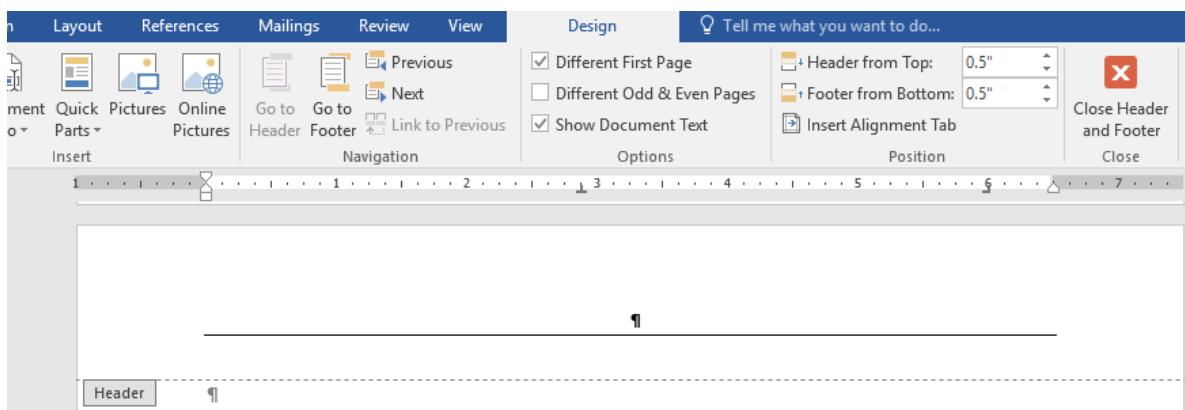
- If you are planning to print a document, it is a good idea to add a footer or header to the document, especially if it is a long document.
- Click on the **Insert** tab and within the **Header and Footer** group, click on the **Header** icon.



- A drop down list is displayed.



- Select the **Edit Header** command and the header area will be displayed on screen as illustrated.

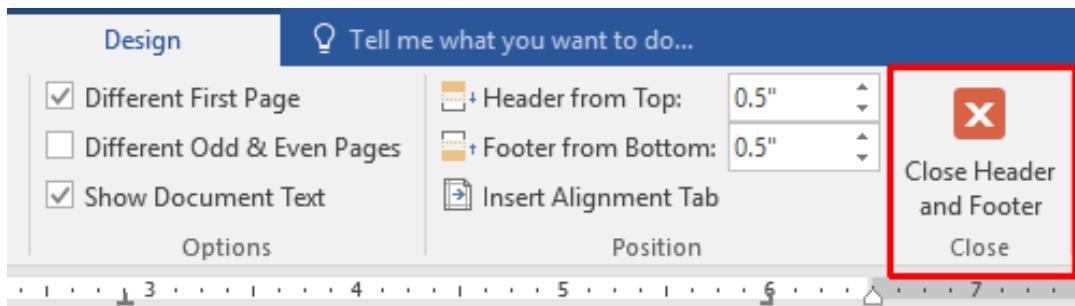


- Type in your header text. In this case type in your name.

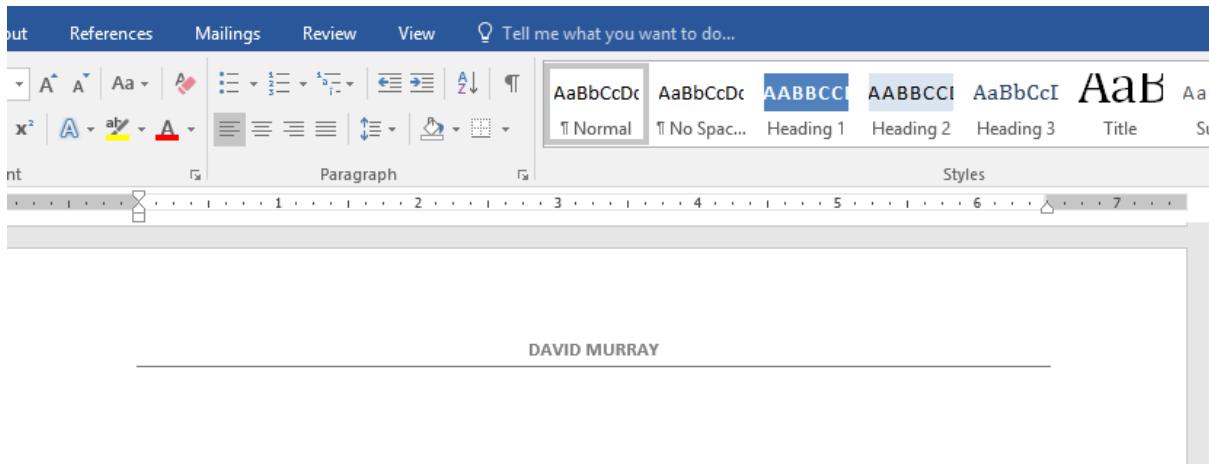
- If you look closely you will see that a special header and footer ribbon is displayed. This ribbon displays related commands to enhance your header or footer.



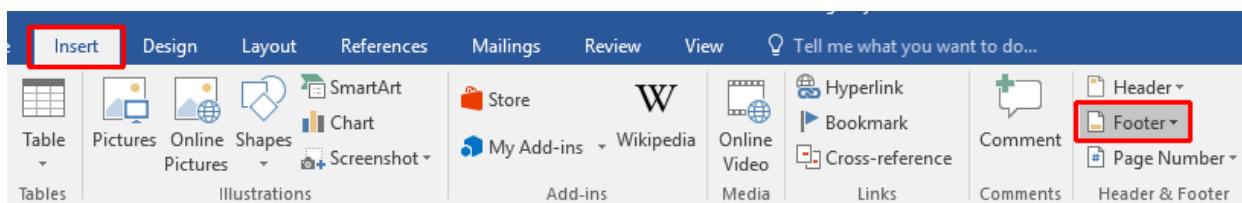
- Click on the **Close Header and Footer** icon.



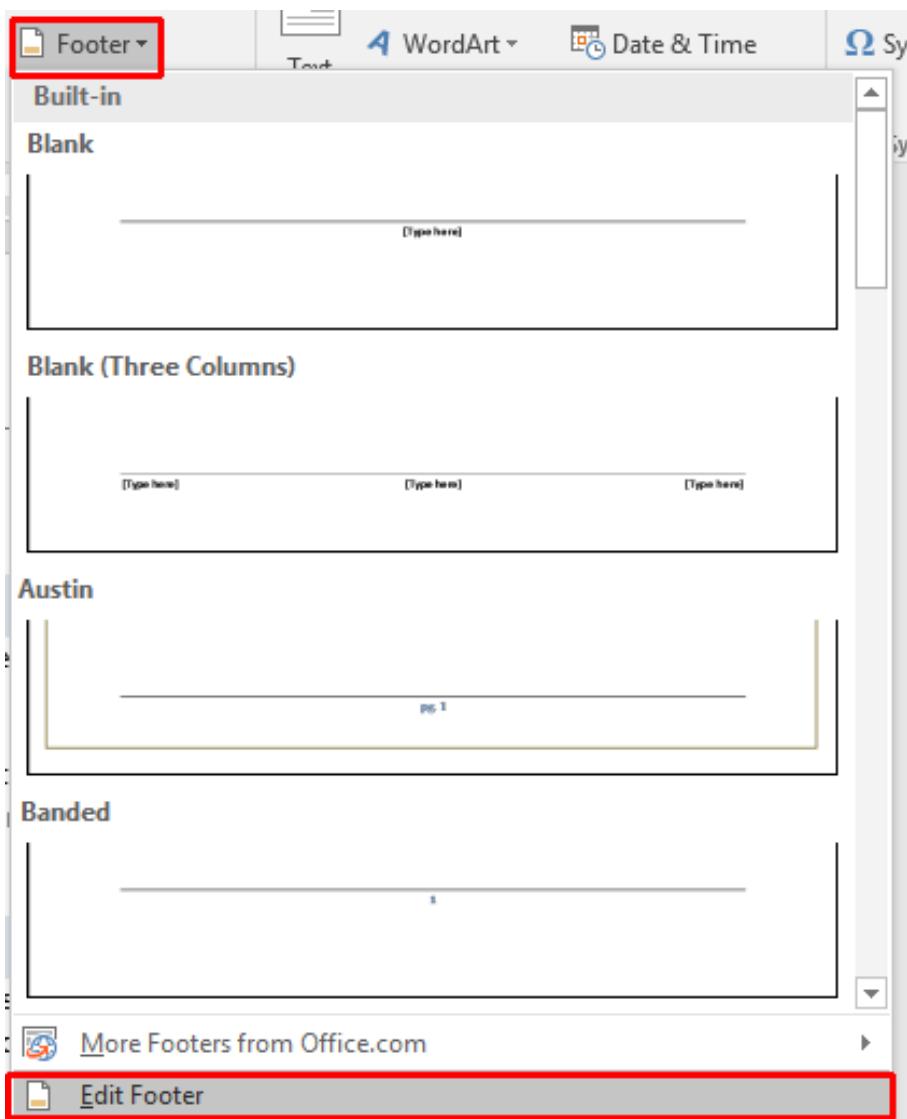
- You can see your header displayed at the top of your page.



- To insert a footer, click on the **Footer** icon



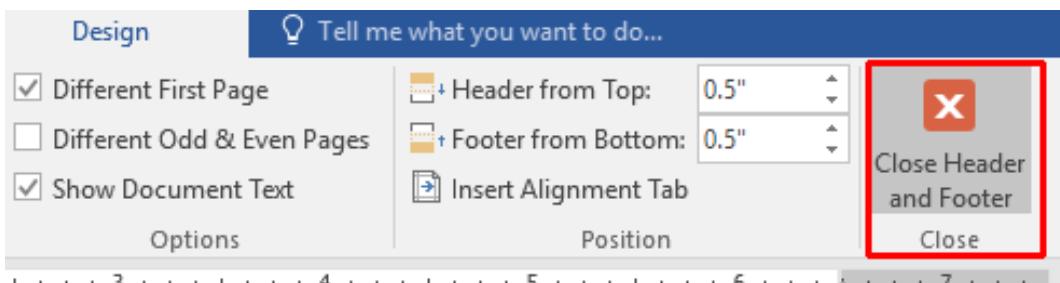
- Select the **Edit Footer** command.



- Type in the following text as your footer.

**Draft copy only**

- Click on the Close Header and Footer icon.

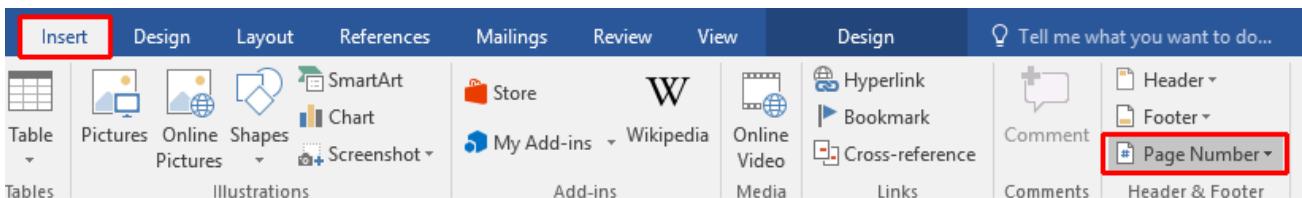


## Easy header and footer creation

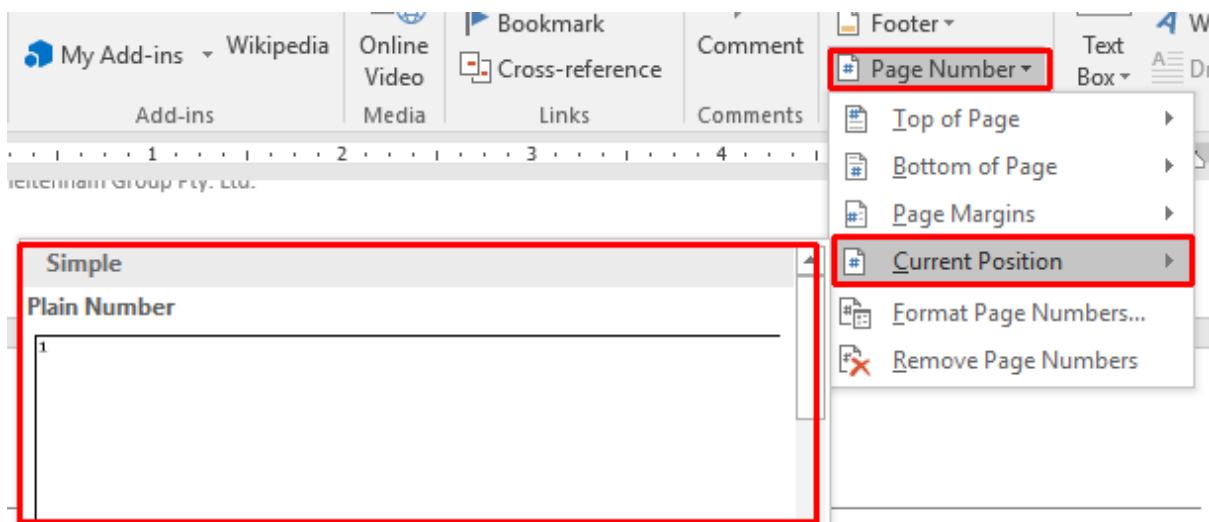
- An easier way to insert headers and footers is to simply double click within the header or footer area of your document. Try clicking within the header area and you will see that you are automatically switched to the insert header mode.
- Click on the Close Header and Footer icon.

## Page numbering

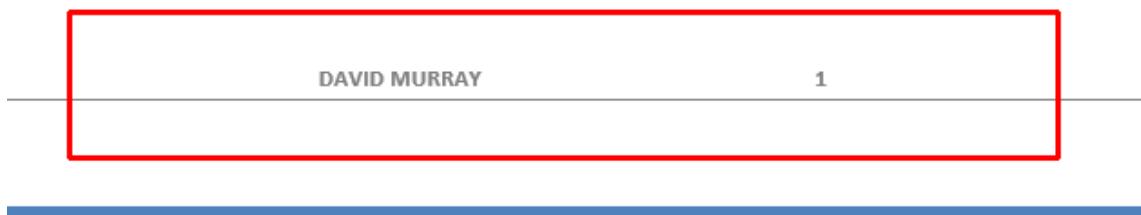
- You can insert automatic page numbering into a document header or footer. As this is inserted as a field this means that when you modify the number of pages within the document the page numbering is also updated on each page.
- Click on the **Insert** tab and from the **Header and Footer** group click on the **Header** icon. A drop down list is displayed, select the **Edit Header** command. You should see your name displayed as the header.
- Click just after your name and press the **Tab** key twice.
- Click on the **Page Number** button.



- From the drop down list displayed, select **Current Position**. From the sub-list displayed select **Plain Number**.



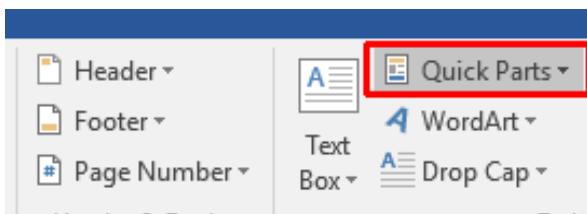
- The page number should be inserted into your document. Close the **Header and Footer** ribbon.



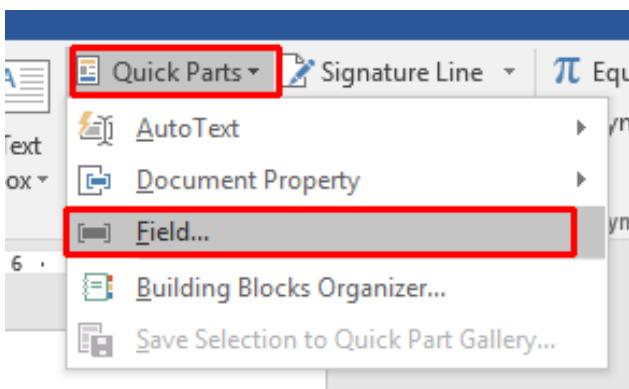
## Header and footer fields

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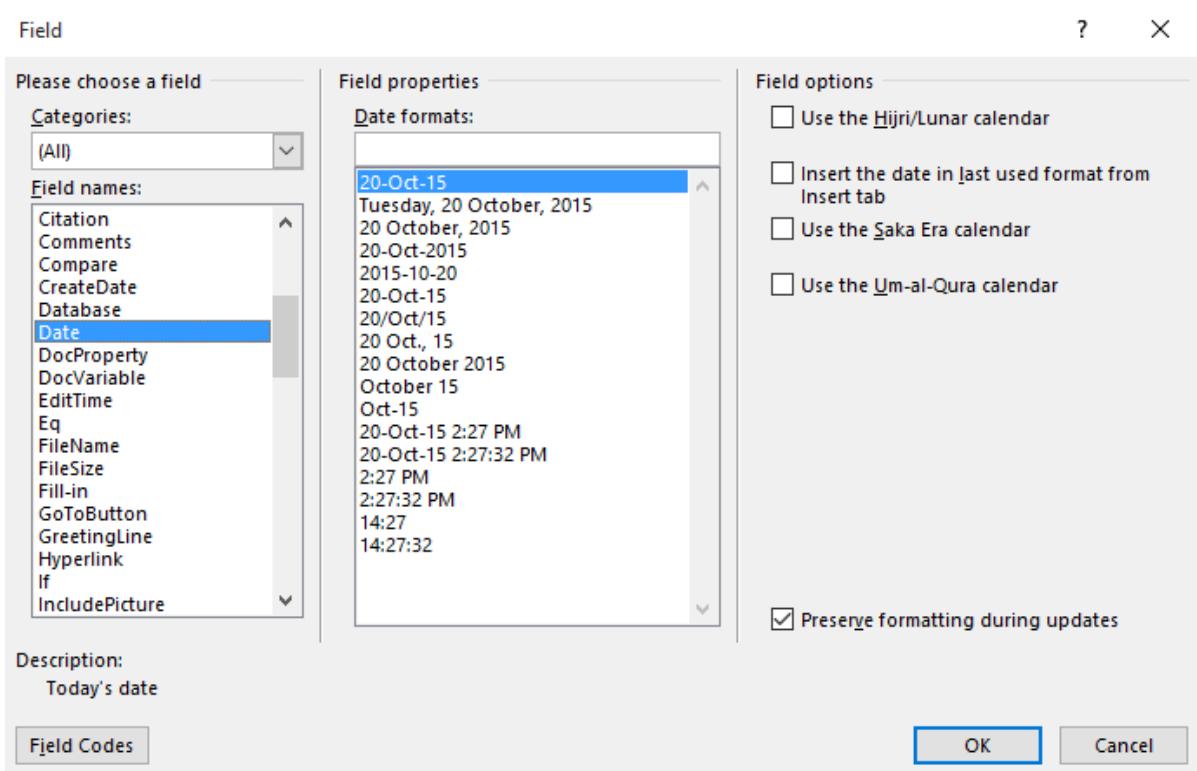
- Microsoft Word fields are easy to insert and can be automatically updated. For instance, you could insert the date within the header of a document and arrange it so that each time you reprinted the document, the current date was displayed. This would mean that if you printed the document each month, then the correct month would be displayed within the header.
- Click on the **Insert** tab, and from the **Header and Footer** section click on the **Footer** icon. A drop down list is displayed, select the **Edit Footer** command. You should see your footer text. Click at the end of the footer text. Press the **Tab** key twice.
- Click on the **Quick Parts** button.



- From the drop down list displayed select the **Field** command.



- This will display the **Field** dialog box. This allows you insert a wide range of fields. In this case select **Date**, as illustrated.



- Click on the **OK** button. Close the **Header and Footer** Ribbon and you will see your footer displayed at the bottom of each page.

Draft Copy only

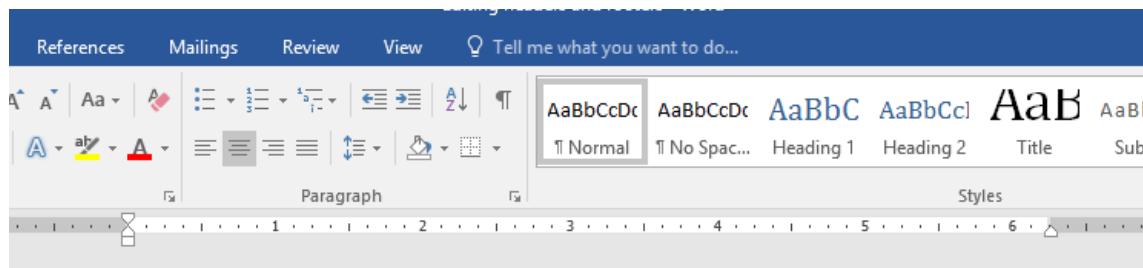
20/10/2015

- If you have time, have a brief look at some of the other fields that you can insert into your header or footer.
- The **Filename** field is particularly useful as if you insert this into a header or footer and then save your document this field will record the file name. You will find with a little experimentation that this field can also include the folder storage location on your hard disk.
- Save your changes and close the document.

## Editing text within a header or footer

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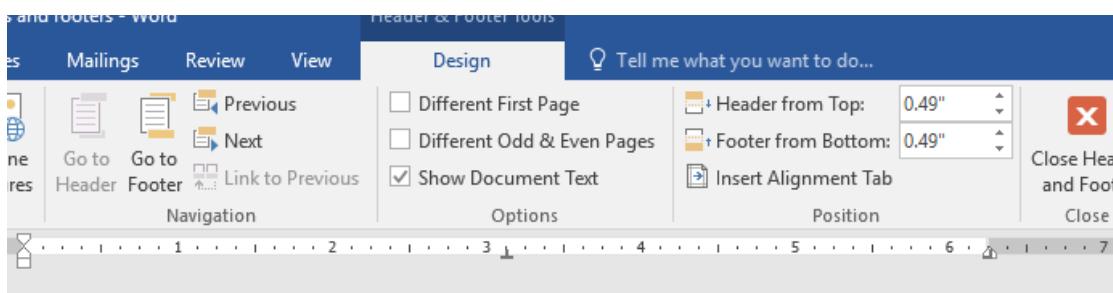
- Open a document called **Editing headers and footers**. This document has text in the header and footer area. The header looks like this.



My First Flight in a Balloon



- Double click over the header area and the screen will change, as illustrated, allowing you to edit the existing header text.

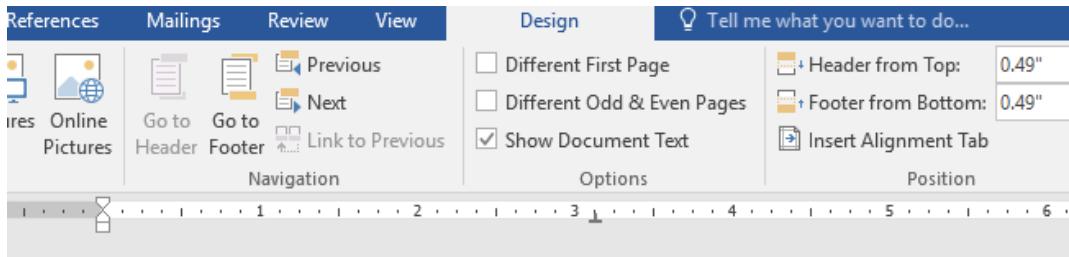


### My First Flight in a Balloon



- Change the text so that it displays your name. An example is illustrated below.

**NOTE:** To change the text, select the text that you wish to replace and overtype with the new text.



Rowan's|First Flight in a Balloon



- Scroll down to view the footer text. Edit this text as illustrated below.

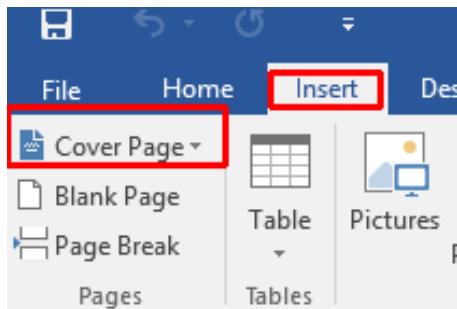
## The balloon took off from Perth

- Save your changes and close the document.

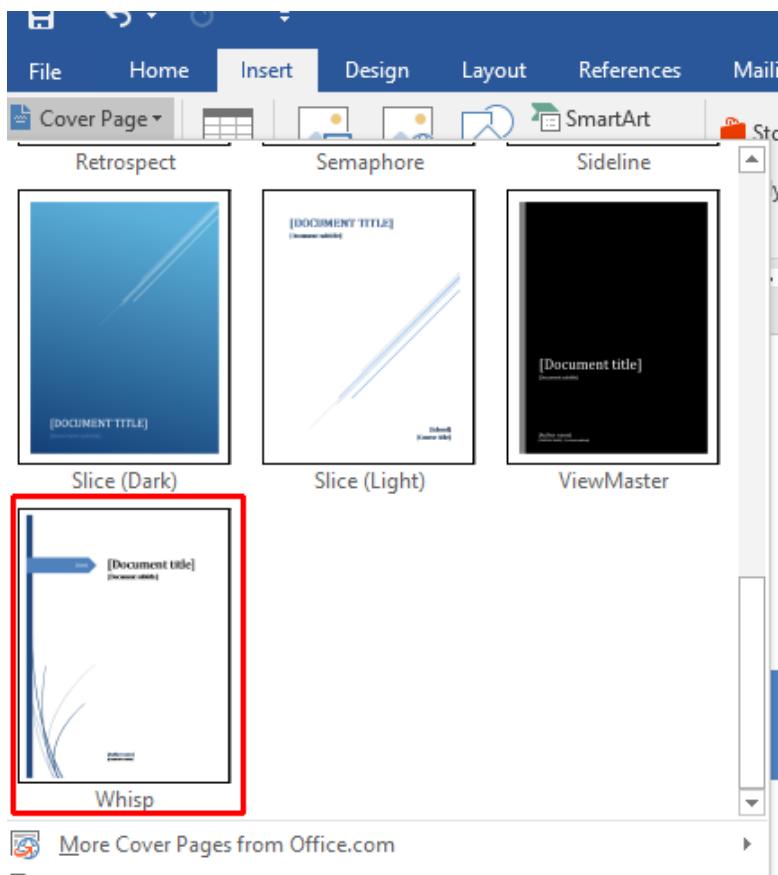
### Cover pages

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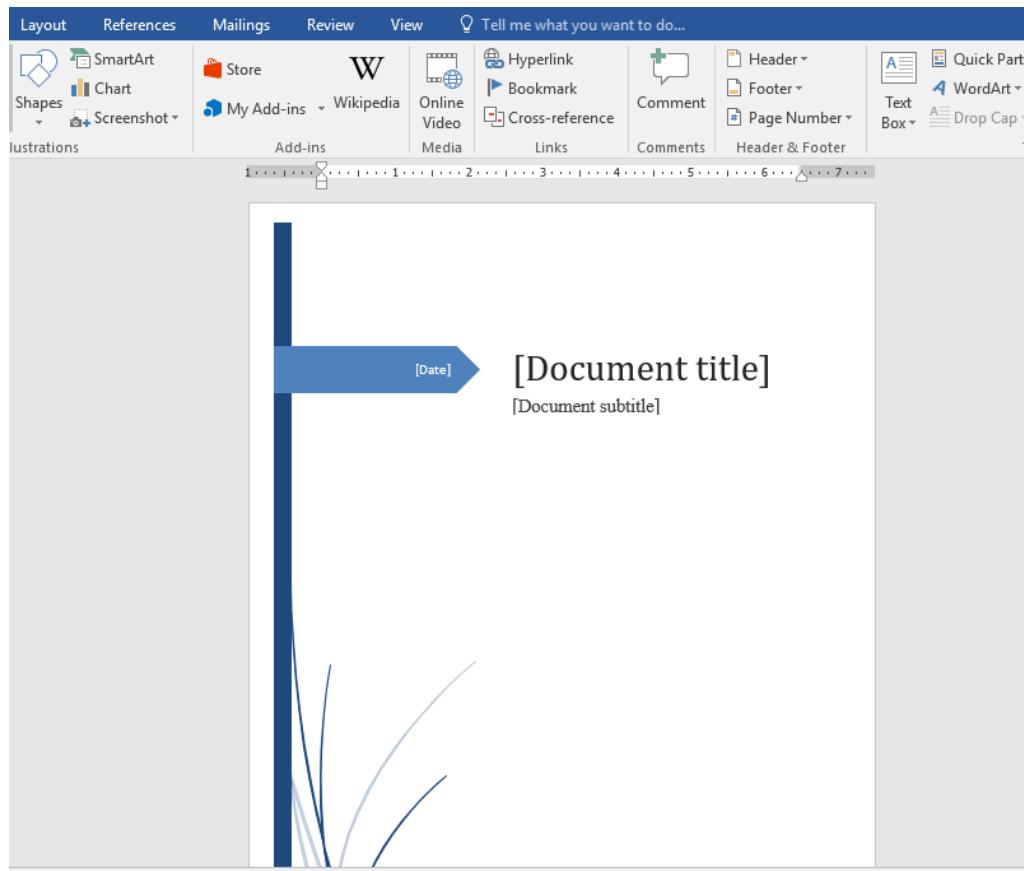
- This feature inserts a professional looking front cover page into your document.
- Open a document called **Cover page**. Click at the start of the document. Click on the **Insert** tab and then click on the **Cover Page** button (within the **Pages** group).



- This will display a drop down from which you can select a cover page type. In this case select the **Whisp** type.



- Once you select a cover page type you will see the following.



- Click on the **[Year]** control to insert the year.
- Click on the **[Document title]** control and then enter a title, such as '**About Computers**'.
- Scroll though the document to review your changes.
- Save your changes and close the file.

## Applying Automatic Hyphenation

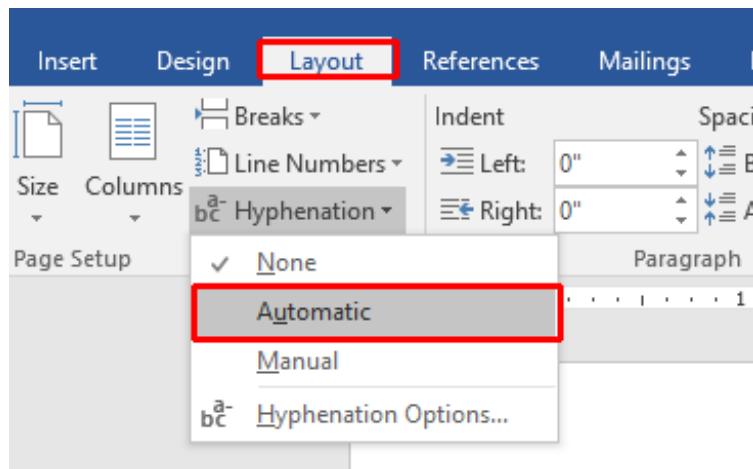
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- If a word at the end of a line of text is too long to fit on that line Word 2016 will move that word to the beginning of the next line rather than hyphenate it. If you wish you can set up Word to automatically hyphenate text. You can even control the length of the area at the end of a line that will trigger automatic hyphenation, when required.
- Open a document called **Hyphenation**. The document will look something like the illustration below. You should see that hyphenation is not active.

### Hyphenation

Some long words include abstractionists, accommodatingly, acquisitiveness, hierarchically, untraditionally, transmembrane, vindictiveness, truthfulnesses, unpretentiously, misrepresenting, mistranslations, obliquenesses, valuelessnesses, transformations, unsteadinesses, passionately, transplantation, unobjectionable, persuasiveness, photoexcitation, visionarinesses, verifiableness and vascularisation.

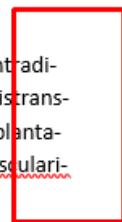
- Click on the **Layout** tab and from within the **Page Setup** group, click on the **Hyphenation** button. From the drop down displayed click on the **Automatic** command.



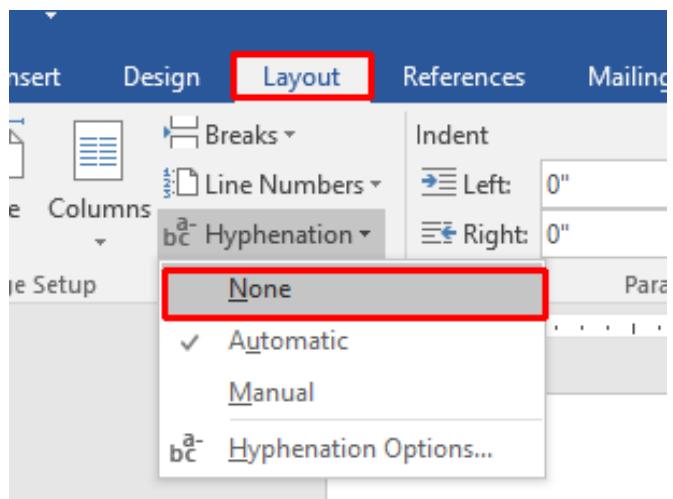
- The document will now display hyphens at the end of some lines, as illustrated below.

### Hypothetical Hyphenation

Some long words include abstractionists, accommodatingly, acquisitiveness, hierarchically, untraditionally, transmembrane, vindictiveness, truthfulnesses, unpretentiously, misrepresenting, mistranslations, obliquenesses, valuelessnesses, transformations, unsteadinesses, passionately, transplantation, unobjectionable, persuasiveness, photoexcitation, visionarinesses, verifiableness and vascularisation.



- Before continuing turn off automatic hyphenation by clicking on the **Page Layout** tab and from within the **Page Setup** group, click on the **Hyphenation** button. From the drop down displayed click on the **None** command, as illustrated below.

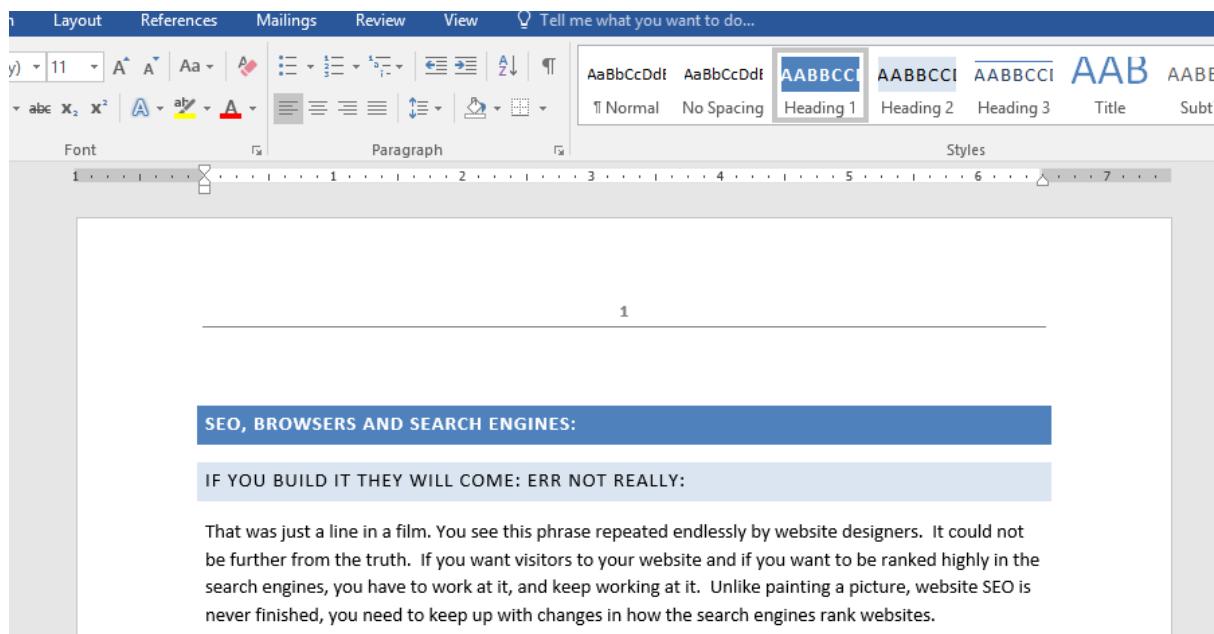


- Close your document without saving your changes.

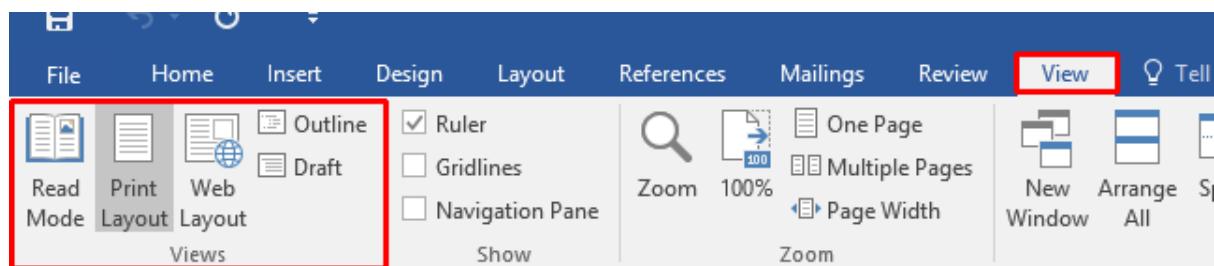
# Word 2016 Views and Document Navigation

## Switching between Word Views

- Microsoft Word has a number of different views that you can use to display a document.
- Start Word and open a document called **Views** which will look like this.



- Click on the **View** tab and look at the options within the **Views** section.



- By default, the **Print Layout** view is displayed. Click on the **Read Mode** icon and the screen will change to look like this. As you can see this view makes it easier to read the document on your screen, as the screen clutter is not displayed.

SEO, BROWSERS AND SEARCH ENGINES:

IF YOU BUILD IT THEY WILL COME: ERR NOT REALLY:

That was just a line in a film. You see this phrase repeated endlessly by website designers. It could not be further from the truth. If you want visitors to your website and if you want to be ranked highly in the search engines, you have to work at it, and keep working at it. Unlike painting a picture, website SEO is never finished, you need to keep up with changes in how the search engines rank websites.

WHAT IS SEO?

SEO is short for search engine optimization. As the term implies, SEO is all about optimizing a website to gain maximum visibility within the search engine results. As we will see, SEO takes time and effort. Do not be fooled by e-mails turning up unannounced in your inbox, promising instant SEO results.

ONSITE AND OFFSITE SEO:

When you are optimizing your website for search engine visibility there are two distinct aspects to the optimization.

On-site optimization refers to any changes that you make to the actual content of the website. This on-site optimization may relate to the text that your visitors can see when they visit your website or it may relate to the code behind the website that the search engine will see, but that your visitors will not necessarily view.

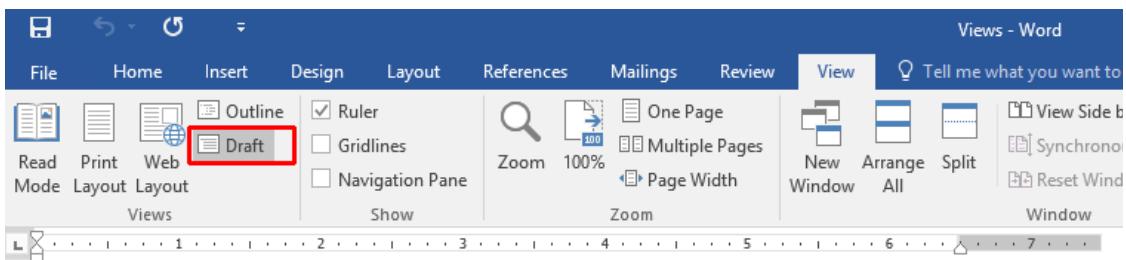
For instance, as we will see elsewhere, within the 'head' section of the HTML code for each page of the website, you may optimize the title, description and keywords. There are also many other on-site optimization opportunities, such as using header tags, alt tags and comments.

In many ways the most important part of on-site optimization is to make sure that all your keywords are displayed within the body text of the page.

Offsite search engine optimization consists of numerous activities, such as requesting links from other websites to your website. In addition this now includes activities ranging from posting videos on YouTube through to setting up Facebook and Twitter accounts.

The single most important offsite activity is the acquiring of links from other websites, to your website. Within reason the more of these the better. However it is also important that these links are high quality links,

- Press the **Esc** key to return to the **Print Layout** view.
- Click on the **Draft** button and the document will be displayed in draft mode.



## SEO, BROWSERS AND SEARCH ENGINES:

### IF YOU BUILD IT THEY WILL COME: ERR NOT REALLY:

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### WHAT IS SEO?

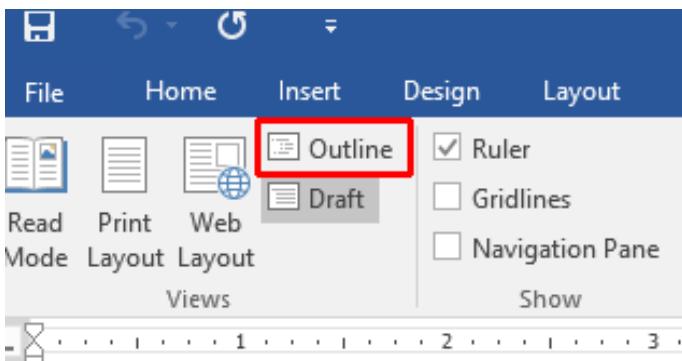
SEO is short for search engine optimization. As the term implies, SEO is all about optimizing a website to gain maximum visibility within the search engine results. As we will see, SEO takes time and effort. Do not be fooled by e-mails turning up unannounced in your inbox, promising instant SEO results.

### ONSITE AND OFFSITE SEO:

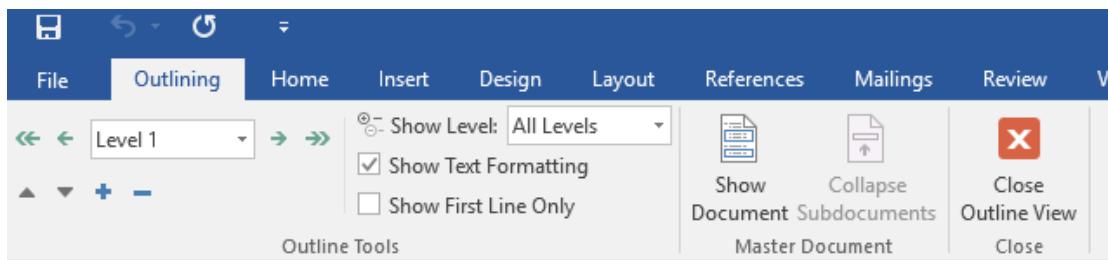
When you are optimizing your website for search engine visibility there are two distinct aspects to the optimization.

On-site optimization refers to any changes that you make to the actual content of the website. This on-site optimization may relate to the text that your visitors can see when they visit your website or it may relate to the code behind the website that the search engine will see, but that your visitors will not necessarily view.

- Click on the **Outline** icon to display the document in Outline mode.

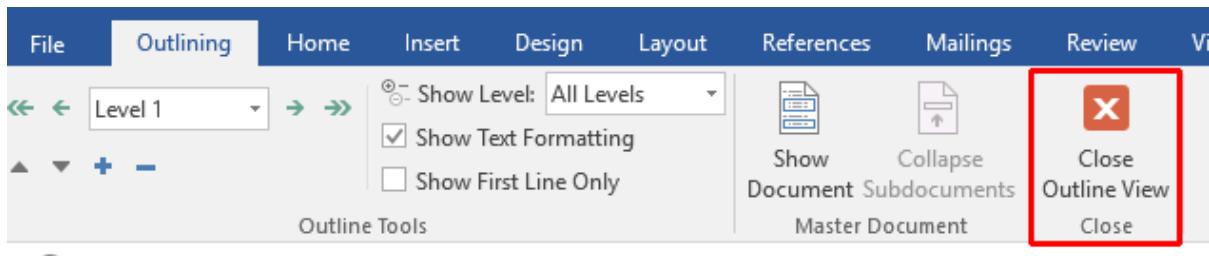


The document will look like this. Outline view is useful when viewing long documents, as you can easily identify headings and sections within the document.

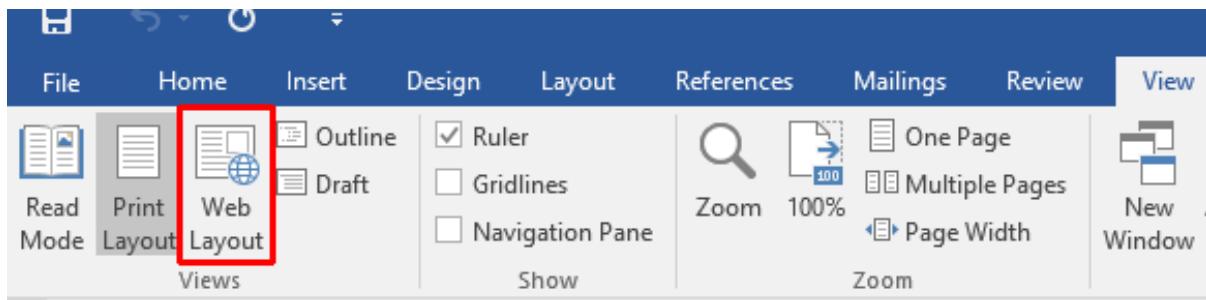


- ⊕ IF YOU BUILD IT THEY WILL COME: ERR NOT REALLY:
  - That was just a line in a film. You see this phrase repeated endlessly by website designers. It could not be further from the truth. If you want visitors to your website and if you want to be ranked highly in the search engines, you have to work at it, and keep working at it. Unlike painting a picture, website SEO is never finished, you need to keep up with changes in how the search engines rank websites.
- ⊕ WHAT IS SEO?
  - SEO is short for search engine optimization. As the term implies, SEO is all about optimizing a website to gain maximum visibility within the search engine results. As we will see, SEO takes time and effort. Do not be fooled by e-mails turning up unannounced in your inbox, promising instant SEO results.
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  - For instance, as we will see elsewhere, within the 'head' section of the HTML code for each page of the website, you may optimize the title, description and keywords. There are also many other on-site optimization opportunities, such as using header tags, alt tags and comments.
  - In many ways the most important part of on-site optimization is to make sure that all your keywords are displayed within the body text of the page.
  - Offsite search engine optimization consists of numerous activities, such as requesting links from other websites to your website. In addition this now includes activities ranging from posting videos on YouTube through to setting up Facebook and Twitter accounts.
  - The single most important offsite activity is the acquiring of links from other websites, to your website. Within reason the more of these the better. However it is also important that these links are high quality links, which means that you should be linking from

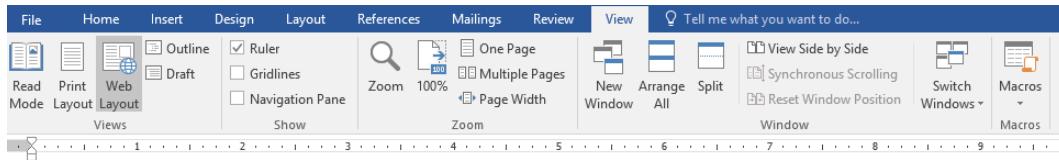
- To close the Outline view, click on the **Close Outline View** button.



- Click on the **Web Layout** icon.



- This will display the document as it would appear on a web site.



#### SEO, BROWSERS AND SEARCH ENGINES:

##### IF YOU BUILD IT THEY WILL COME: ERR NOT REALLY:

That was just a line in a film. You see this phrase repeated endlessly by website designers. It could not be further from the truth. If you want visitors to your engines, you have to work at it, and keep working at it. Unlike painting a picture, website SEO is never finished, you need to keep up with changes in how the

##### WHAT IS SEO?

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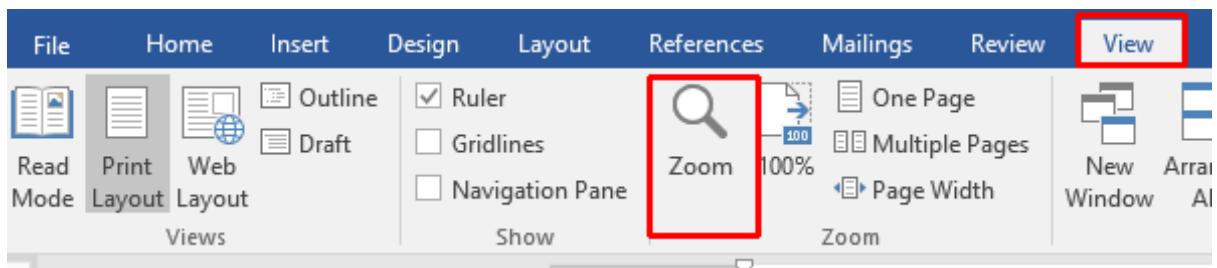
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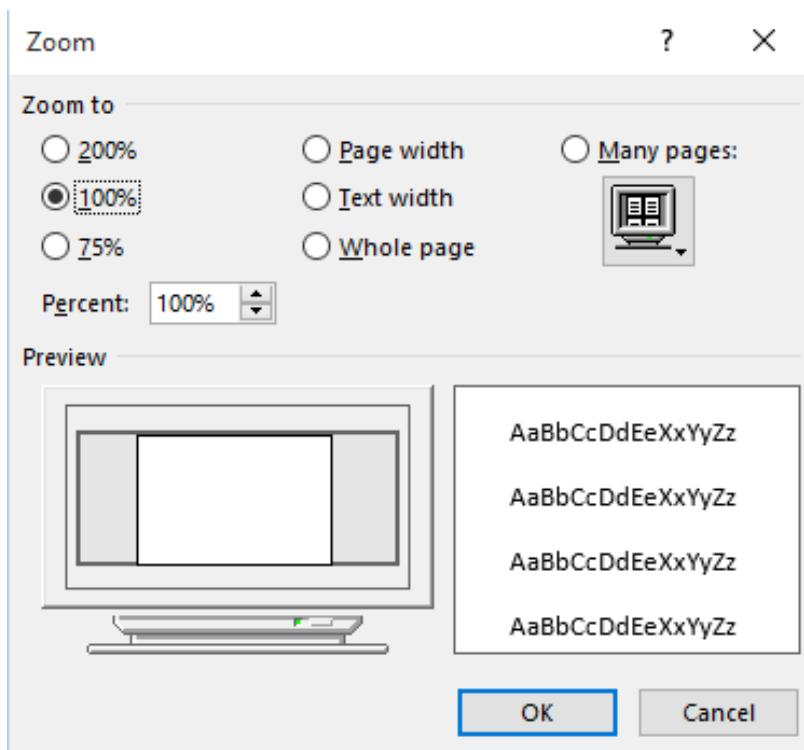
- Click on the **Print Layout** icon to return to the default view display.

## Using the Zoom tool

- You can click on the **Zoom** icon to magnify or reduce the display. You will find this icon within the **Zoom** section of the **View** tab.



- This will display the **Zoom** dialog box. Experiment with different levels of zoom.



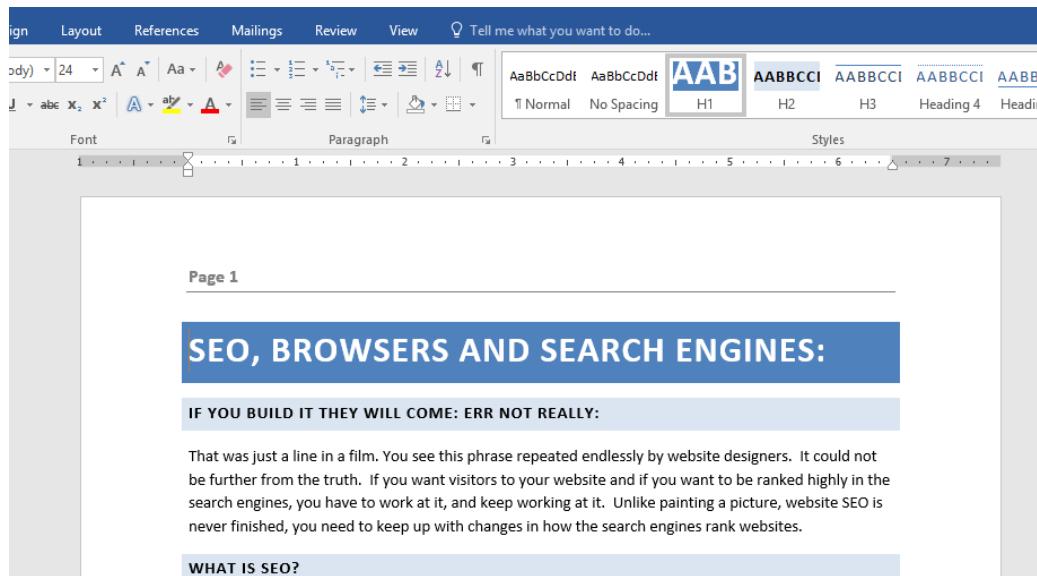
- Reset the **Zoom** level back to **100%**.
- Close Word without saving any changes that you may have made.

**TIP:** You can also use the **zoom slider** tool. Displayed at the bottom-right of the Microsoft Word screen.

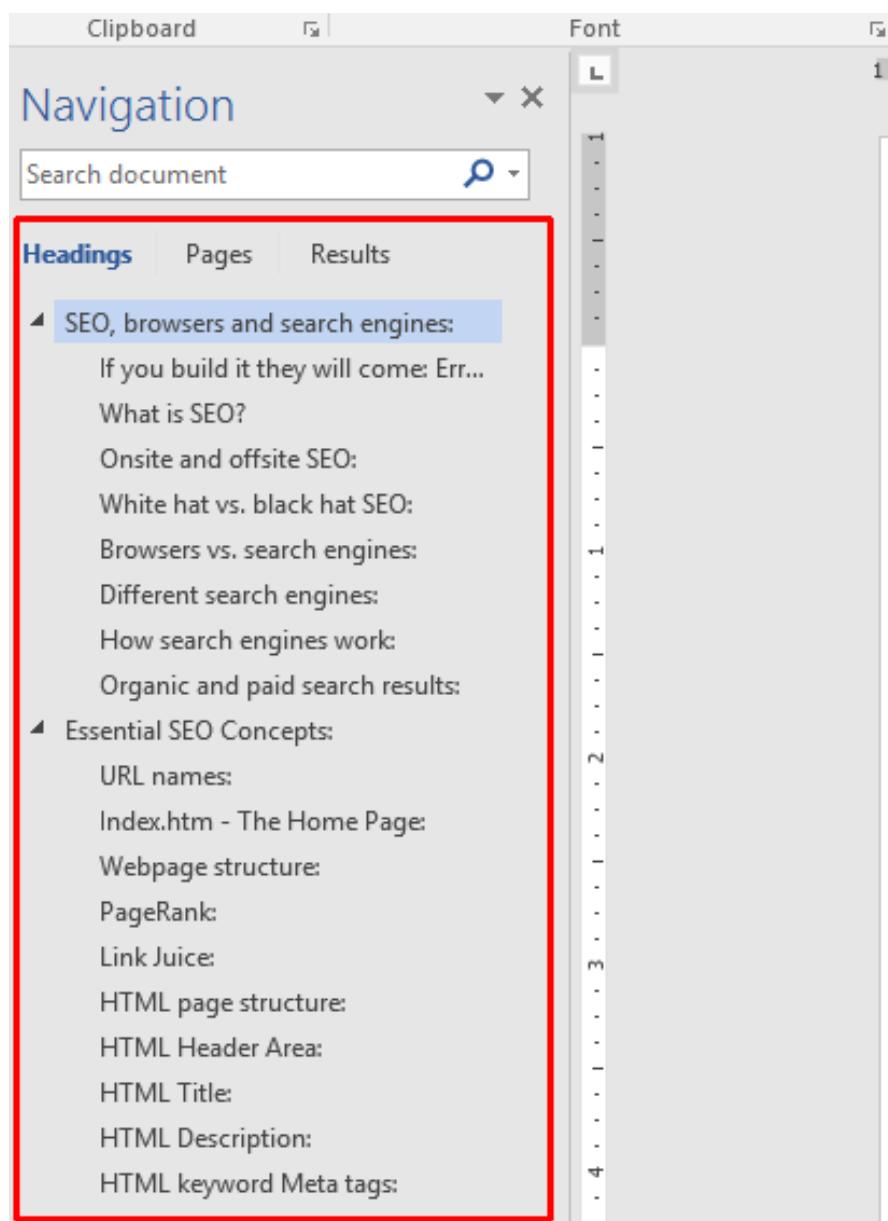


## Navigating through documents

- Open a document called Navigating.



- This document contains text that has been marked within Heading styles. The first line has been marked with a Heading one style. The next line of text is marked with a Heading 2 style.
- If you look at the Navigation pane, displayed to the left of the document you will see this document structure is used to display the document.



- The other items within the Navigation pane are Header 2 styles. Try clicking on any of the items within the Navigation list and as you will see you 'jump' directly to that item. As you can see for documents that have been formatted using heading styles, the navigation pane is a great way of moving about within the document.
  - You will see how to add style information to a document in a later section.
  - Close the document without saving your changes.
-

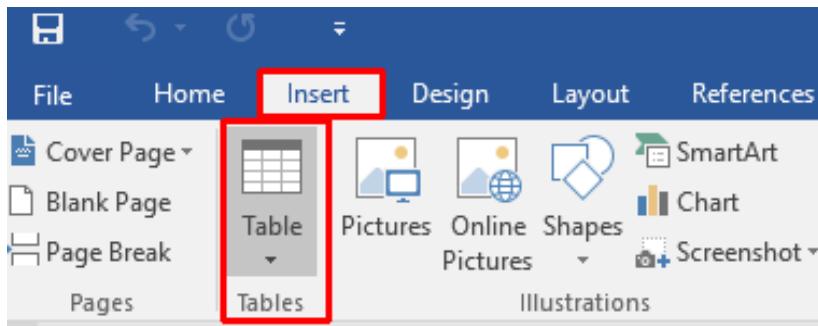
# Tables

## Using tables

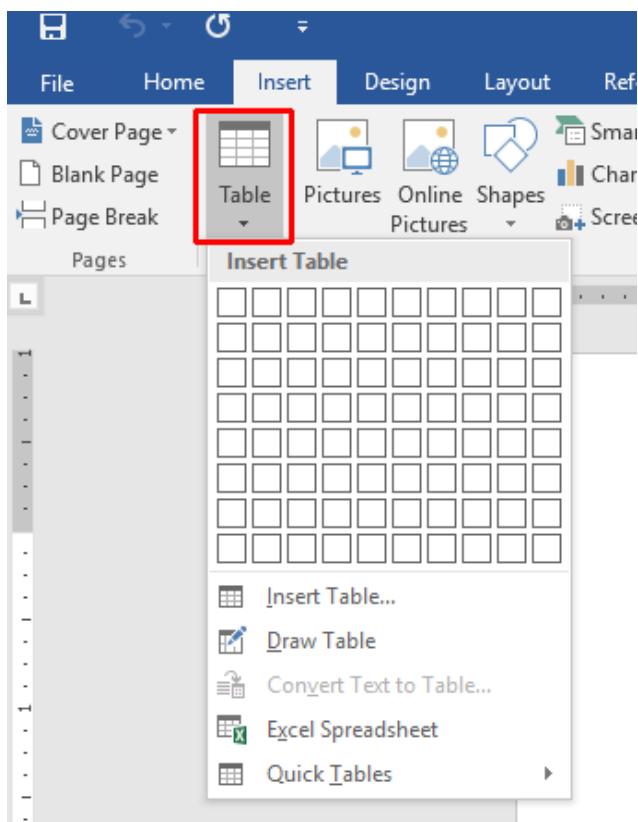
- You can insert a table into your document. Each cell within the table can display text or a picture. Each cell or the entire table can be formatted as required.

## Inserting a table

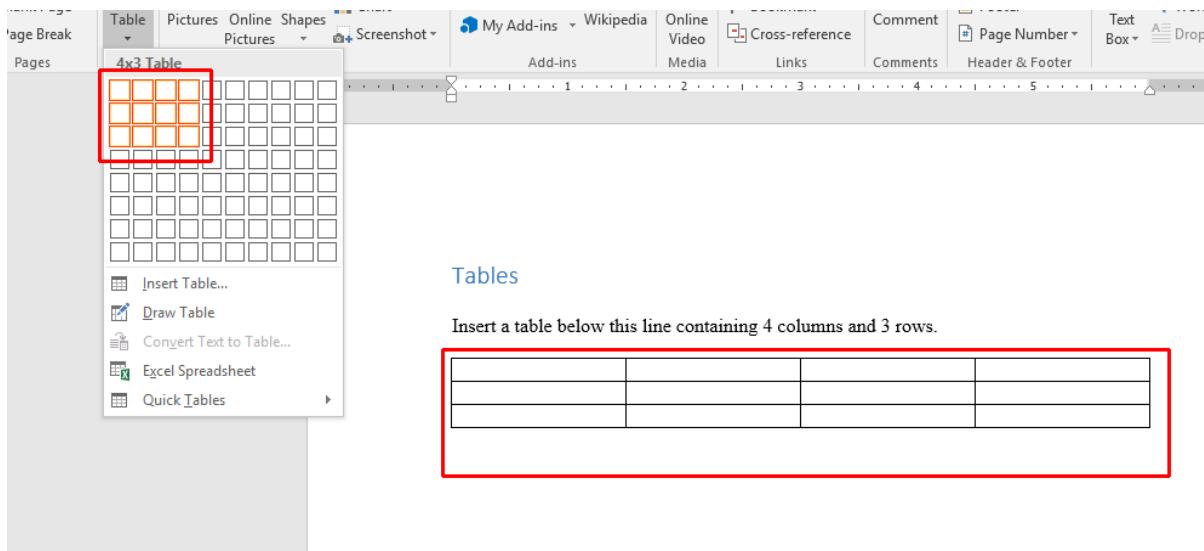
- Open a document called **Tables**. Read the instructions within this document. We are going to insert a table containing 4 columns and 3 rows.
- Display the **Insert** tab and you will see the **Tables** group displayed as illustrated.



- Clicking on the **Table** button will display the following.

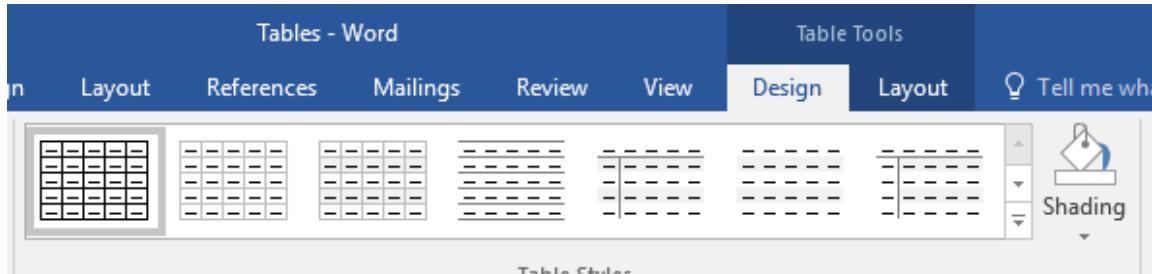


- If you move the mouse pointer over the cells displayed in the drop down, you will see that a preview version of the table is displayed within your document.

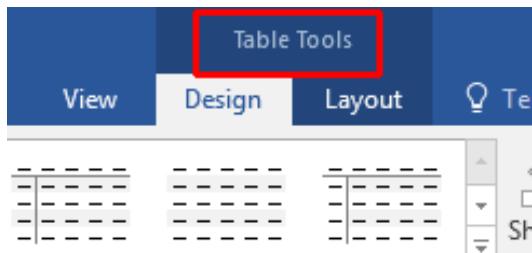


- Click when you see a **4x3 Table** displayed. The table will be inserted into the document, as illustrated.


- Notice that the display at the top of your screen has changed. As you are within the table you have just selected, Microsoft Word automatically displays commands and options related to modifying and formatting your table.



- Click outside your table and the ribbon will display its original commands. Re-clicking within the table will again display Table related commands. If you do not see the table commands displayed, you will notice that there is a **Table Tools** option displayed at the top of your page (above the normal tabs). Click on this to display your table related commands again.



## Navigating within a table

- Click within the first cell in the table. Type in the name of the town or city in which you live.
- To move to the next cell, press the **Tab** key (or click within the cell using the mouse pointer). Type in the name of another town or city. Carry on in a similar fashion until all the cells contain the name of a town or city.
- Try pressing **Shift+Tab**. As you will see this moves you to the previous cell.

## Selecting and editing text within a table

- Click within the first cell. Double click on the word within this cell and change the word to your first name. Navigate to the second cell and overwrite the contents with your second name. You can edit the text within a cell rather than replace the entire text by selecting the part of the text you wish to edit and then typing in your changes.

## Selecting cells, rows, columns or the entire table

- It is important to know how to select elements within your table. Practice these selection techniques using the table you have created.

### To select a cell.

Move the mouse pointer to the left side of the cell you want to select. The mouse pointer will change to the shape of a small solid black arrow pointing upwards and to the right. Click when you see the pointer change to this shape and the cell will be selected.


### To select a row.

Move the mouse pointer to the left of the row you want to select. When the mouse pointer changes to the shape of an arrow, click once and the row will be selected.


### To select multiple rows which are next to each other.

Move the mouse pointer to the left of the first row you want to select. When the mouse pointer changes to the shape of an arrow, click once and the row will be selected. Hold down the **Shift** key and then click on the last row of the block of cells you wish to select.


### To select multiple rows which are not connected to each other.

Move the mouse pointer to the left of the first row you want to select. When the mouse pointer changes to the shape of an arrow, click once and the row will be selected. Hold down the **Ctrl** key while clicking to select other rows.


### To select a column.

Move the mouse pointer to the area just above the column you want to select. When the

mouse pointer changes to the shape of a small, black, down-pointing arrow, click once and the column will be selected.


#### To select multiple columns which are next to each other.

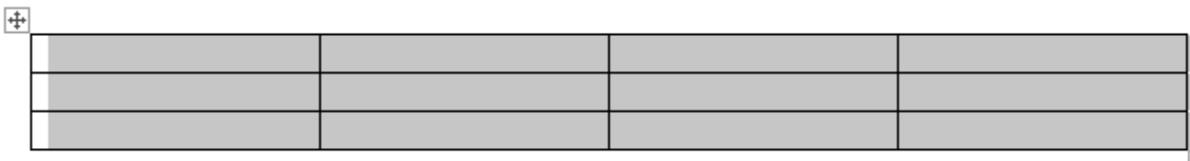
Move the mouse pointer to the area just above the first column you want to select. When the mouse pointer changes to the shape of a small, black, down-pointing arrow, click once and the column will be selected. While holding down the **Shift** key, click above the column at the end of the block of columns that you want to select.


#### To select multiple columns which are not next to each other.

Move the mouse pointer to the area just above the first column you want to select. When the mouse pointer changes to the shape of a small, black, down-pointing arrow, click once and the column will be selected. While holding down the **Ctrl** key, click above the other columns that you wish to select. Release the **Ctrl** key when you have finished selecting columns.


#### To select the entire table.

Click within the last cell of the table. While holding the mouse button down, move to the first cell within the table. When you release the mouse button the entire table will be selected.

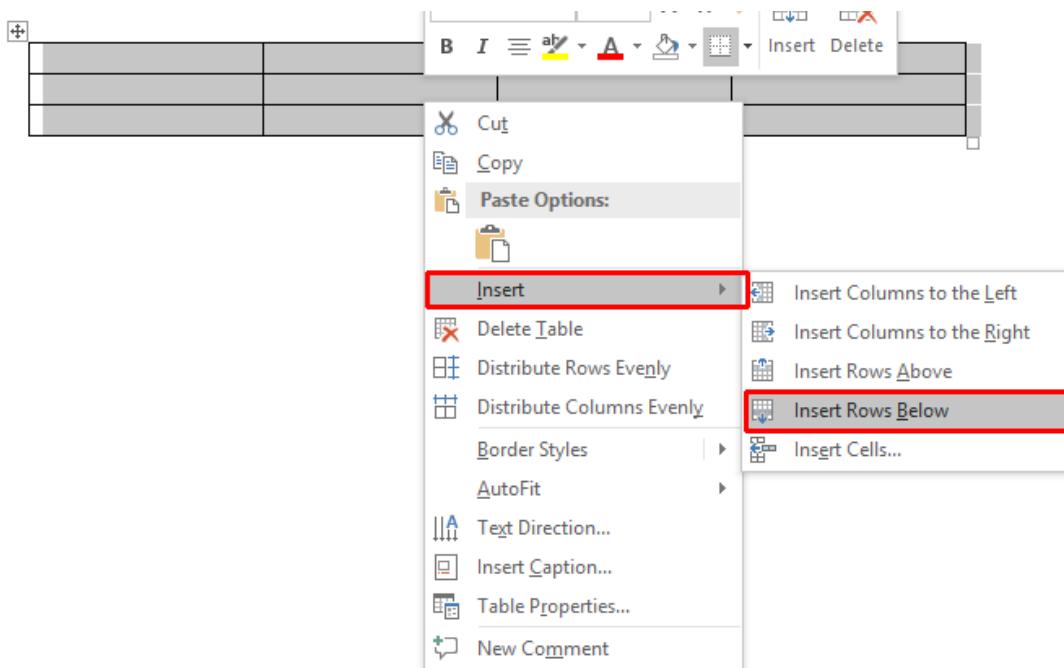



## Inserting and deleting rows and columns

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- Once you have created a table it is very easy to insert or delete new rows or columns.
- To insert a row.**  
Select the second row within your table and right-click over the selected row. You will see a

popup menu displayed. Click on the **Insert** command and you will see a submenu displayed, as illustrated. You can insert a row above or below the row you selected. In this case insert a row below the selected row.

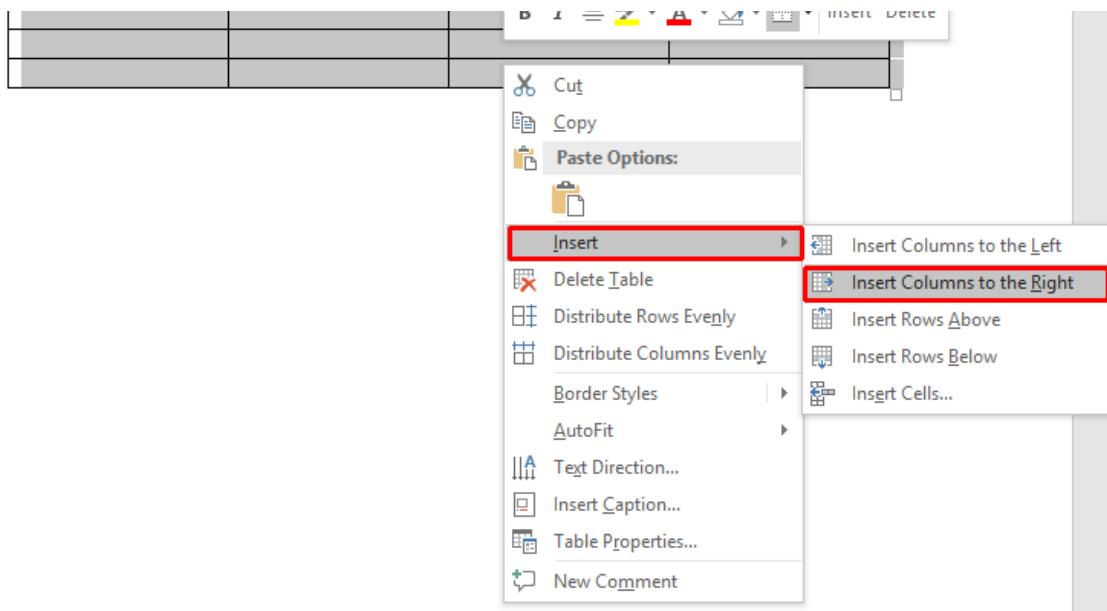


- **To delete a row.**

Select the first row within your table and right click over the selected row. From the popup menu displayed select the **Delete Rows** command. Use the **Undo** icon (towards the top-left of your screen) to undo this deletion.

- **To insert a column.**

Select the second column within your table and right-click over the selected column. You will see a popup menu displayed. Click on the **Insert** command and you will see a submenu displayed, as illustrated. You can insert a column to the left or to the right of the column you selected. In this case insert a column to the right of the selected column.



- **To delete a column.**

Select the second column within your table and right click over the selected column. From the popup menu displayed select the **Delete Columns** command. Use the **Undo** icon (towards the top-left of your screen) to undo this deletion.

## Modifying column width or row height

- It is easy to reduce or increase row heights. You can also make columns wider or narrower. You can use 'drag and drop' techniques using the mouse or you can set exact heights or widths using the **Table Properties** dialog box.

- **Using the mouse to adjust column width or row height.**

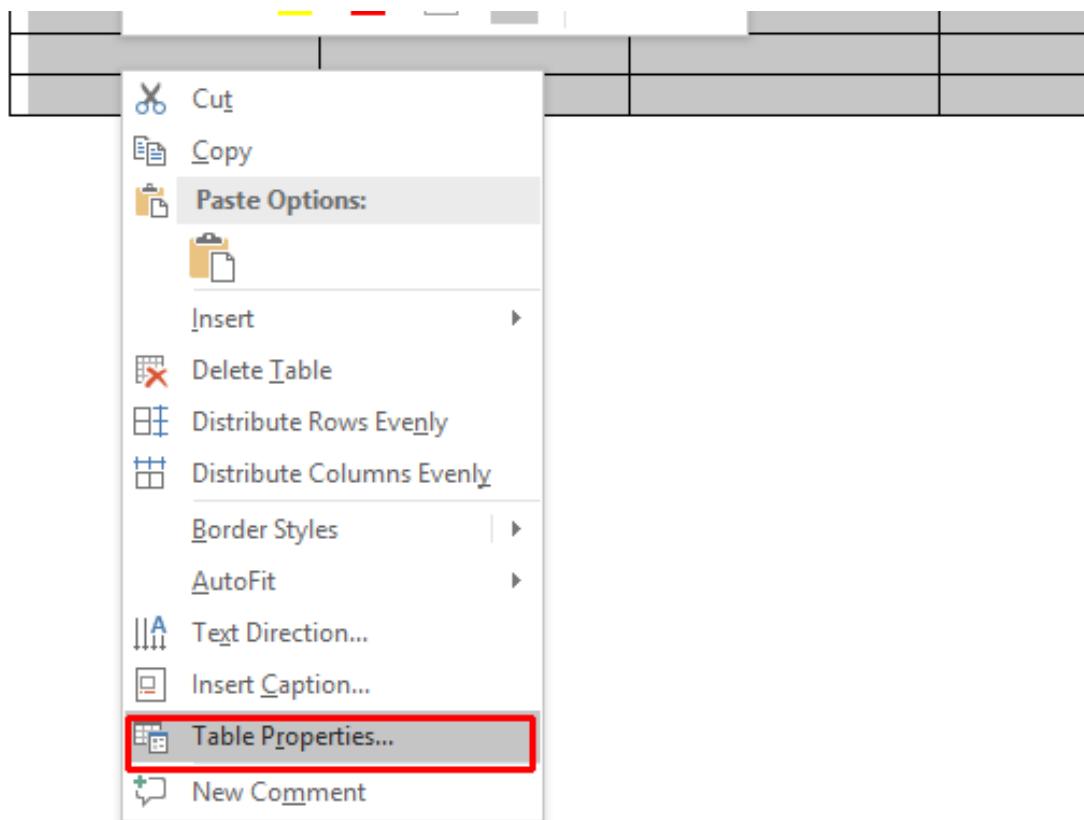
Move the mouse pointer within the table until it is over the vertical edge of one of the columns. The shape of the mouse pointer changes to a shape made up of two small vertical lines with arrows pointing out horizontally. When the mouse pointer changes, depress the mouse button and move the mouse to the left or right as required. When you release the mouse button the width of the column will be altered.

You can use the same technique to adjust the row height, but this time move the mouse pointer to the horizontal edge of any row, and then drag and drop the edge as required.

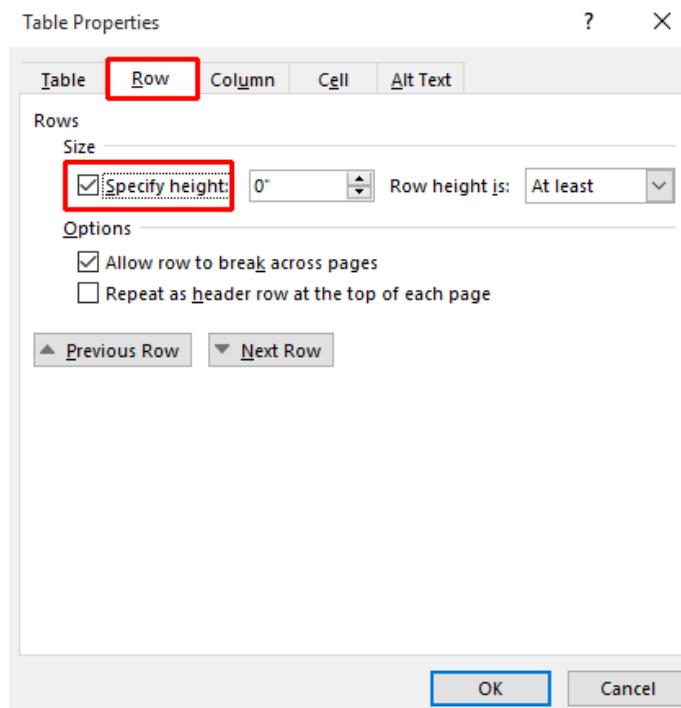
Experiment with adjusting row heights and columns widths using this method.

- Adjusting column width or row height using exact measurements.

Select the row (or rows) that you wish to change the height of. Right click over the selected row(s) and from the popup menu displayed select the **Table Properties** command.



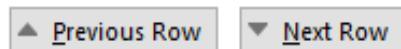
- This will display the **Table Properties** dialog box. Select the **Row** tab within this dialog box, as illustrated.



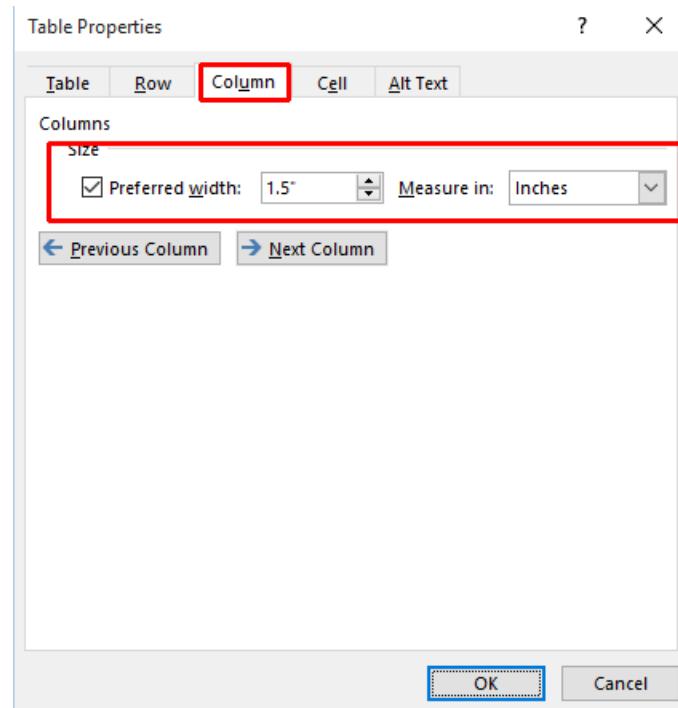
Click on the **Specify height** check box. Use the **Up** or **Down** controls to set the exact row height and then in the 'Row height is' section, select '**Exactly**'.



**NOTE:** You can use the **Previous Row** and **Next Row** button to set each row in the table to a different height as required. When you have finished click on the **OK** button to close the dialog box.



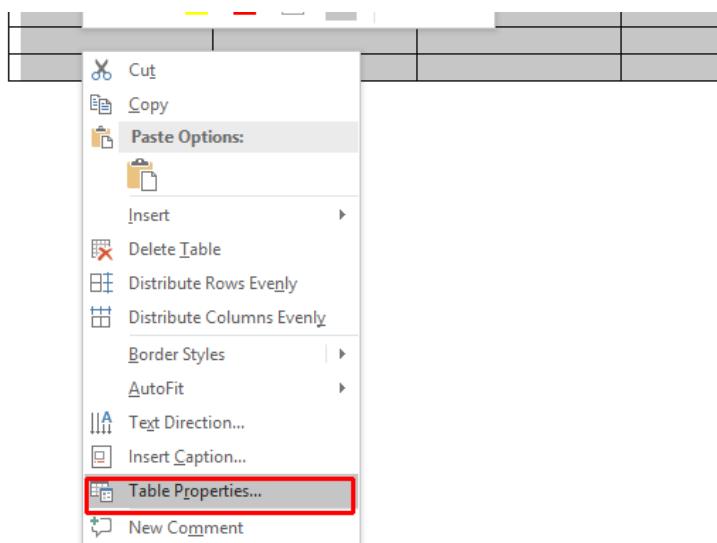
You can set exact column widths using the same method, but you need to select the **Column** tab within the dialog box. You can use the **Previous Column** and **Next Column** buttons to adjust each column width within the table.



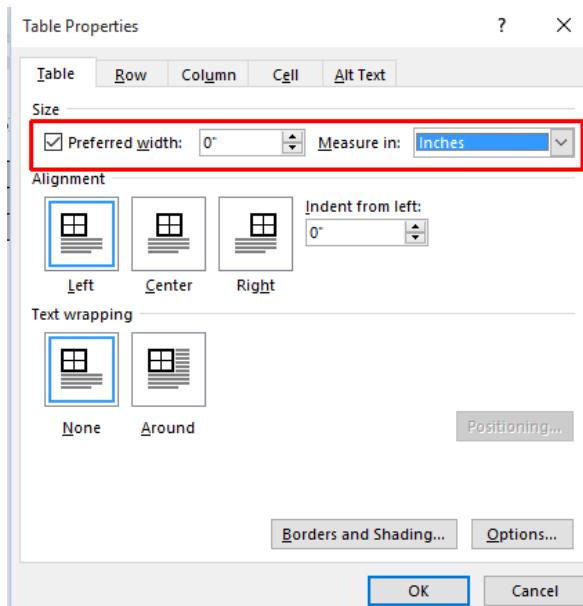
## Modifying the table width

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- Right click on the table and from the popup menu displayed select the **Table Properties** command.



- The **Table Properties** dialog box is displayed. Under the **Table** tab within the dialog box, click on the **Preferred Width** check box, and also enter a preferred width for the table. Click on the **OK** button to set the table width.



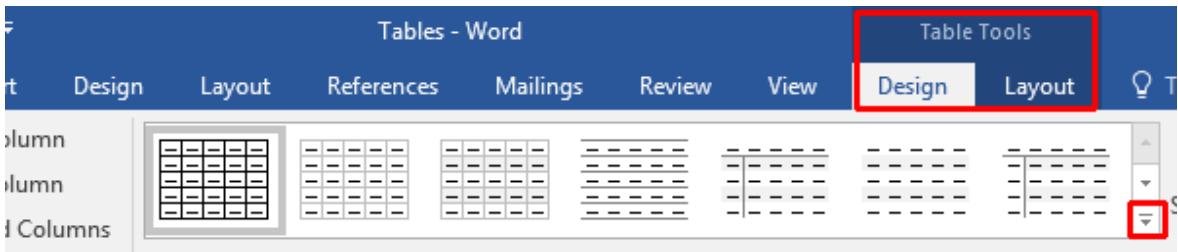
## Modifying table styles

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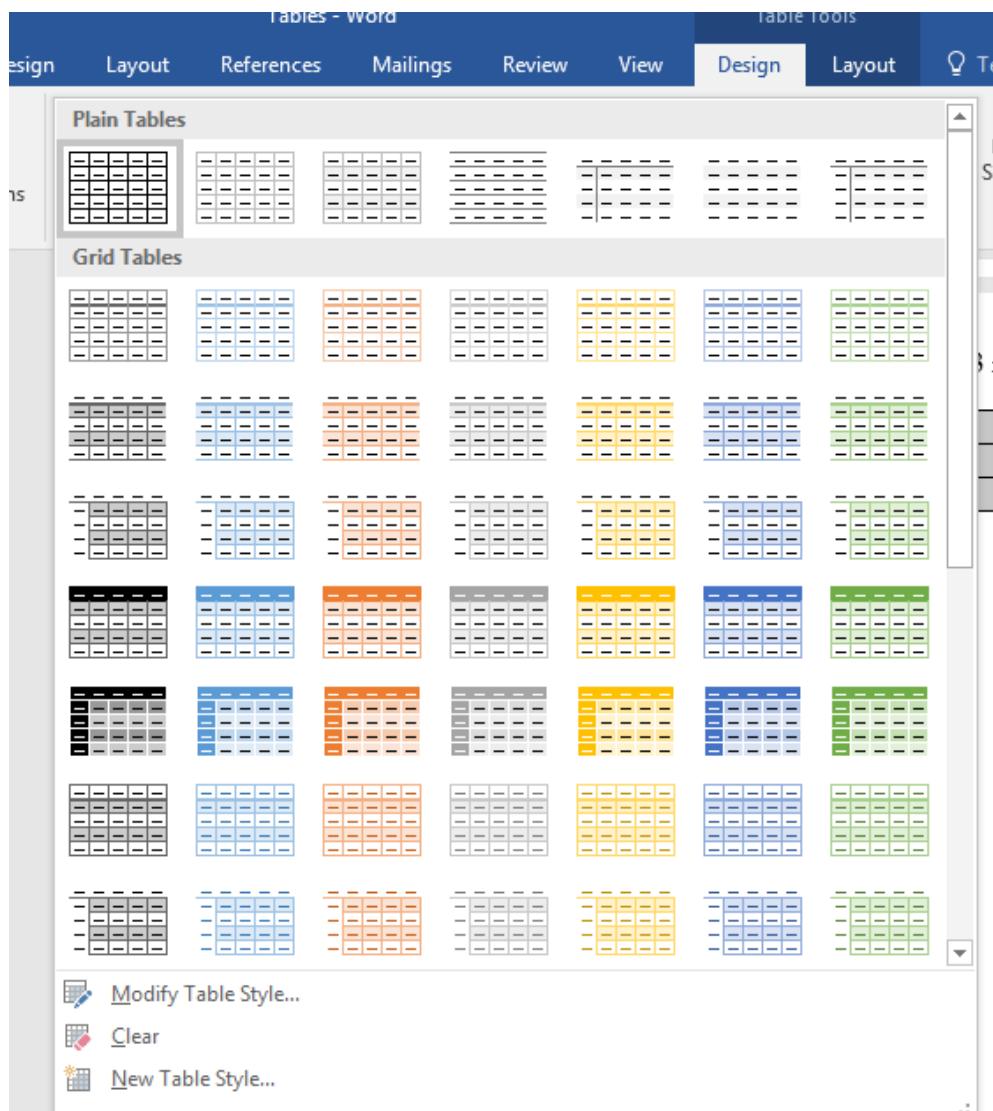
- Click within the table. You will see the **Table Tools** tab displayed above the normal tabs.



- Move the mouse pointers over the **Table Styles** thumbnails, and you will see different formatting applied to the table.



- Click on the **down arrow** at the bottom-right of the **Tables Styles** section to see more table styles, and experiment with applying these additional styles.

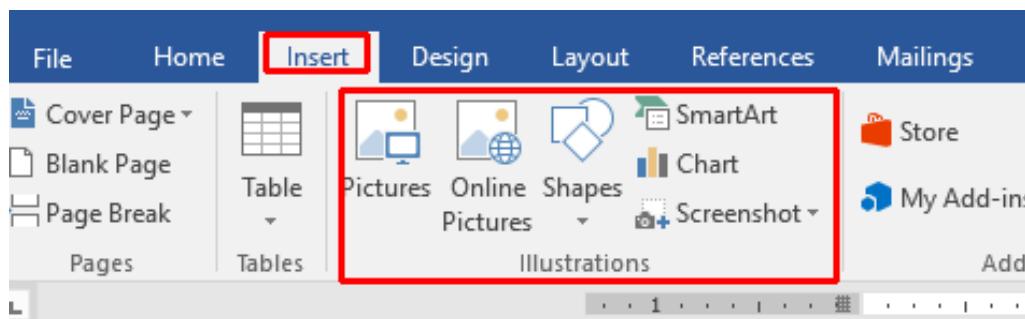


- Save your changes and close the document.
-

# Using graphics within Microsoft Word

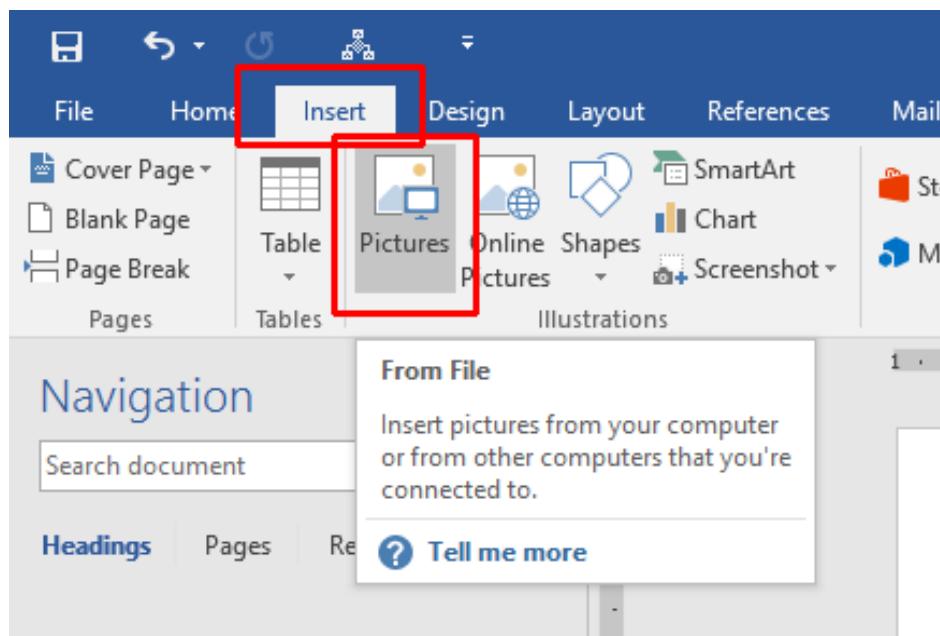
## Types of graphics that you can insert into Word 2016

- Microsoft Word has a range of illustration formats that can be inserted into a document, including Pictures, ClipArt, Shapes, SmartArt and Charts.



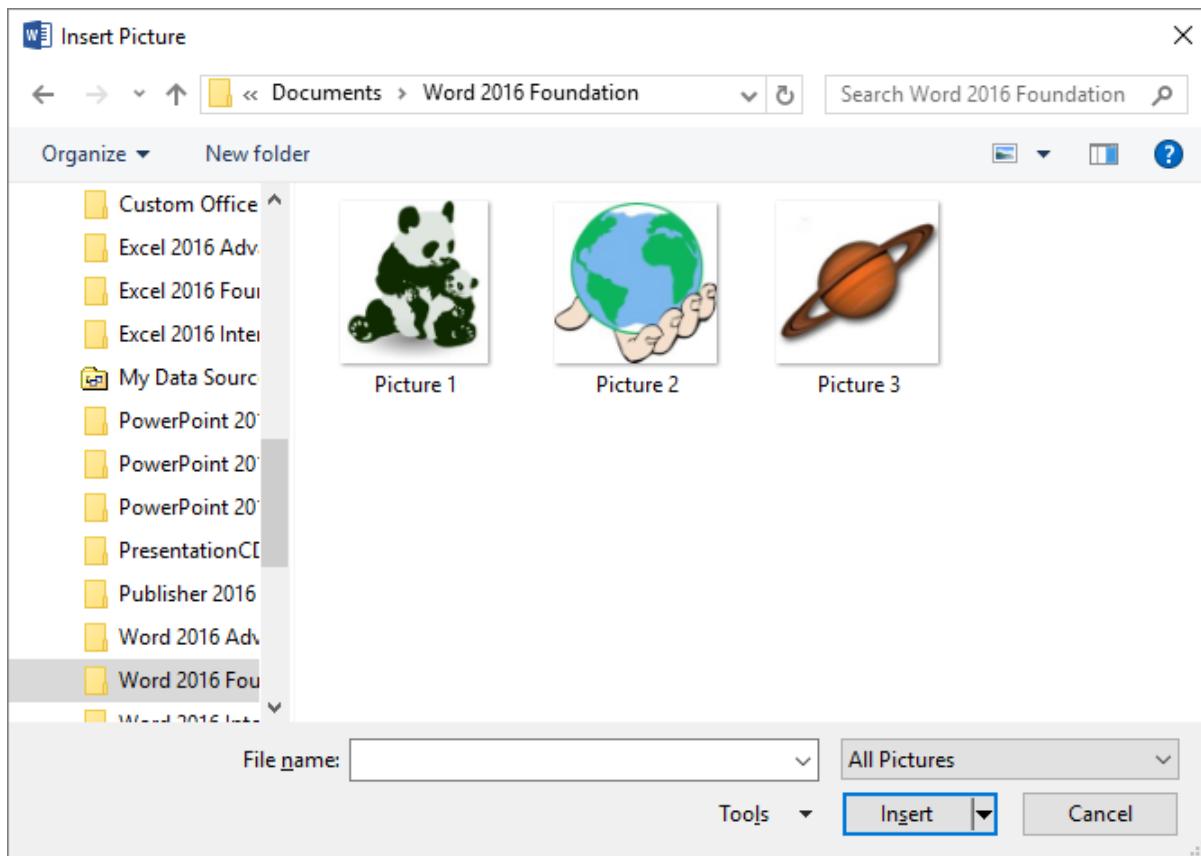
## Inserting Pictures

- Create a new document, by pressing **Ctrl+N**.
- Click on the **Insert** tab and then click on the **Pictures** icon.

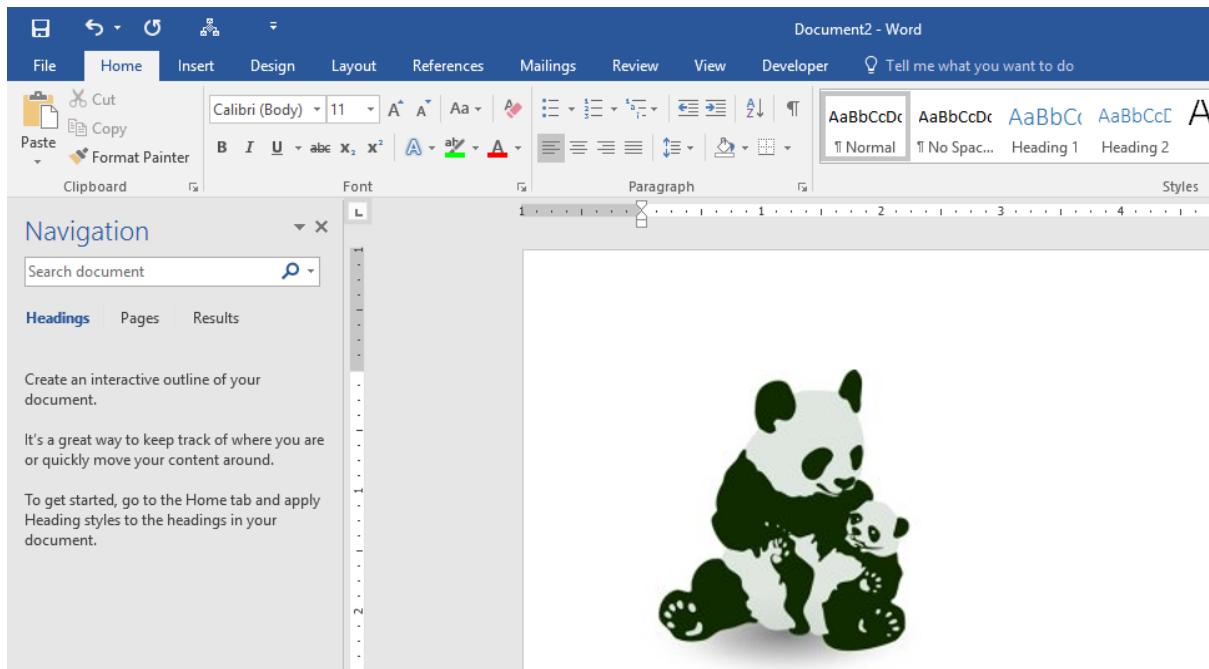


This will display the **Insert Picture** dialog box.

- Navigate to the folder containing your sample files for this course, as illustrated below.



- Select one of the pictures and then either double click on the selected picture or click on the **Insert** button. This will insert the picture into your document.

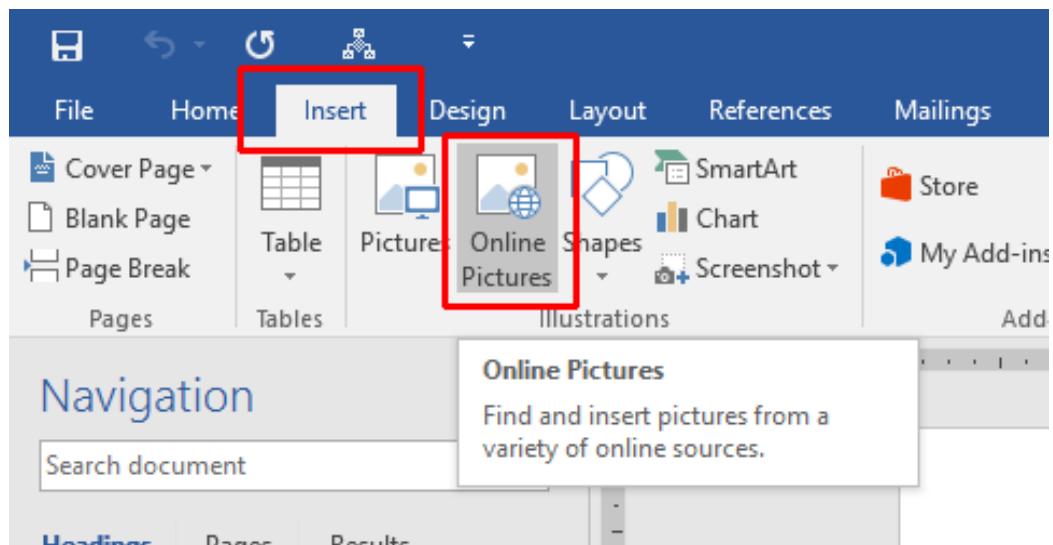


- Save the document as a file called **Inserting Pictures**. Close the document.

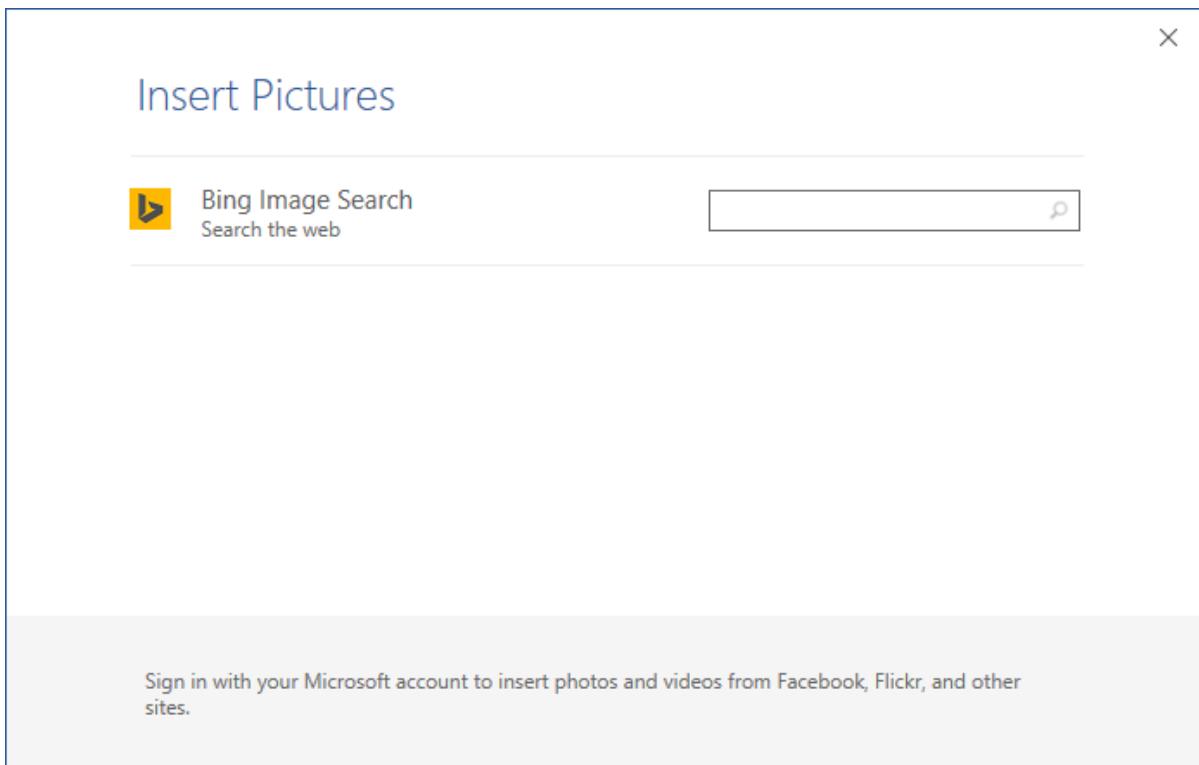
## Inserting Online Pictures

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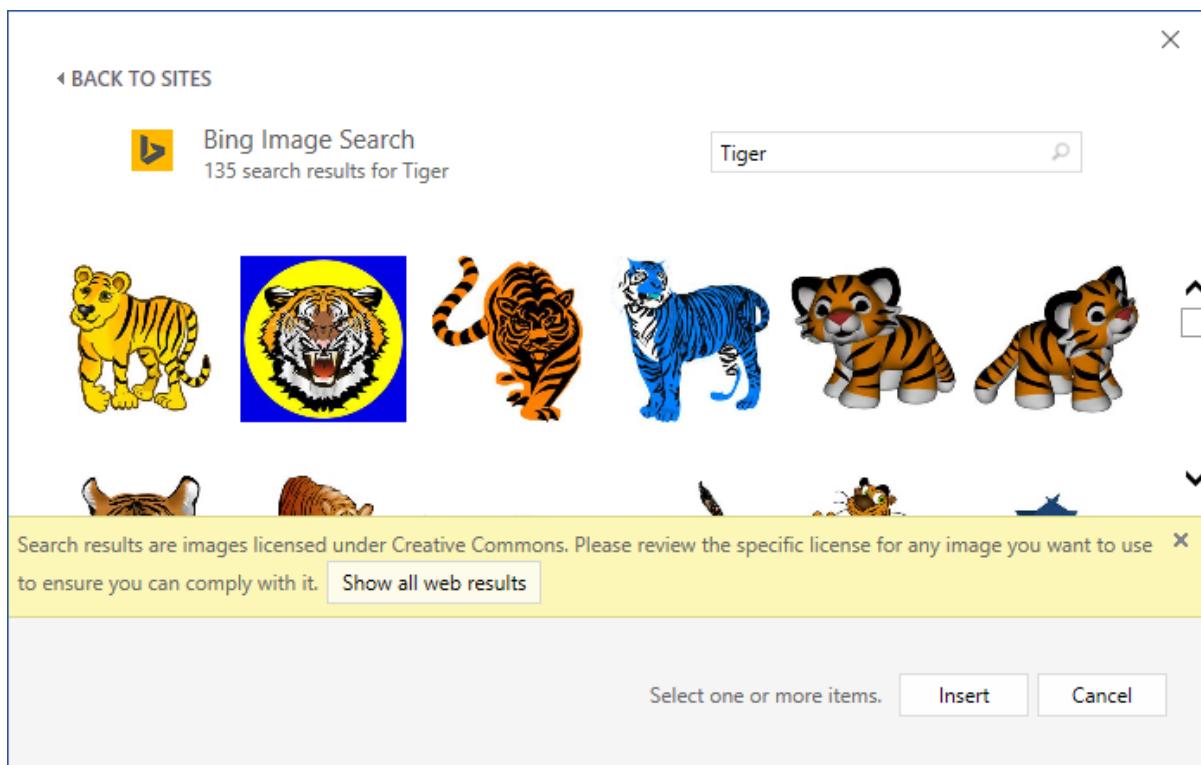
- Create a new document, by pressing **Ctrl+N**.
- Click on the **Insert** tab and then click on the **Online Pictures** button.



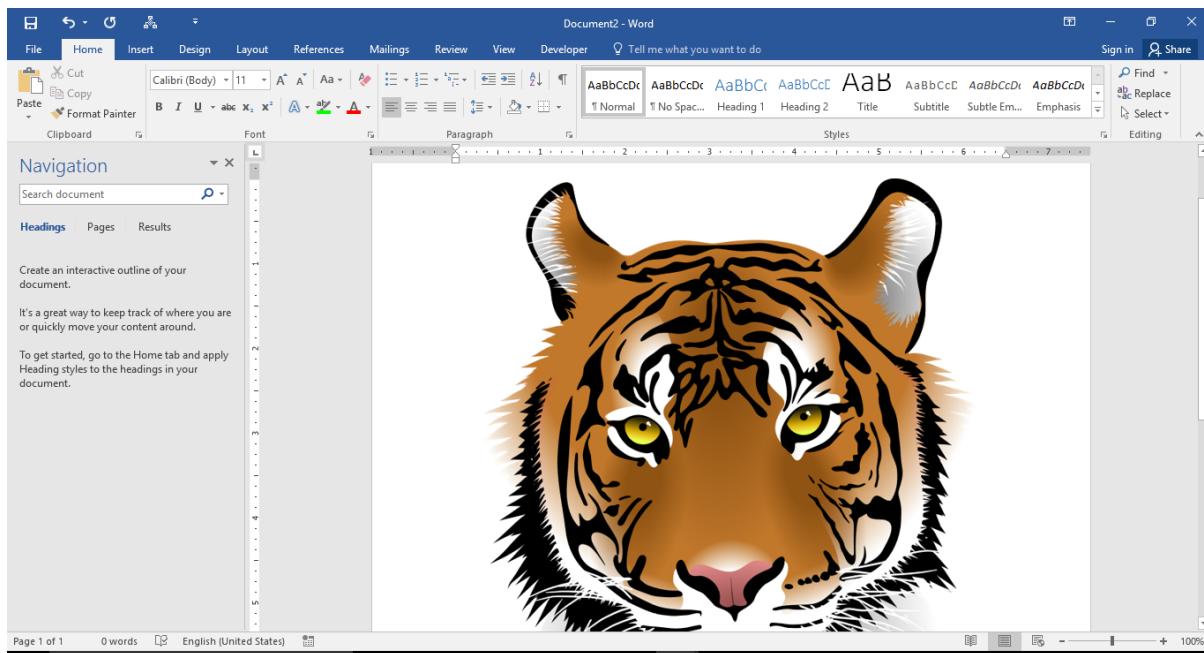
- This will display the **Insert Pictures** dialog box.



- Within the search box, type in a word that describes the type of picture you want, such as **Tiger** and then press the **Enter** key. Pictures matching your search will be displayed, as illustrated.



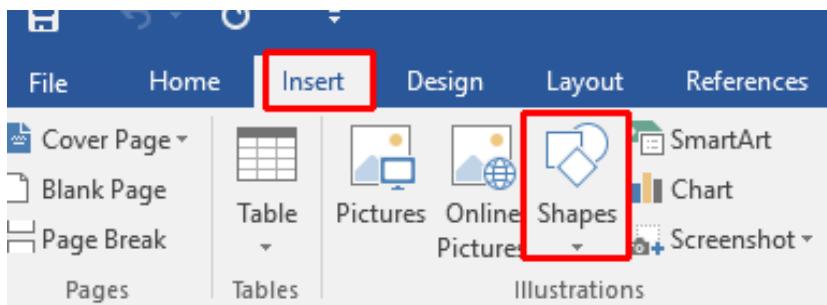
- Select the picture you want, remembering that you can scroll down for more pictures in many cases.
- Once you have selected a picture, click on the **Insert** button to insert the picture.



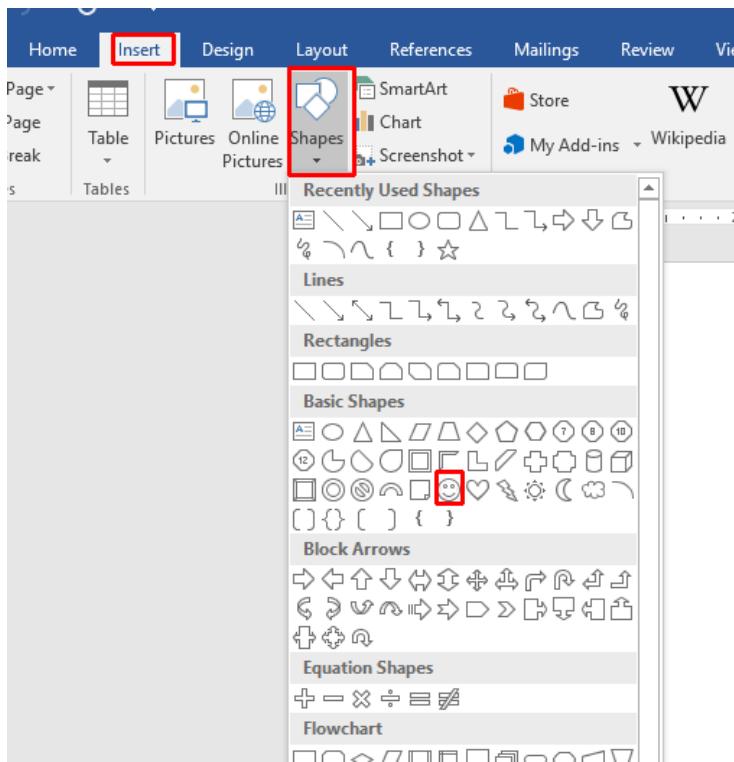
## Inserting Shapes

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- Create a new document and save the document as a file called **My Shapes**. Click on the **Insert** tab and then click on the **Shapes** icon.



- This will display a drop down from which you can select the shape you wish to insert into your document.



- We will insert a **Smiley Face** into our document. To do this click on the **Smiley Face** shape.
- You may not notice any change, but if you move the mouse pointer down over the white space within your document, you will notice that the mouse pointer has changed to the shape of a small cross. Click (and hold the mouse button down). Move the mouse pointer down diagonally across the page. You will see a preview outline of the shape displayed. Release the mouse button and you will see a smiley face shape displayed on your page.

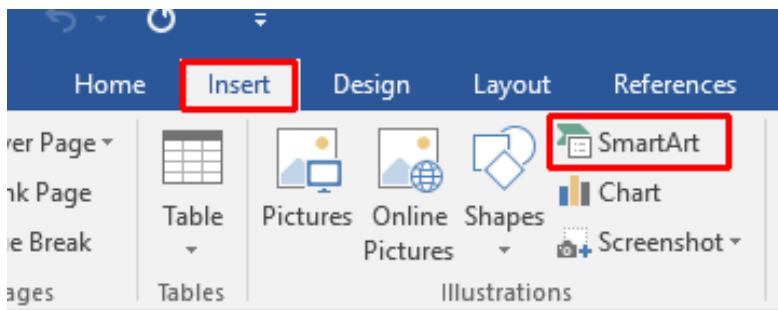


- **TIP:** In this case you may find that you end up with a shape that is not a perfect circle. If you want to produce perfect circles or perfect squares, then hold the **Shift** key down when you are dragging across the screen to produce the shape.
- Save your changes and close the document.

### Inserting SmartArt

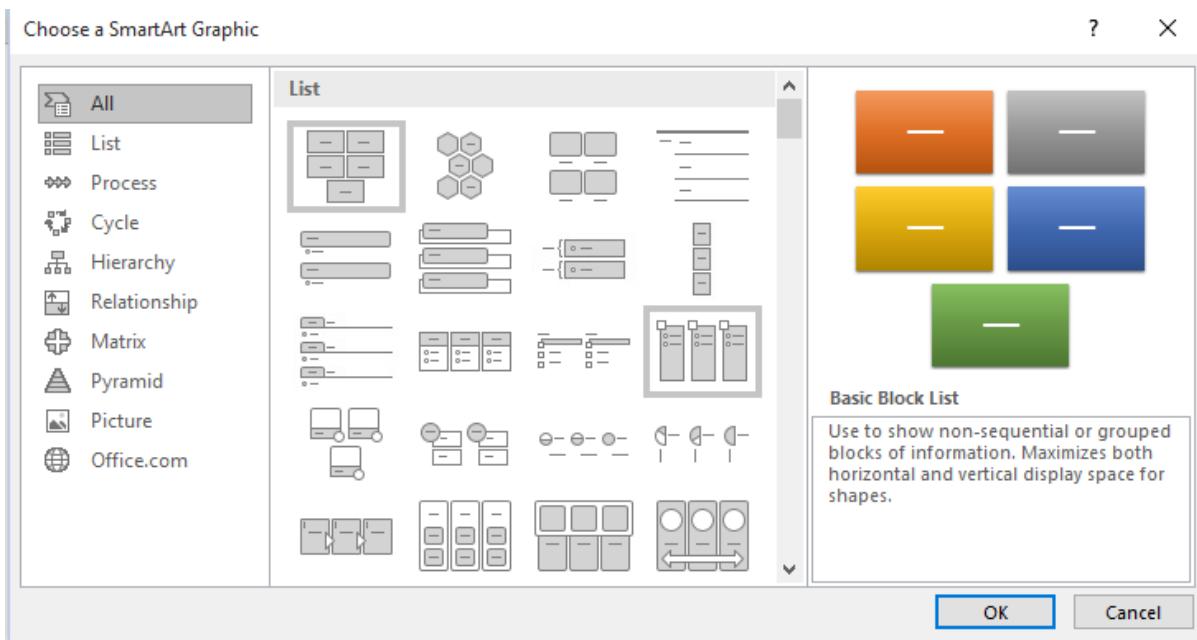
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- Create a new document and save the document as a file called **My SmartArt**. Click on the **Insert** tab and then click on the **SmartArt** icon.

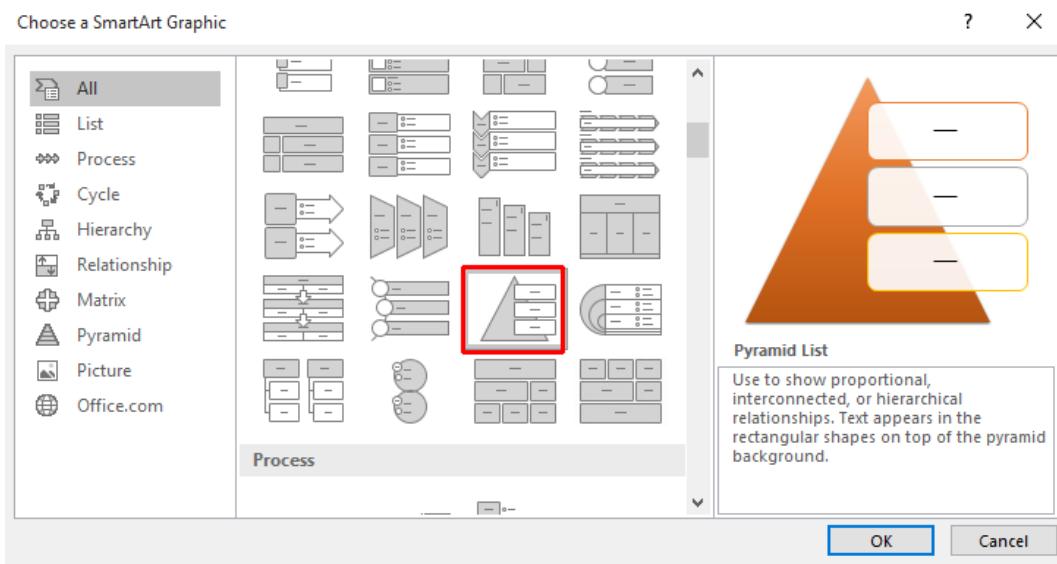


You will see the **Choose a SmartArt Graphic** dialog box displayed.

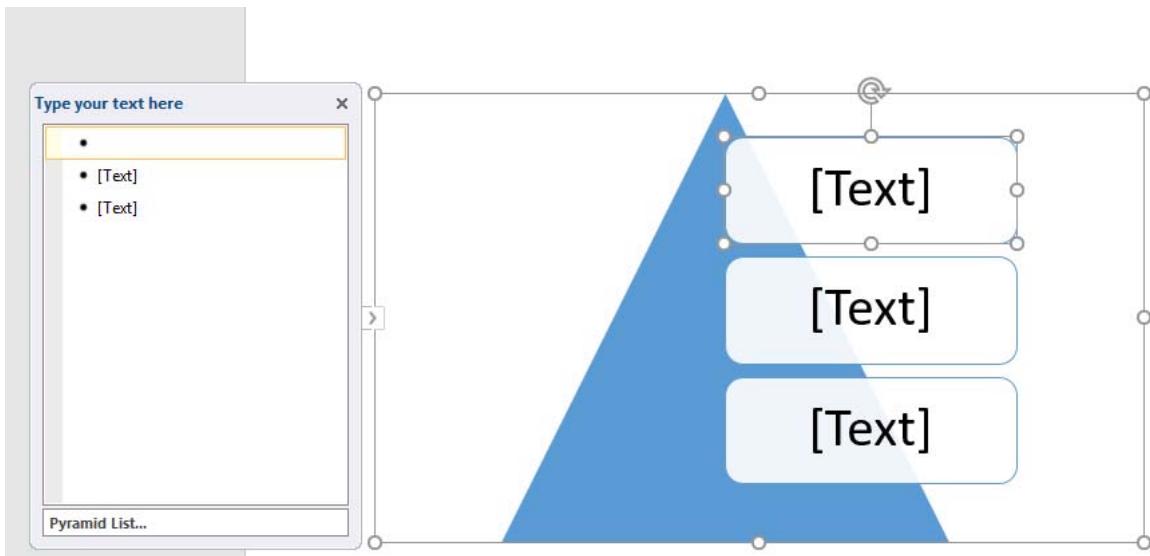
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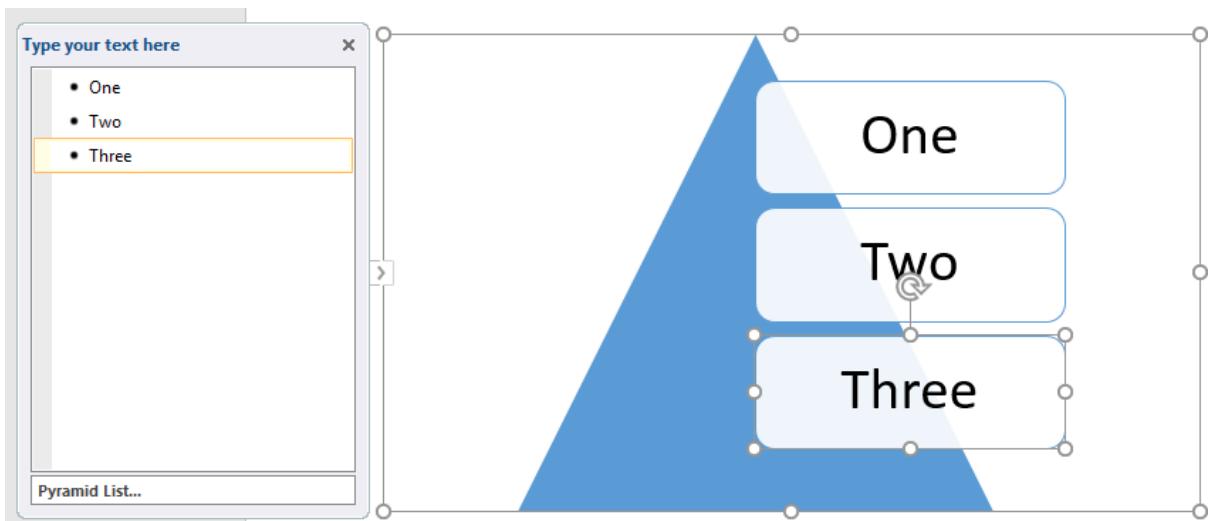
- Slowly scroll down the list to view the amazing variety of SmartArt graphic shapes that are available.
- If necessary, scroll back up the list and select the **Pyramid List** graphic.



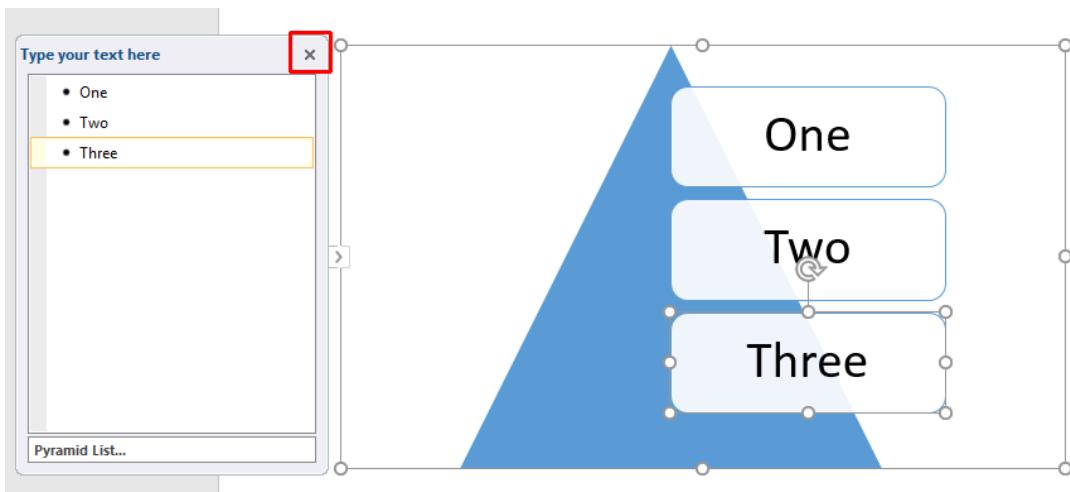
- Click on the **OK** button.



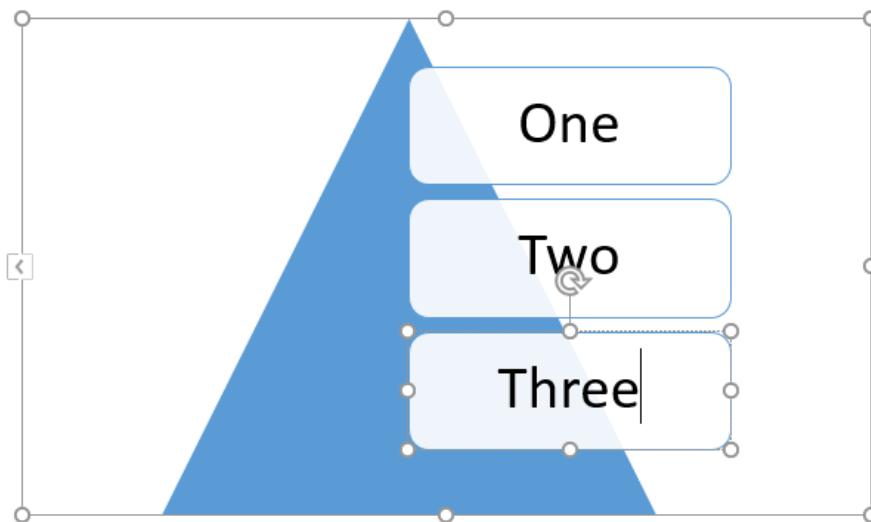
- You will see an area to the left called '**Type your text here**'. Click on the first text section and type the word '**one**'. In a similar fashion type the words '**two**' and '**three**' into the other text input sections.



- Click on the **Close** icon.



- Your page will now look like this.

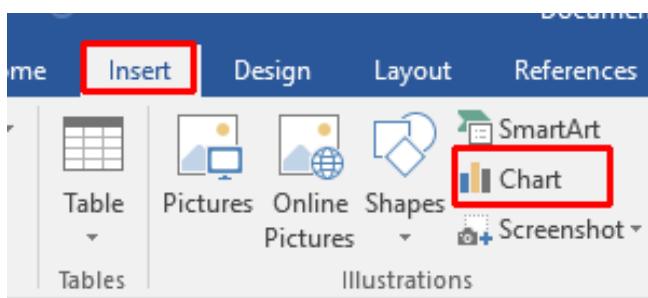


- Double click below the graphic and you will be able to type normally into the document. Type in your name. Save your changes and close the document.

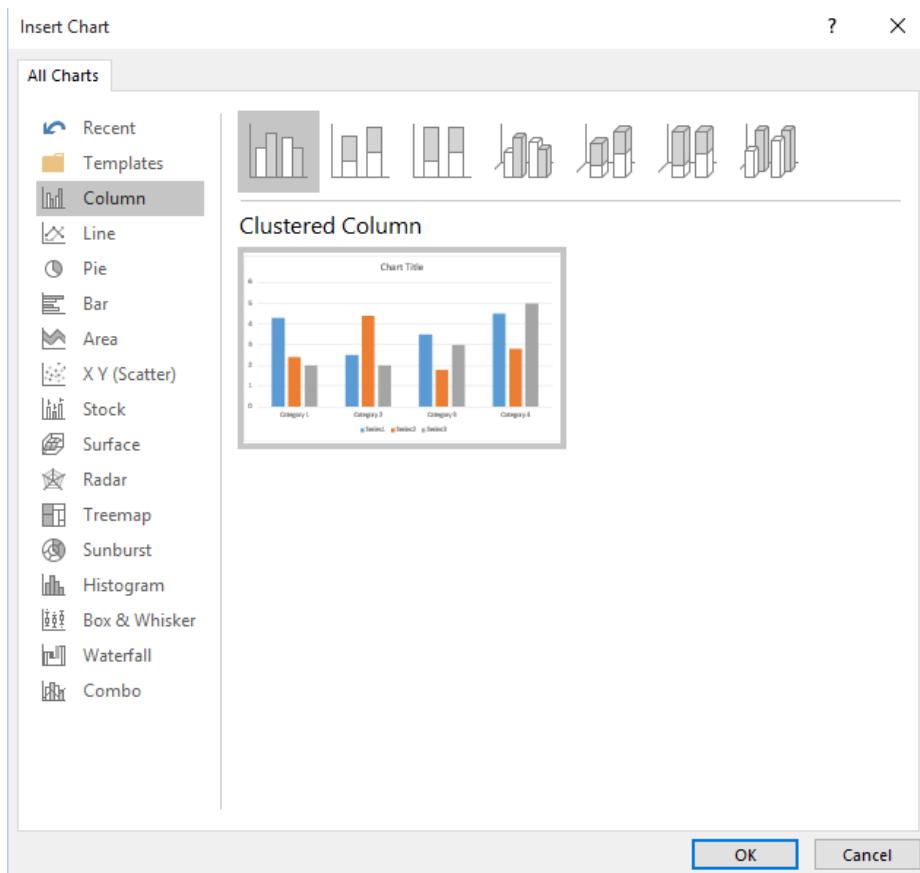
## Inserting a chart

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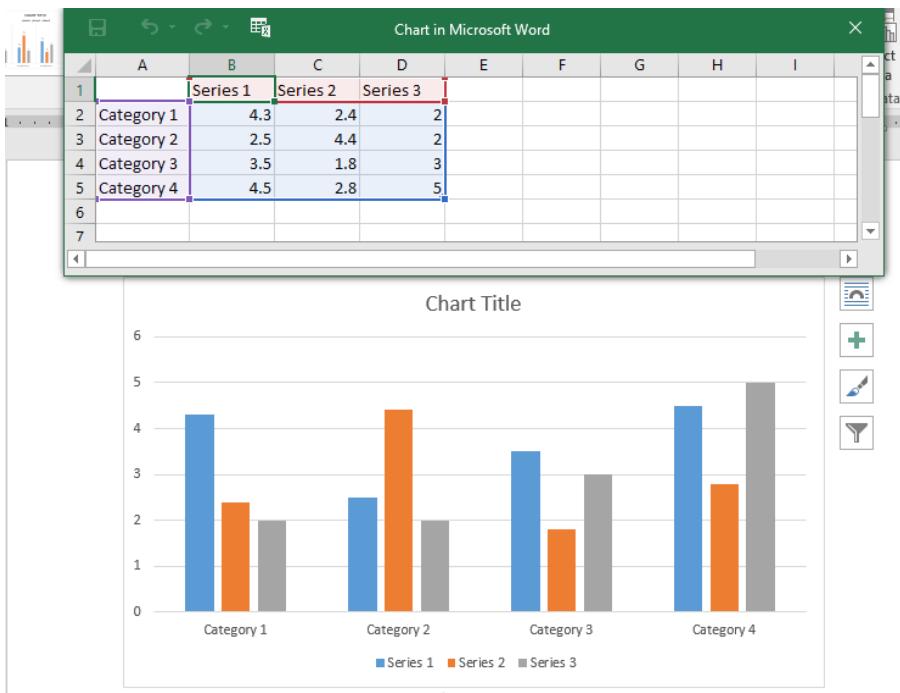
- Create a new document and save the document as a file called **My chart**. Click on the **Insert** tab and then click on the **Chart** icon.



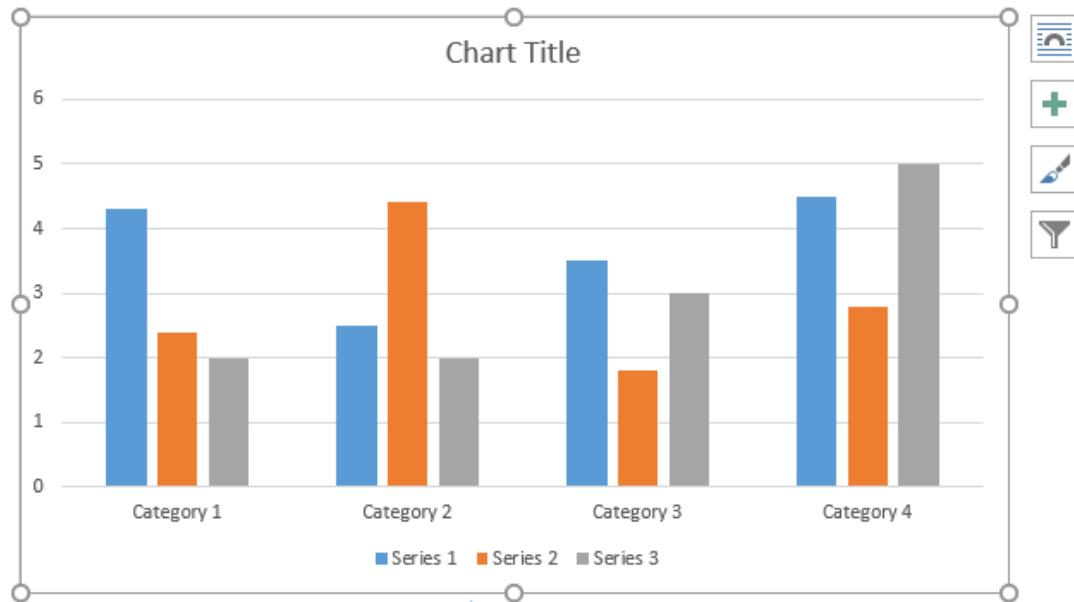
- This will display a dialog box from which you can select the type of chart you wish to insert into your document.



- In this case use the default options, by clicking on the **OK** button. Your screen will now look like this.

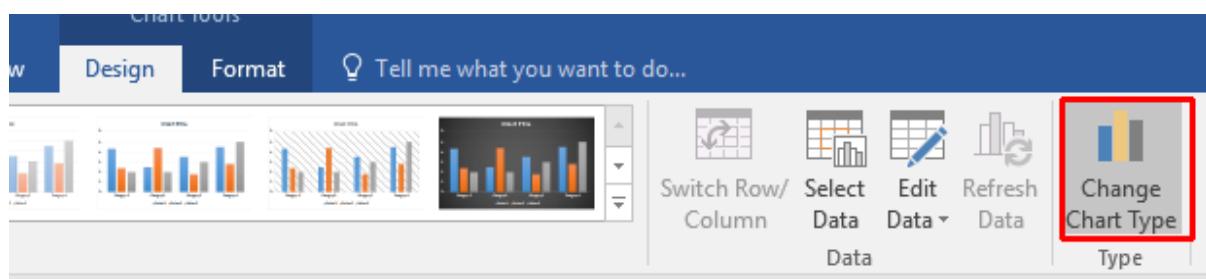


- In the example shown, the Word document is displayed to the left, while a copy of Excel is displayed to the side or underneath the chart. If you wish you can edit the text or data within the Excel workbook.
- Close the Excel workbook, by clicking on the Excel **Close** icon (top-right of the Excel window). Your screen will then look like this.

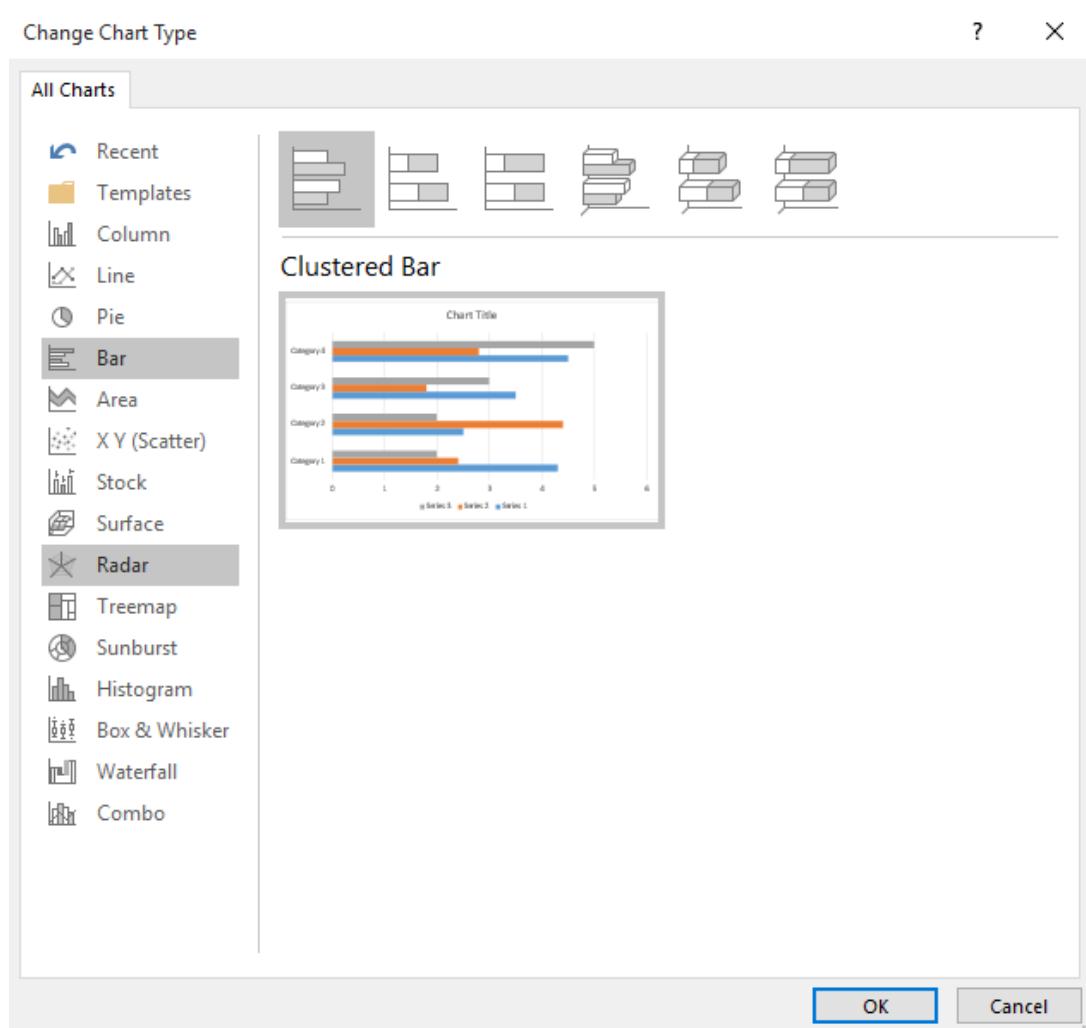


## Modifying the chart type

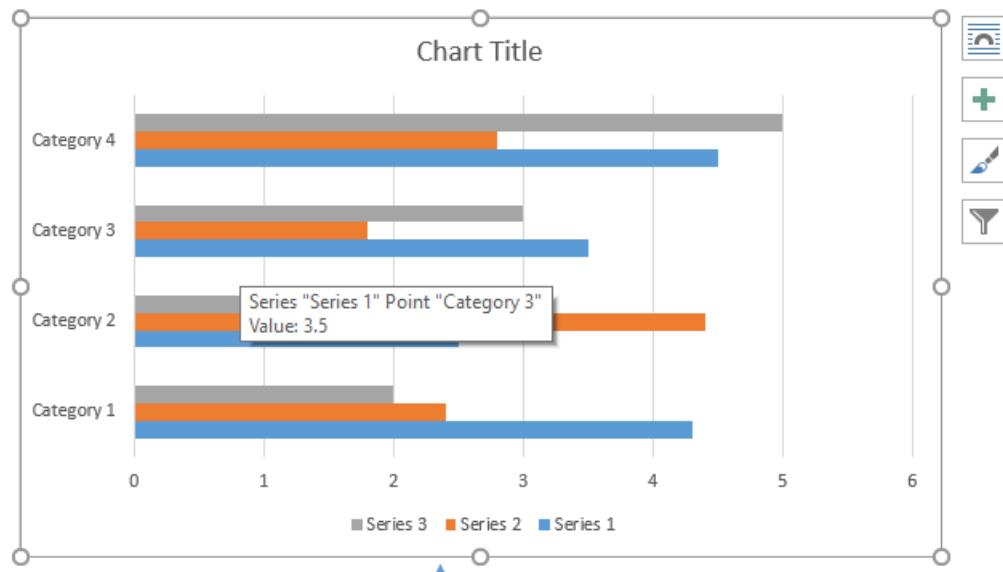
- Click on the **Change Chart Type** button.



- The **Change Chart Type** dialog box will be displayed.

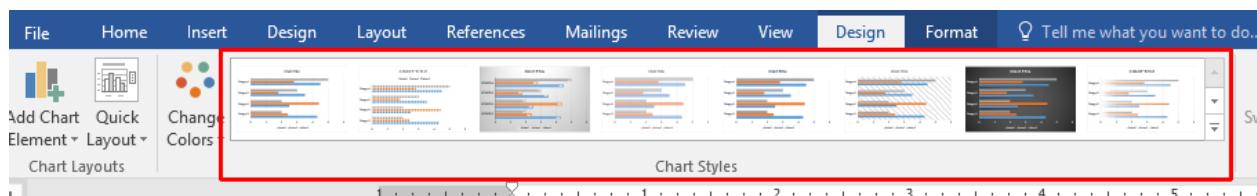


Click on the **Bar** chart type and click on the **OK** button. Your page will now look like this.



## Modifying the chart style

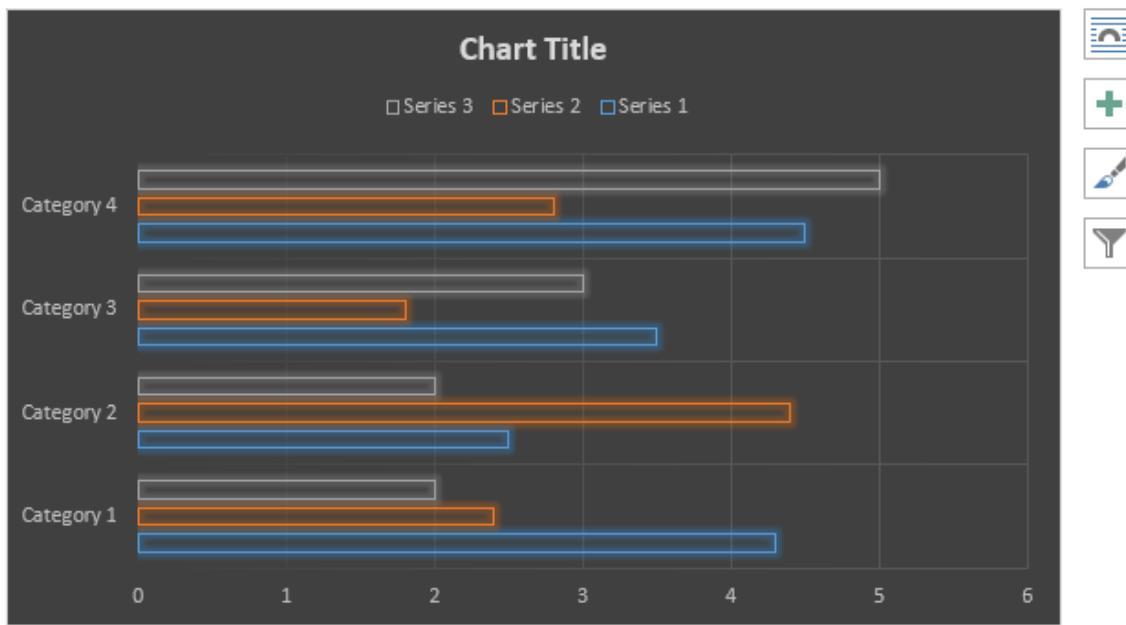
- Experiment with using the **Chart Styles**.



- Select the style that uses a dark background, as illustrated.

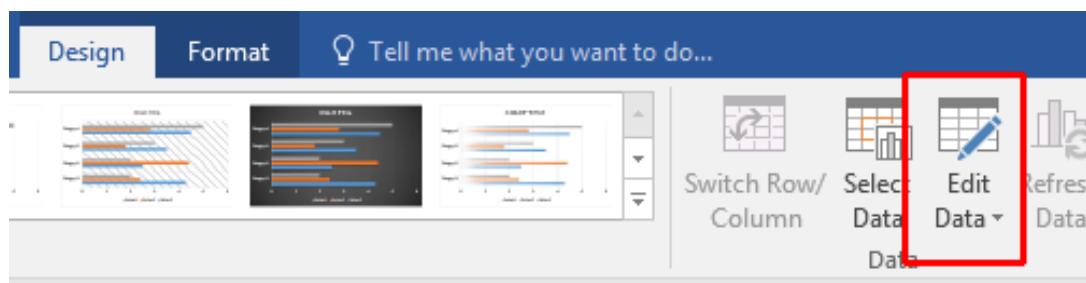


- Your chart will now look like this.



## Modifying the chart data

- Click on the **Edit Data** button.



- This will show the data underlying the chart, as illustrated.

Chart in Microsoft Excel

	A	B	C	D
1		Series 1	Series 2	Series 3
2	Category 1	4.3	2.4	2.1
3	Category 2	2.5	4.4	2.2
4	Category 3	3.5	1.8	3.3
5	Category 4	4.5	2.8	2.5

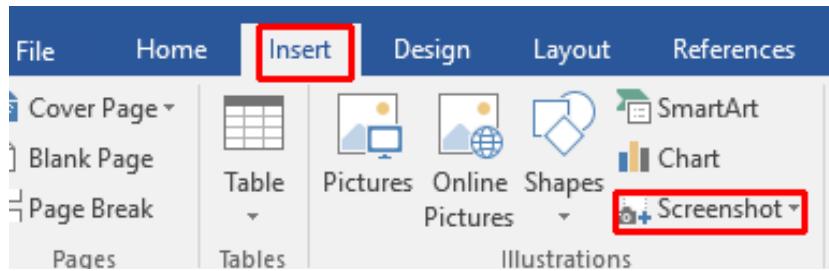
- Change the label **Category 1** to **North**.

- Change the label **Category 2** to **South**.
  - Change the label **Category 3** to **East**.
  - Change the label **Category 4** to **West**.
- 
- Change the label **Series 1** to **Product 1**.
  - Change the label **Series 2** to **Product 2**.
  - Change the label **Series 3** to **Product 3**.
- 
- Also change some of the data values.
  - The chart will change to reflect your changes.
  - Save your changes and close the document.

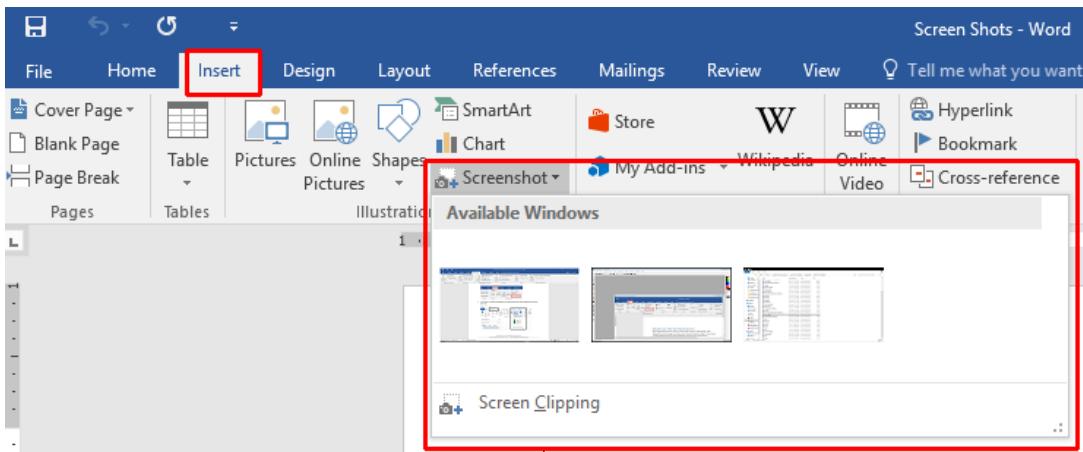
## Inserting a screenshot

---

- Open a document called **Screen Shots**.
- You can insert a screen shot of the Microsoft Word program window into your Word document.
- Click at the end of the document at the location that you wish to insert the screenshot.
- Start another program. It does not matter which program; in this example I have started the Microsoft Excel program.
- Click on the **Insert** tab, and within the **Illustrations** group, click on the **Screenshot** button.



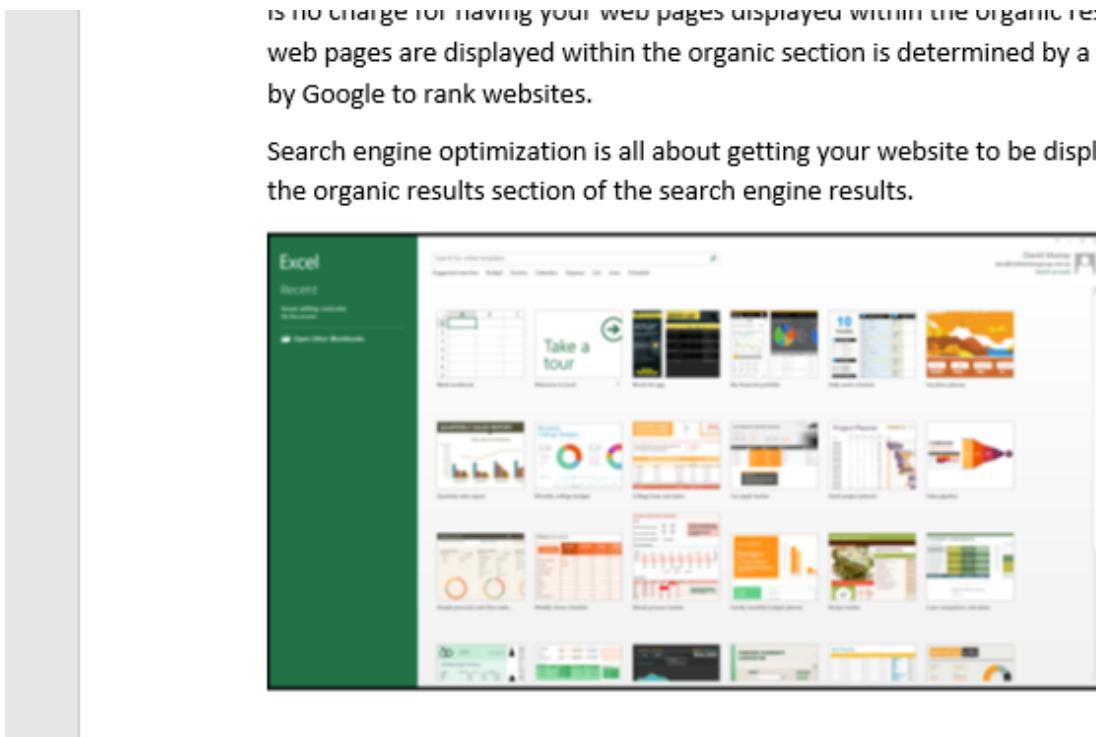
- You will see a small representation of the Microsoft Excel window displayed in the drop down list.



- Click on the item in the list and you will see the screenshot displayed within the Word document.

IS NO CHARGE FOR HAVING YOUR WEB PAGES DISPLAYED WITHIN THE ORGANIC RESULTS SECTION  
web pages are displayed within the organic section is determined by a series of criteria used by Google to rank websites.

Search engine optimization is all about getting your website to be displayed as highly as possible in the organic results section of the search engine results.



- Save your changes and close the document.

## Selecting, resizing and deleting graphics

---

- Selecting a graphic:**

Open a document called **Graphic objects**. This document contains a number of different types of graphic objects. Try clicking once on a graphic. Then click on another graphic. As you can see, selecting a graphic is very simple.

- **Resizing a graphic:**

Click on a graphic to select it. To resize the graphic and keep the height and width ratios the same, move the mouse pointer to any corner, and while keeping the mouse button pressed drag diagonally across the screen. When you release the mouse button the graphic will resize.

- If you wish you can stretch the graphic either vertically or horizontally by dragging from the center of any edge.

- **Deleting a graphic:**

Click on a graphic to select it. Press the **Del** key.

- Save your changes and close the document.

## **Copying or moving graphics**

---

- You can copy or move a graphic using the Clipboard or using normal drag and drop techniques.

- Open a document called Copying and moving graphics.

- Save the file as My Copying and moving graphics.

- **Copying a graphic using the Clipboard:**

Select the second graphic in the document. Press the **Ctrl+C** keys to copy the graphic to the Clipboard. Click towards the bottom of the document and press **Ctrl+V** to paste the graphic to the insertion point.

- **Moving a graphic using the Clipboard:**

Select the first graphic in the document. Press the **Ctrl+X** keys to move the graphic to the Clipboard. Click towards the bottom of the document and press **Ctrl+V** to paste the graphic to the insertion point.

- Use the **Undo** icon to reverse the move and copy operations you have just performed.

- **Moving a graphic using drag and drop:**

Select the first graphic in the document. Depress the **left** mouse button and while keeping the button pressed, move the mouse pointer to the bottom of your document. When you release the mouse button the graphic will have moved to the location that you dragged it to.

- **Copying a graphic using drag and drop:**

Select the first graphic in the document. Depress the **Ctrl** key and while keeping it depressed, depress the left mouse button and while keeping the button pressed, move the mouse pointer to the bottom of your document. Release the mouse button and the **Ctrl** key and the graphic will have been copied to the location that you dragged it to.

- Save your changes and close the document.
-

# Finding and replacing text within a Microsoft 2016 document

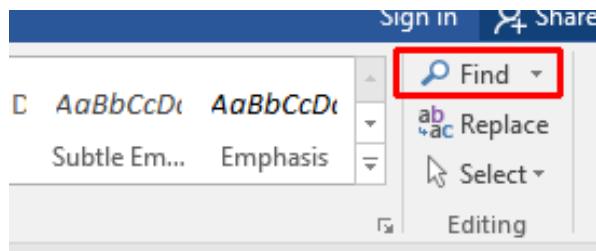
## Using Find and Replace

- Sometimes documents can be very long and you may need to search that document for a particular word or phrase. You can use the built-in search feature to do this for you. If you need to find a particular word or phrase and replace this item with alternative text, then you can use the search and replace feature.

**WARNING:** Using the search and replace feature sounds great, but you need to be careful. I always make a backup copy of a document before using this feature as it is very easy to get it horribly wrong. Many words have within them smaller words. The word **WARNING** for instance has the words **WAR** and **WARN** within it, and if you replaced the word **WAR** with something else, then the first three letters of the word **WARNING** will also be replaced. There are ways to stop Microsoft Word from doing this, but you must be careful!

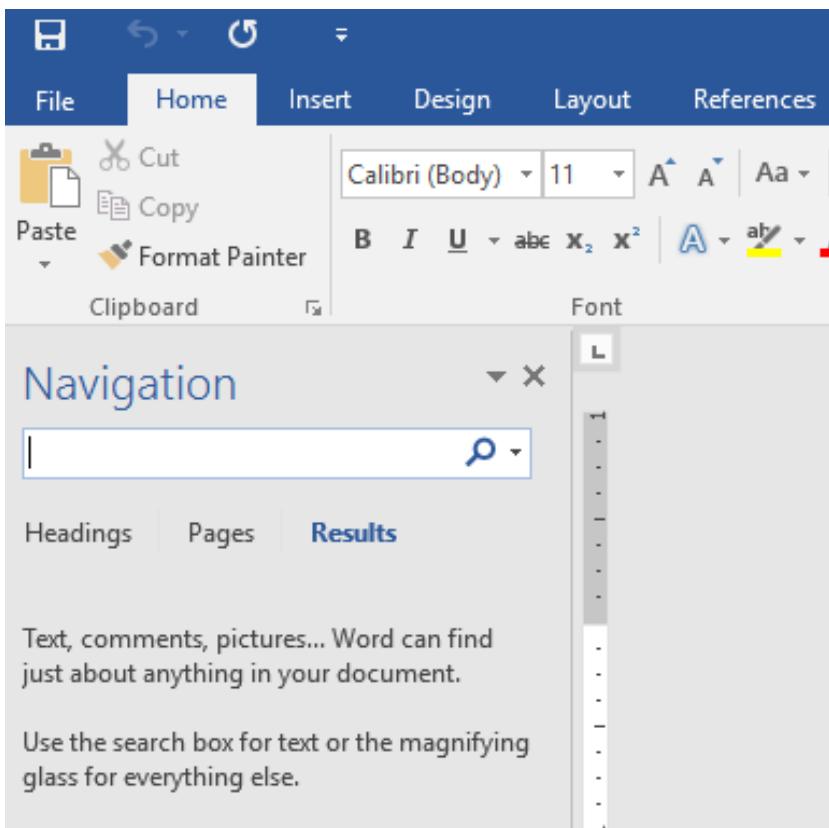
## Finding text

- Open a document called **Searching and replacing**.
- Under the **Home** tab, within the **Editing** group, click on the **Find** button.

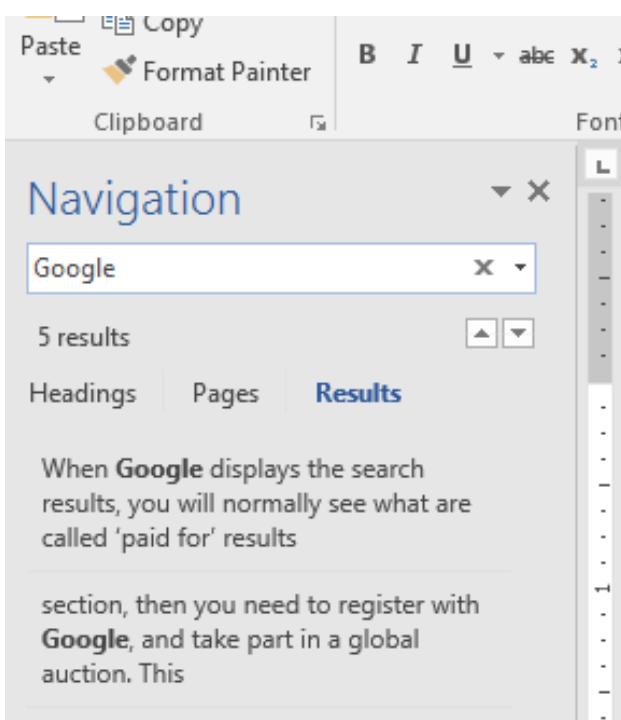


**TIP:** Or use the keyboard shortcut **Ctrl+F**.

- This will display the **Navigation** pane down the left side of the screen.



- Type in the text you wish to search for, in this case type in the word **Google**.



- All occurrences of the word **Google** will be found and highlighted within the document.

#### ORGANIC AND 'PAID FOR' SEARCH RESULTS:

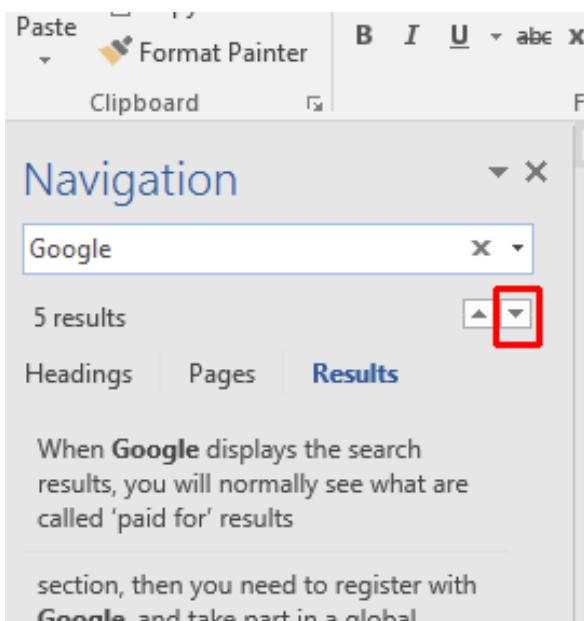
When **Google** displays the search results, you will normally see what are called 'paid for' results displayed at the top of the page and sometimes down the side of the page. The 'paid for' results section is normally lightly shaded and is frequently labelled as 'sponsored' links or advertisements.

If you want your company to be displayed within the 'paid for' results section, then you need to register with **Google**, and take part in a global auction. This global auction will determine which company is displayed at the top of the paid for results, and which companies are displayed further down the list. The more you bid, the more likely that you will be displayed at the top of the paid for results section.

Using the paid for results service from **Google** can be attractive to new companies that have not yet fully developed their website, but nevertheless need to attract business via the search engine results.

You should read all the available information from **Google**, prior to entering into their paid for service and you should know how to cap expenditure within a certain time period. Also be aware that this form of advertising can be very expensive, but on the other hand, if you are getting results it may well be worth the expense.

- Click on the **down arrow** under the **Navigation** search box, which is called **Next Search Result**.

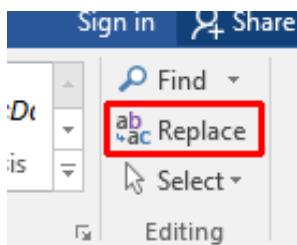


- This will display the next occurrence of the word that you are searching for within the document. Keeping clicking on this **down arrow** to display more occurrences of the word you are searching for.

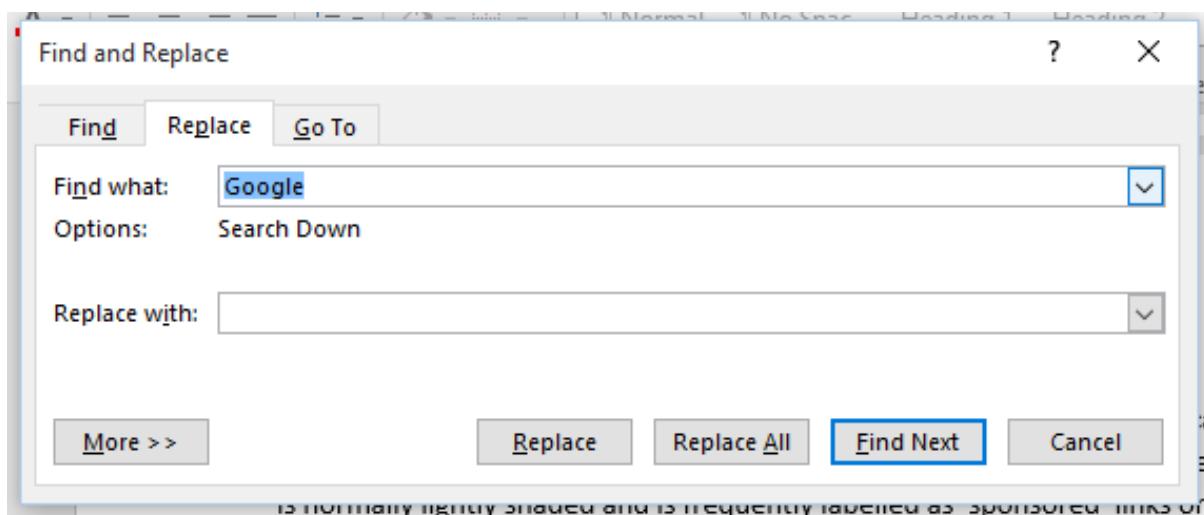
## Replacing text

---

- Under the **Home** tab, within the **Editing** group, click on the **Replace** button.

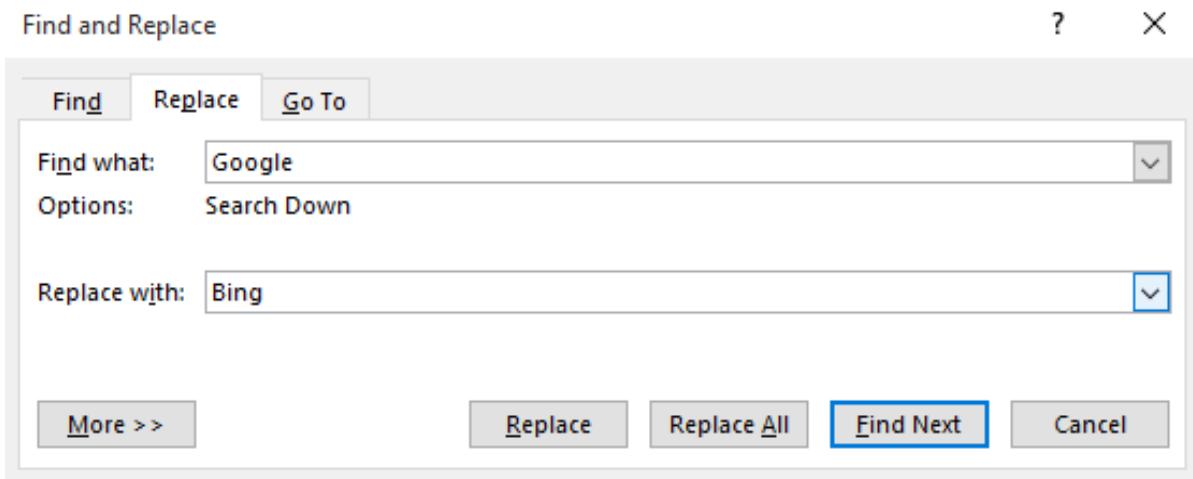


- This will display the **Find and Replace** dialog box.



**TIP:** The keyboard shortcut to display this dialog box is **Ctrl+H**.

- In this case we will replace the text **Google** with **Bing**, as illustrated.



Click on the **Find Next** button. The next instance of the text will be selected. Click on the **Replace** button. In the same way replace all instances of the text **Google** with **Bing**.

- Save your changes and close the document.

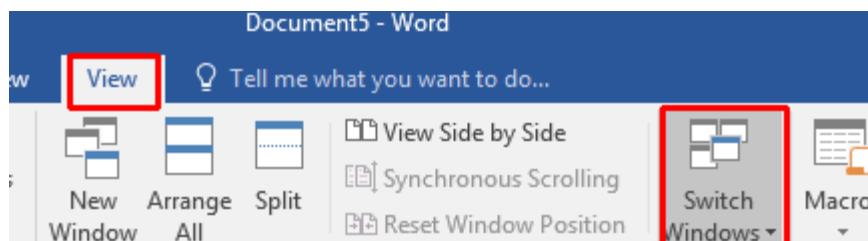
# Using multiple open documents

## Multitasking with Word 2016

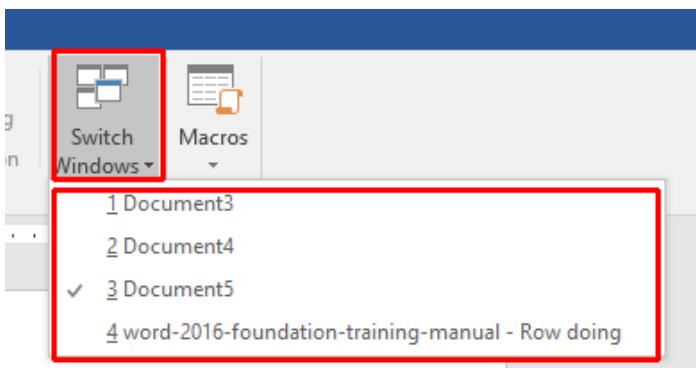
- Microsoft Word is an application that runs on an Operating System called Microsoft Windows. Windows is a multitasking operating system which means that you can run more than one program at a time. It is important that you know how to move or copy text and graphics from one document to another, or between Microsoft Word and a different program such as Microsoft Excel (a spreadsheet program).

## Switching between open documents

- When you use Microsoft Word 2016 you can work on more than one document at a time. You can use the Clipboard to copy selected text or a graphics from one document to another.
- Open a document called **Multiple 1**.
- Open a second document called **Multiple 2**.
- Open a third document called **Multiple 3**.
- Press the **Alt** key and hold it down. Press the **Tab** key a few times. You will notice a popup window that lets you move from document to document, each time you press the **Tab** key. Release the **Alt** key and you will switch to the document selected in the popup window. Practice this technique a few times if you have not used it before.
- You can also use the **Switch Windows** icon to switch from one document to another. To use this feature, click on the **View** tab and click on the **Switch Windows** tool (located within the **Window** group under the **View** tab).



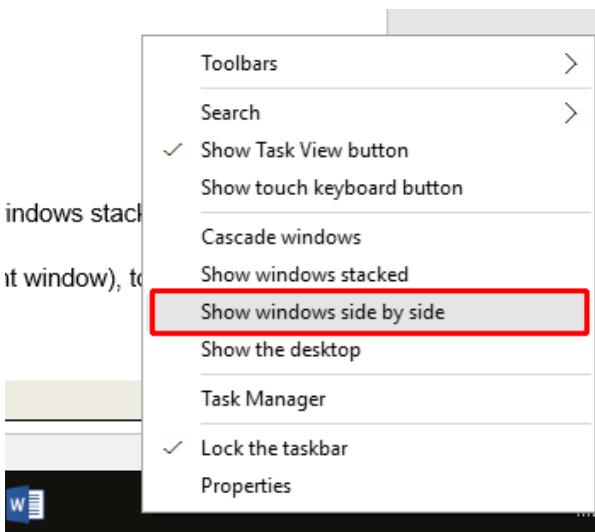
- You will see a drop down list allowing you to switch to another open document window.



## Tiling or cascading documents on your screen

- You can arrange multiple documents on the screen. To do this **right click** over an empty part of the Taskbar (at the bottom of your screen). You will see a popup menu displayed.

**NOTE:** If you see a different popup menu displayed this is because you may have accidentally right-clicked over an icon within the Taskbar, in which case try again, making sure you click on an empty part of the Taskbar.

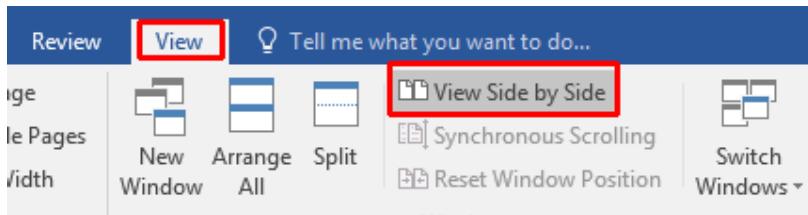


- Experiment with selecting the commands Cascade windows, Show windows stacked, and Show windows side by side.
- Before continuing, use the **Maximize** icon (top-right of each document window), to maximize each document window.

## Comparing documents side by side

- This feature allows you to compare two versions of a document, side by side. Open a document called **Compare 1**. Open a second document called **Compare 2**.
- Switch to display the document called **Compare 1**.

- Click on the **View** tab and click on the **View Side by Side** command (located within the **Window** section under the **View** tab).



This will display the two documents side by side. As you scroll down one document, the other document also scrolls down the screen. Try scrolling through each document to practice using this feature.

- Close both documents before continuing.

## Copying or moving selected items between documents

---

- Copying a graphic between documents using the Clipboard:**

Switch to the document called **Multiple 1**. Select the first graphic in the document. Press the **Ctrl+C** keys to copy the graphic to the Clipboard. Switch to the document called **Multiple 2**. Click towards the bottom of the document and press **Ctrl+V** to paste the graphic to the insertion point. The graphic will be copied to this document.

- Moving a graphic between documents using the Clipboard:**

Switch to the document called **Multiple 1**. Select the first graphic in the document. Press the **Ctrl+X** keys to move the graphic to the Clipboard. Switch to the document called **Multiple 2**. Click towards the bottom of the document and press **Ctrl+V** to paste the graphic to the insertion point. The graphic will be moved to this document.

- Copying selected text between documents using the Clipboard:**

Switch to the document called **Multiple 1**. Select the first paragraph in the document. Press the **Ctrl+C** keys to copy the paragraph to the Clipboard. Switch to the document called **Multiple 2**. Click towards the bottom of the document and press **Ctrl+V** to paste the paragraph to the insertion point. The paragraph will be copied to this document.

- Moving selected text between documents using the Clipboard:**

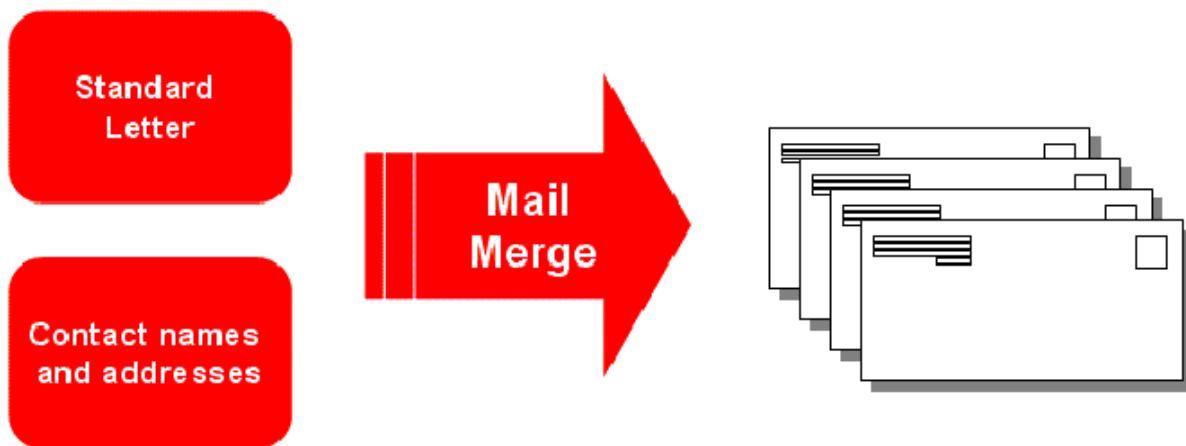
Switch to the document called **Multiple 1**. Select the first paragraph in the document. Press the **Ctrl+X** keys to move the paragraph to the Clipboard. Switch to the document called **Multiple 2**. Click towards the bottom of the document and press **Ctrl+V** to paste the paragraph to the insertion point. The paragraph will be moved to this document.

- Save and close all open documents.

# Microsoft Word 2016 Mail Merge

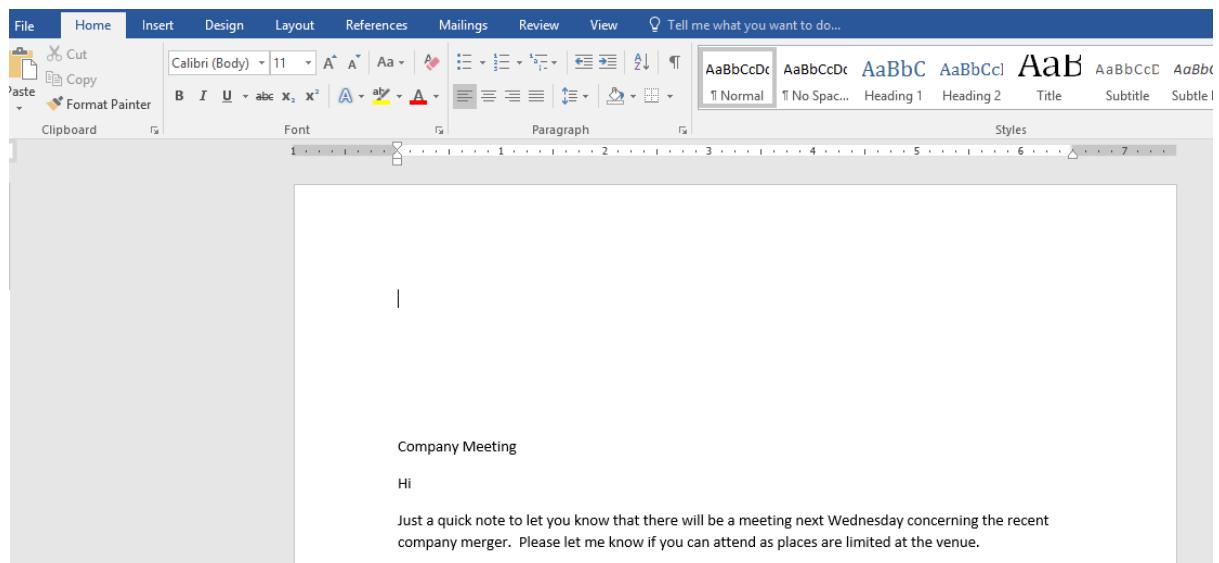
## What is mail merging?

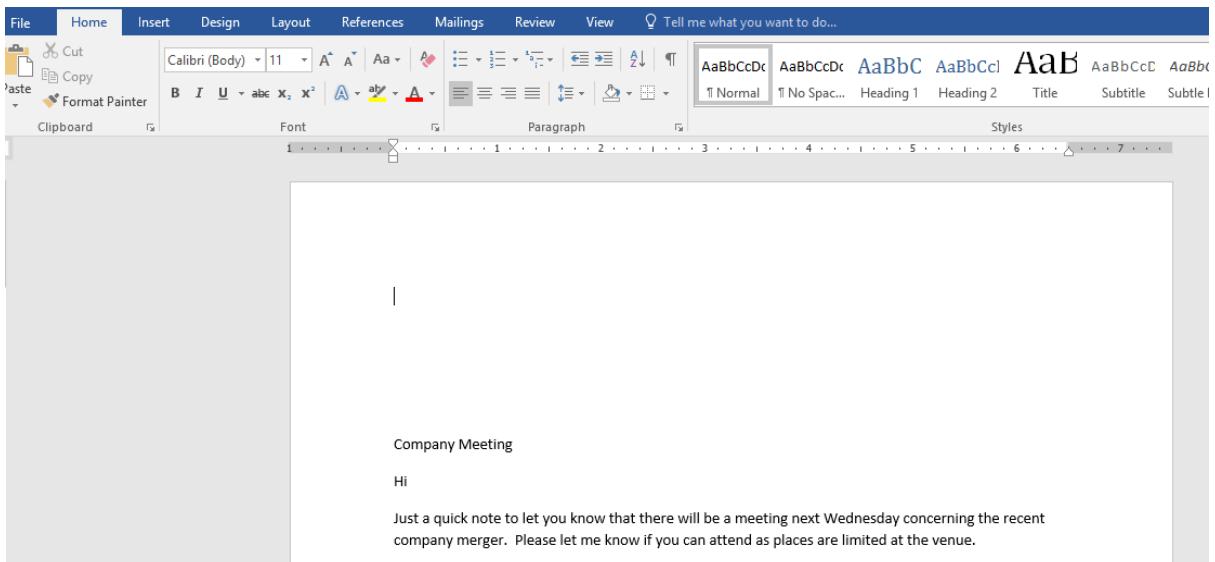
- The Mail Merge feature is used to insert variable data into a fixed format by combining two files into one file. Two files need to be created before you can merge them, these are the data file and the main document file. The variable information, such as names and addresses, is stored in the data file ready to merge into the main document file. The information, which remains constant and the field names are stored in the main document file, where each field name relates to a field name in the data file. The data in the two files is merged as a series of personalized letters or envelopes.



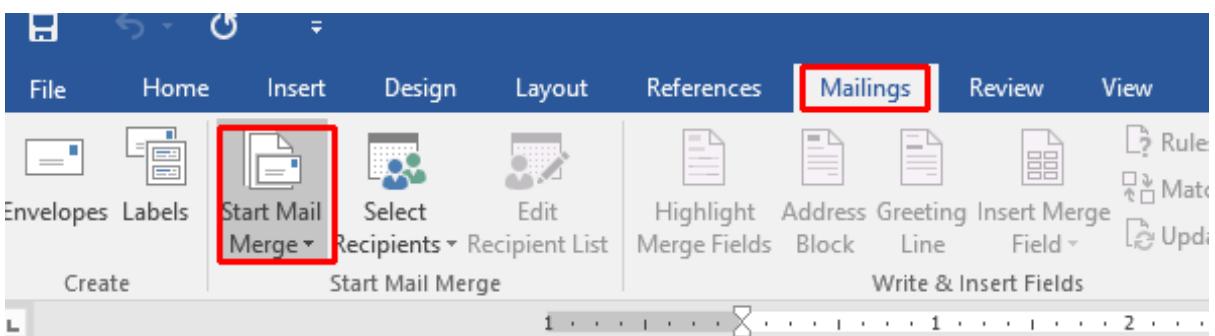
## Starting the Mail Merge Wizard

- Open a document called **Company Meeting**.





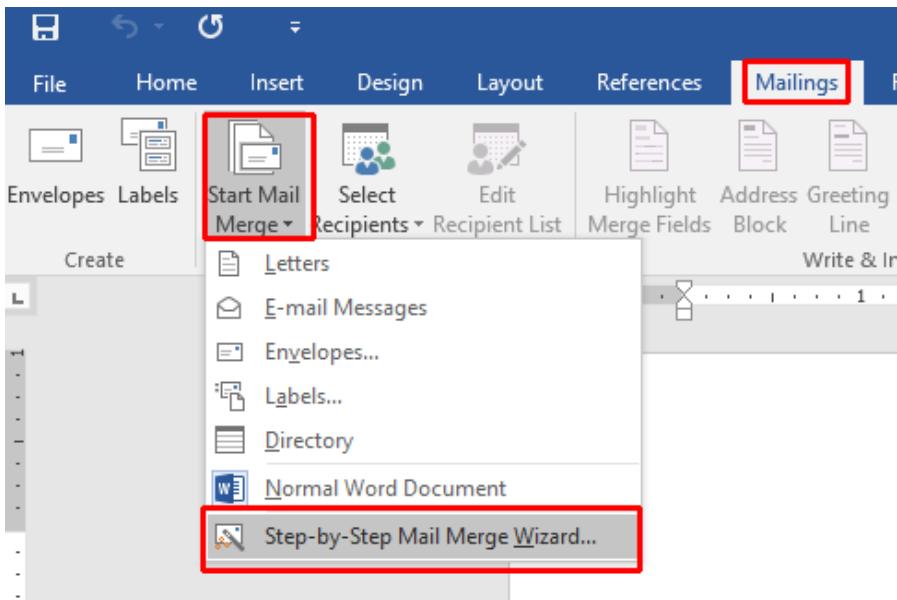
- This is typical of a general letter which can be individually addressed and mailed. In order to mail merge this letter we need to insert codes to tell Microsoft Word where to insert items such as the name and address of each person we are going to send this letter to. We also need to tell Microsoft Word which list of names and addresses we are going to use and where this list is stored.
- To start the process, click on the **Mailings** tab.



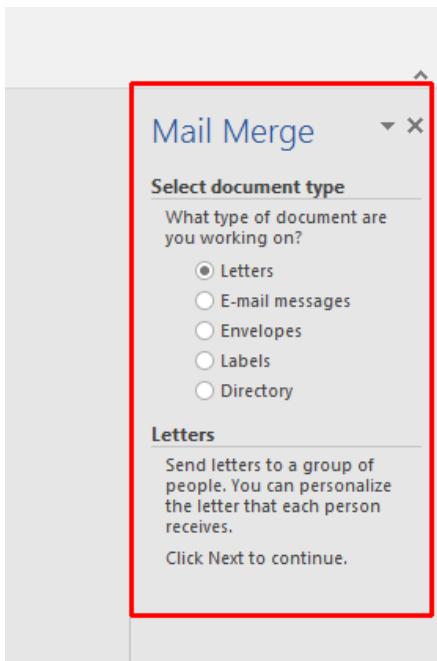
- Click on the **Start Mail Merge** button.

## Mail Merge Wizard - Step 1 of 6 'Select document type'

- From the drop down list displayed, select the **Step by Step Mail Merge Wizard** command.



- You will see a panel displayed to the right of your document. In this case we wish to produce a mail merged letter, so we will use the **Letters** selection.



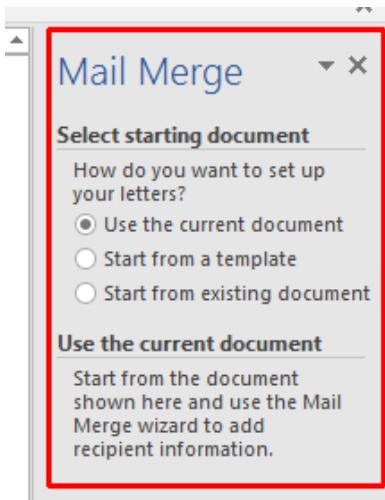
- Click on the **Letters** button.

- At the bottom right of the screen you have the option of clicking on '**Next: Starting your document**' to take you to the next page of the mail merge wizard.

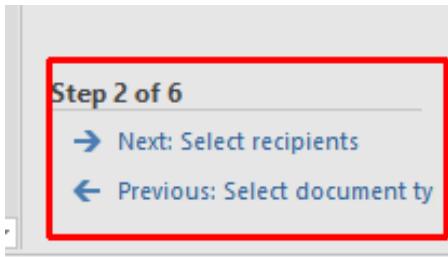


### Mail Merge Wizard - Step 2 of 6 'Select Starting document'

- You will see the following options displayed to the right of your document. In this case we will use the current document that is displayed on your screen.

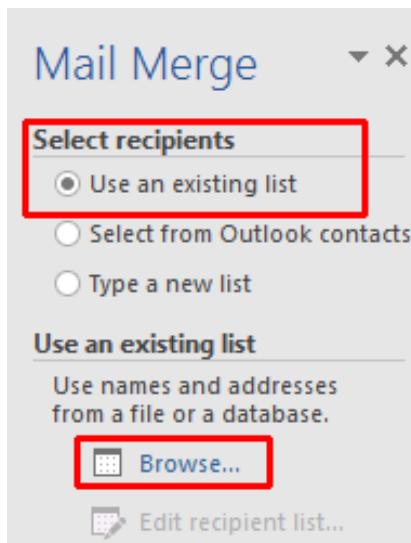


- Click on **Next: Select Recipients** at the bottom right of your screen.

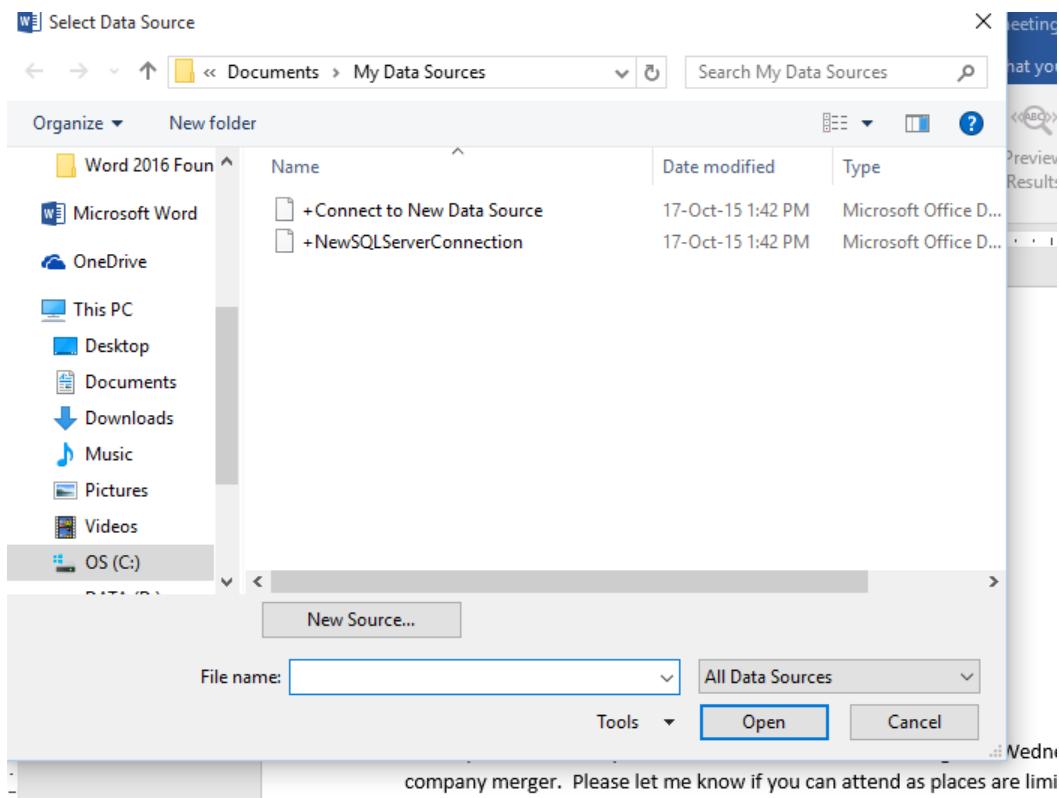


### Mail Merge Wizard - Step 3 of 6 'Select recipients'

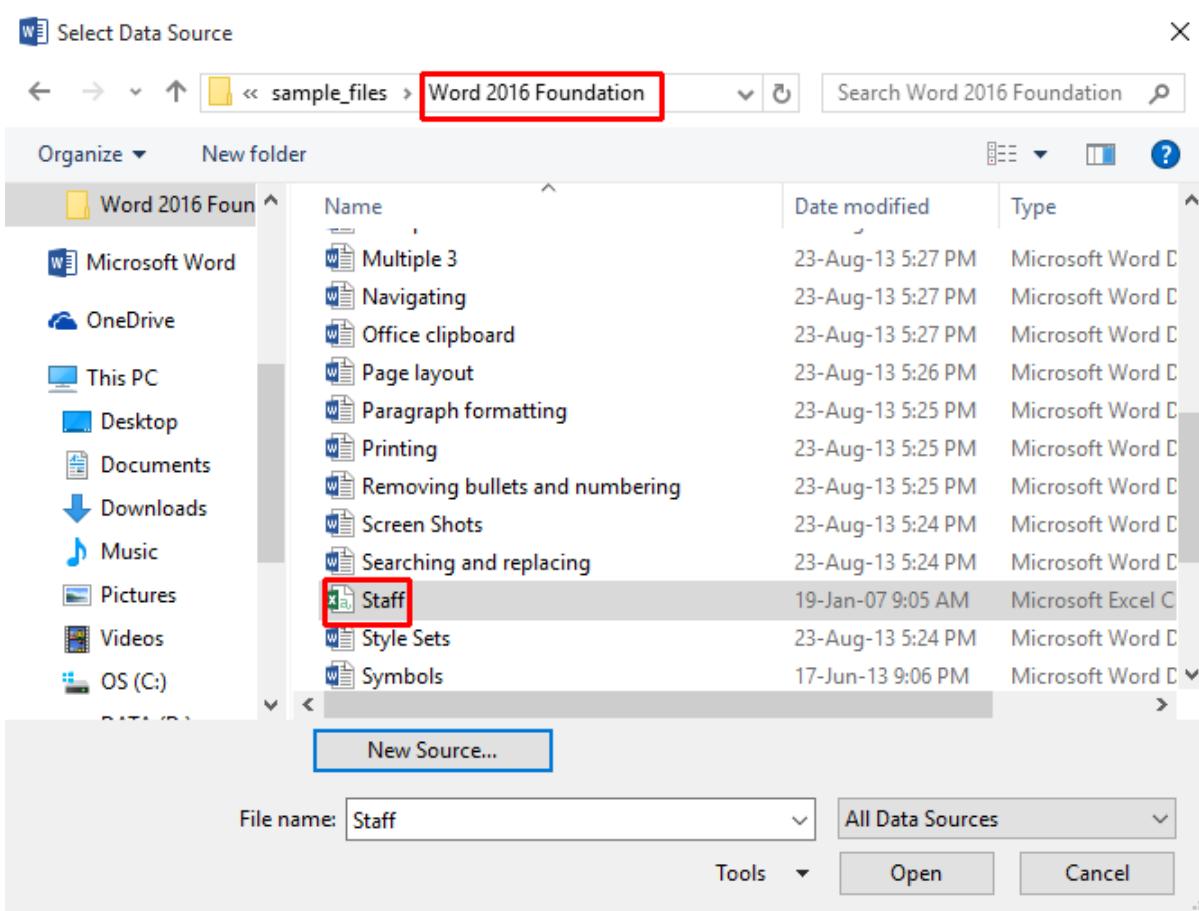
- The next step of the wizard lets you determine which list of recipients will be used for the mail merge process.



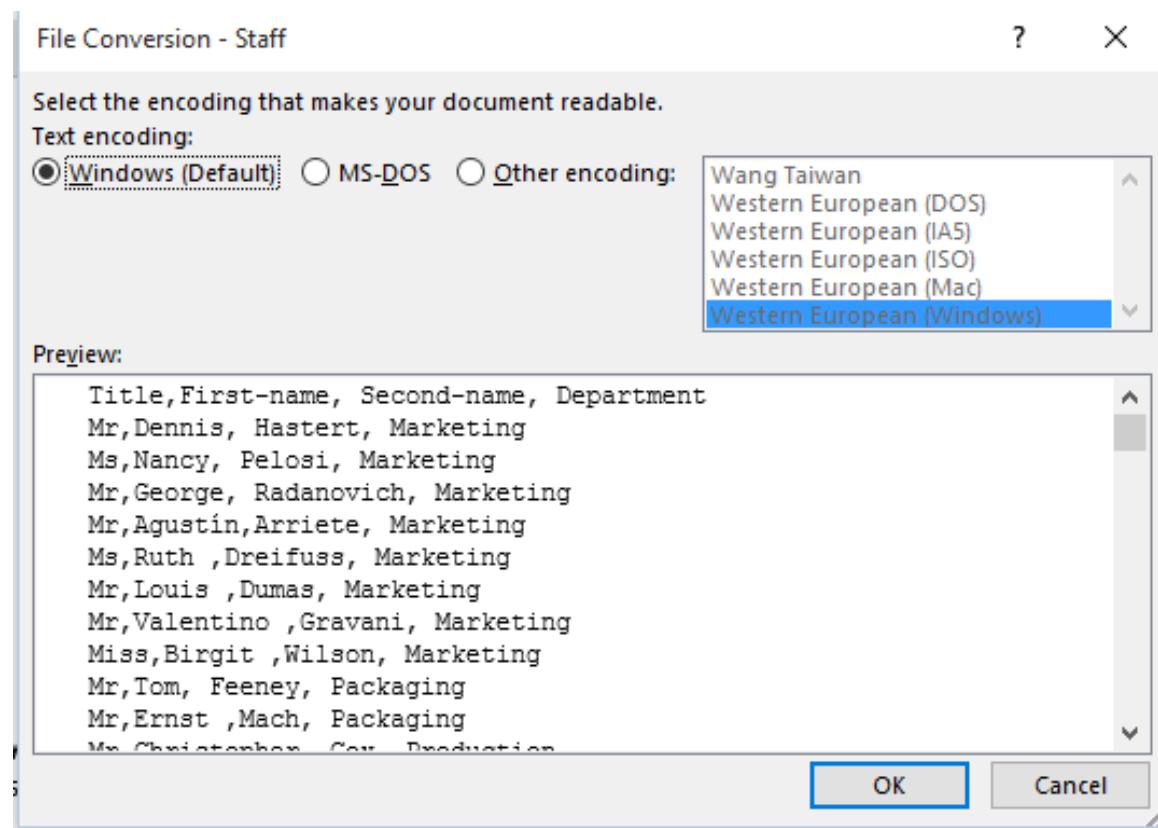
- In this case we will select the option **Use an existing list**.
- Click on the **Browse** button. This will display the **Select Data Source** dialog box.



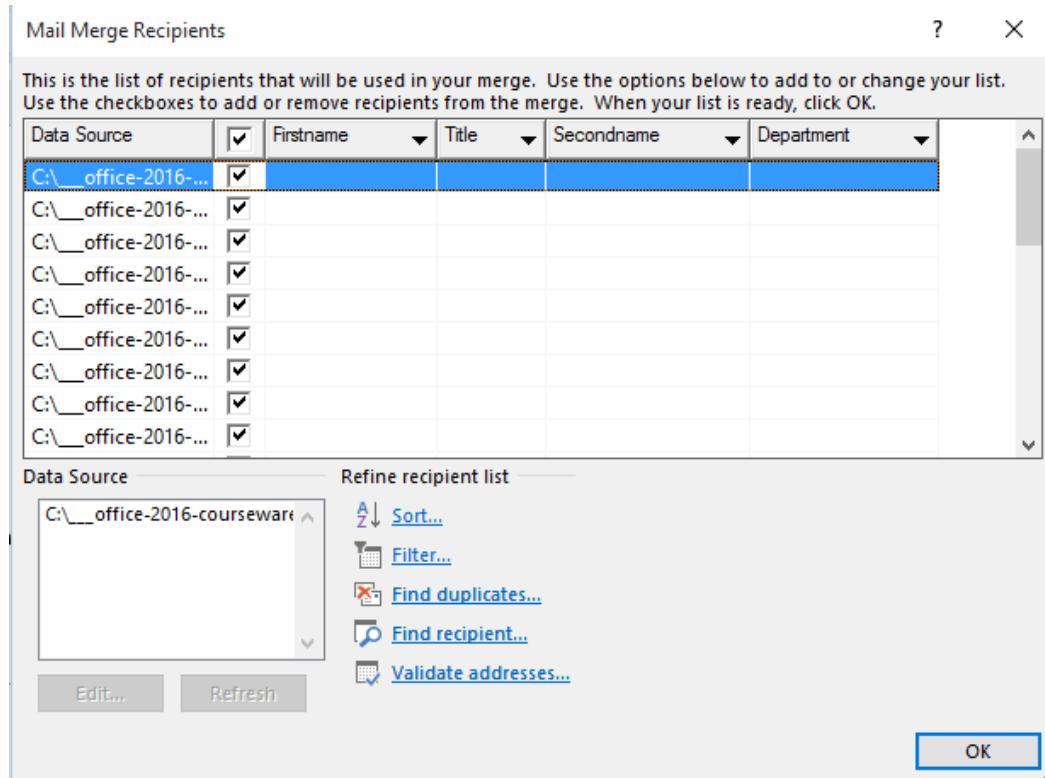
- Switch to the **My Documents** folder and then switch to the **Word 2016 Foundation** folder.
  - Within the **Word 2016 Foundation** folder you should see a file listed called **Staff**.
-



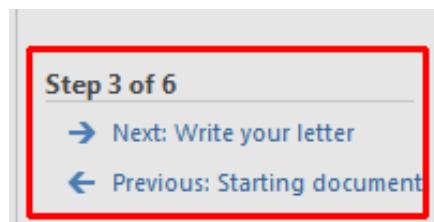
- Double click on the file called **Staff**. This will display the **File Conversion** dialog box.



- Click on the **OK** button which will display the **Mail Merge Recipients** dialog box.
-

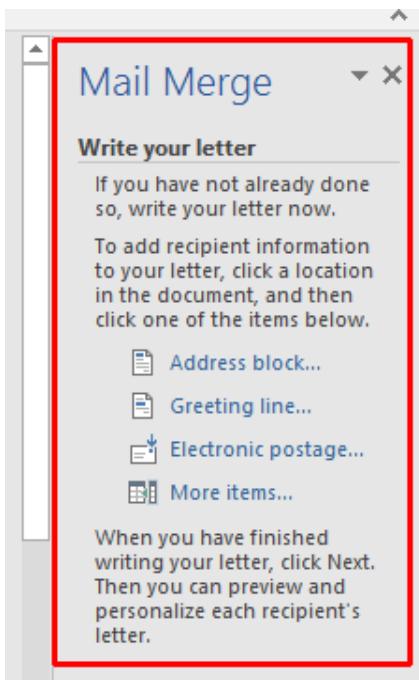


- Click on the **OK** button to continue.
- Click on the **Next: Write your letter** option at the bottom right of the screen.

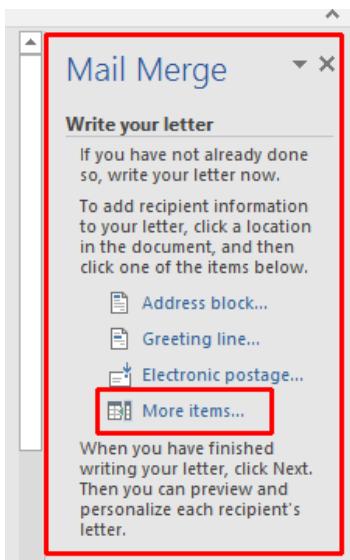


## Mail Merge Wizard - Step 4 of 6 'Write your letter'

- The following options are displayed to the right of your document.

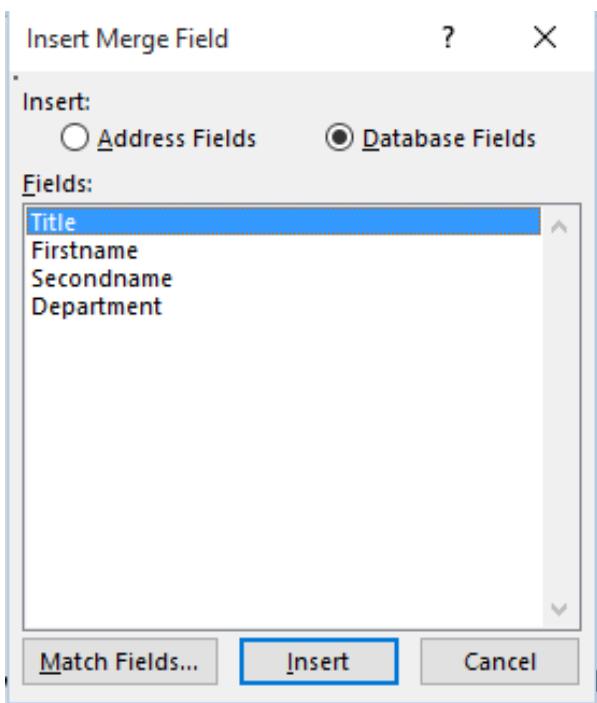


- Click at the start of your document (where we want to insert the codes relating to the person to whom the letter is addressed).
- Click on **More items...**.



This will display the **Insert Merge Field** dialog box.

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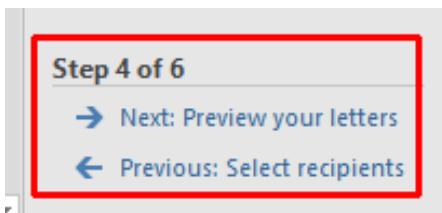


- Make sure that **Title** is selected and then click on the **Insert** button. Click on the **Close** button. Press the **Space bar**.
- Click on the **More items** command. This will display the **Insert Merge Field** dialog box.
- Make sure that **Firstname** is selected and then click on the **Insert** button. Click on the **Close** button. Press the **Space bar**.
- Click on the **More items** command. This will display the **Insert Merge Field** dialog box.
- Make sure that **Secondname** is selected and then click on the **Insert** button. Click on the **Close** button. Press the **Enter key**.
- Click on the **More items** command. This will display the **Insert Merge Field** dialog box.
- Make sure that **Department** is selected and then click on the **Insert** button. Click on the **Close** button.

Your document should now contain the following merge field codes.

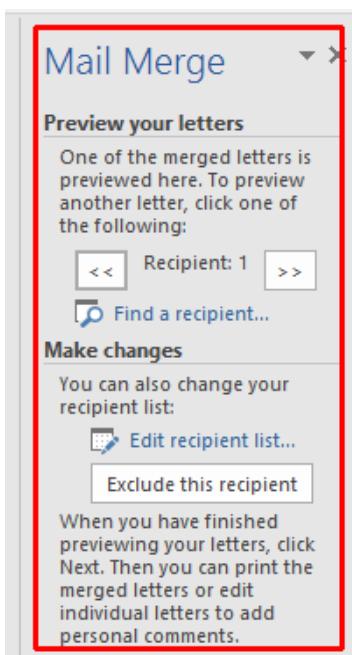
«Title» «Firstname» «Secondname» «Department»

- Click on the **Next: Preview your letters** option at the bottom right of the screen.

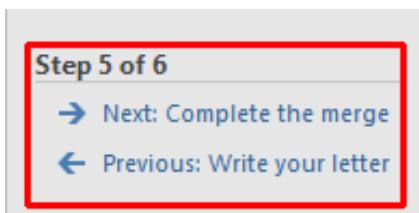


## Mail Merge Wizard - Step 5 of 6: Previewing your letters

- You will see the following choices.

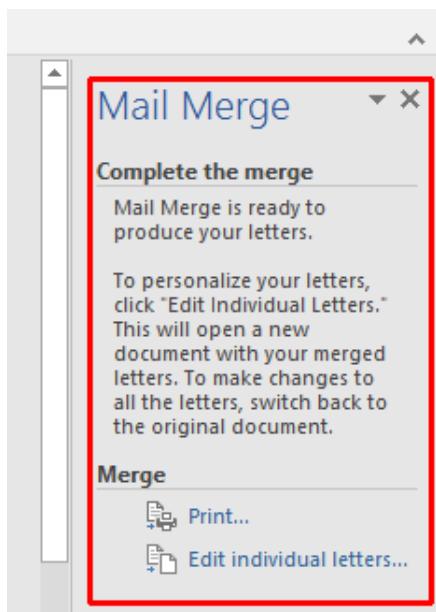


- Click on the **double arrow** button to preview your letter. Click a few more times to preview more letters.
- Click on the **Next: Complete the merge** button at the bottom-right of the screen to continue.

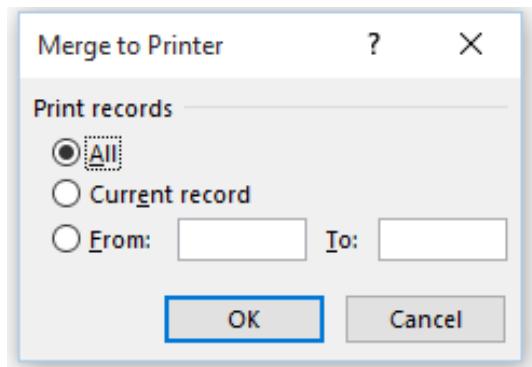


## Mail Merge Wizard - Step 6 of 6 Printing Options

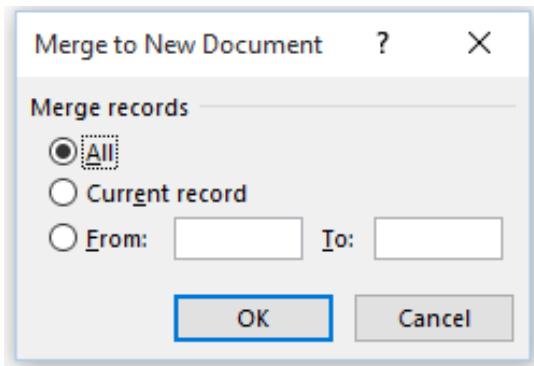
- You will see the following information displayed.



- If you were to click on the **Print** option, you would see the **Merge to Printer** dialog box which lets you select what to print.



- In this case click on the **Edit Individual letters** option. You will see the following dialog box which lets you select what to merge.



- Click on the **OK** button to merge all the print records.

A new document will be created containing your mail merged letters.



In real life you could check through this and print later. In this case to save paper we will not actually print this document. Scroll through the document to see if everything is as you expected. Save the document as **My First Mail Merge**. Close the mail merged document.

- Close the open document and save your changes.

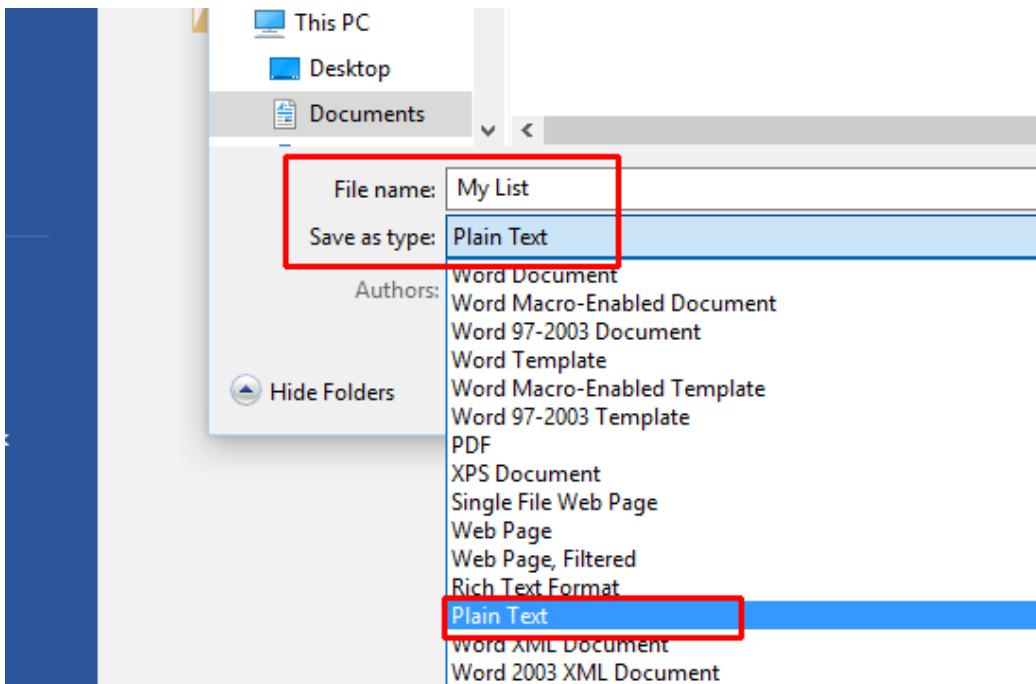
## Creating a mailing list to be used within a mail merge

- In many cases when you perform a mail merge your mailing list will have been prepared and formatted by someone else. If it is a mailing list to be sent out to business customers, it may have been bought in from a company that specializes in providing business mailing lists.
- There are rules for formatting a mailing list, so that when you perform a mail merge Microsoft Word will recognize the format. The mailing list should have a header row at the top of the list which describes the contents of each column. For instance, a column may be called **First\_name**, and the next column called **Second\_name**, and the next column could be called **Telephone\_number** and so on. It does not matter what you call each column, but keep the name as short as possible and for maximum compatibility with other programs do not use spaces in the description but use hyphens to join the words in a column description.
- You can create a list within a Microsoft Word document with each column of data being separated by a tab, space or a comma. Alternatively, you could create your data within an Excel worksheet. Normally when you buy in a mailing list it is supplied in CSV (Comma-Separated Values). A CSV file is a text file using commas to separate each column.
- We shall now create a small mailing list in CSV format. Create a new document by pressing **Ctrl+N**.
- Type in the following details, in each case separating one item of information from the next by a comma. Press the **Enter** key at the end of each line.

**NOTE:** Do not press the **Enter** key at the end of the last line relating to **Robert Menendez**.

**First-name, Second-name, Department**  
George, Radanovich, Marketing  
Hilda, Solis, Sales  
Dennis, Hastert, Marketing  
Tom, DeDelay, Production  
Roy, Blunt, Sales  
Tom, Feeney, Packaging  
Mark, Kirk, Sales  
Michael, Ferguson, Sales  
Christopher, Cox, Production  
Nancy, Pelosi, Marketing  
Steny, Hoyer, Marketing  
Robert, Menendez, Sales

- Click on the **Save** icon, and the **Save As** dialog box will be displayed.
  - In the file name section use the name **My-List**.
  - Click on the **down arrow** in the **Save as type** section and select **Plain text** (you may have to scroll down to see this option)
-



- Save the file. You may see a warning dialog box telling you that you are saving your file as a text only file, if so confirm the save. You have just created your first file in CSV format. Close your document.

## Merging a mailing list to produce labels

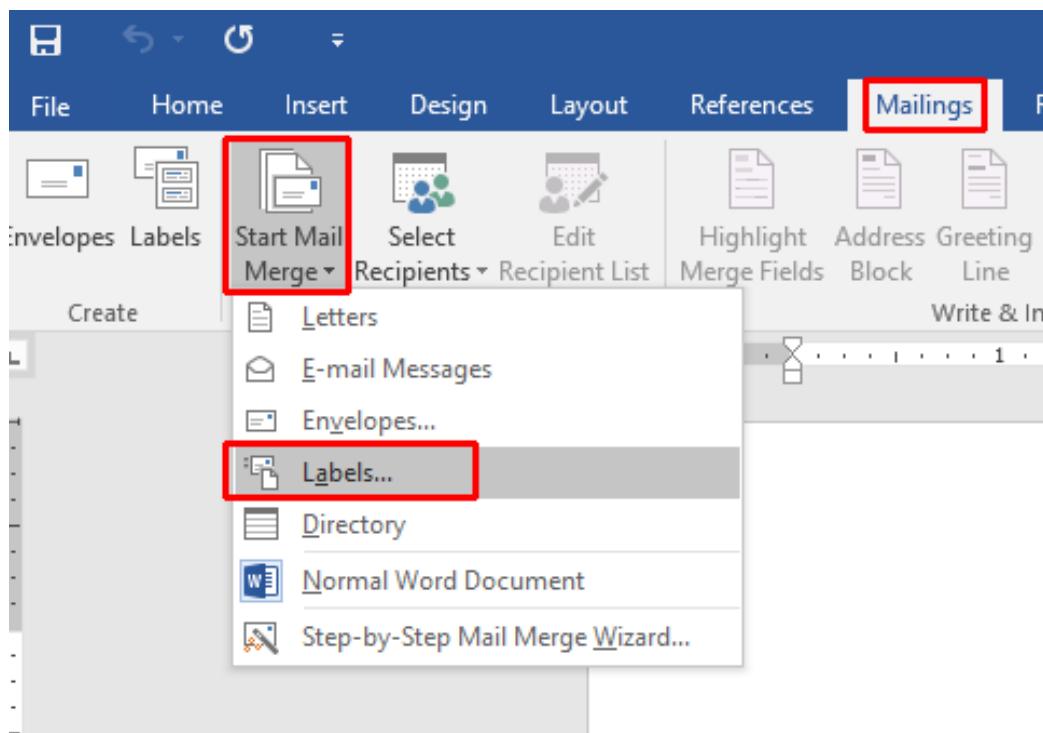
---

- When you are performing a mail merge to produce mail merged letters you can use Windowed envelopes so that the address in your mail merged letters matches the window in your windowed envelopes. Alternately you may post your mail merged letters in non-windowed envelopes in which case you will need to perform a separate mail merge to produce sheets of labels, with each label displaying a different address. If you do this, be very careful to match up the correct printed letters, with the correct printed labels!
- Alternatively, you may want to send out a standard marketing flyer to many addresses, in which case you need to mail merge your mailing list to sheets of labels.

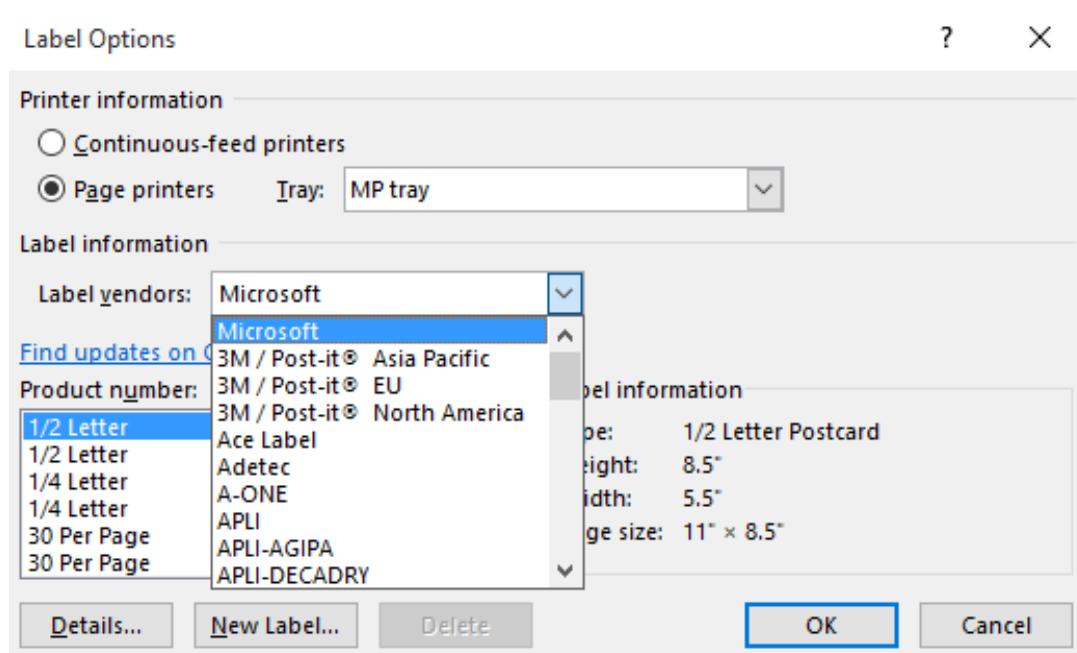
**WARNING:** You can buy sheets of labels for use in a printer. If you are using a laser printer be sure that the labels you are intending to use are properly approved for use in a laser printer. Inside a laser printer is much hotter than the inside of an inkjet printer and you may find that if you use the wrong type of labels they curl up, or even worse, cause damage to your laser printer!

- To merge a mailing list to labels is very easy. Create a new blank document, by pressing **Ctrl+N**.
  - Click on the **Mailings** tab.
-

- Click on the **Start Mail Merge** button, and from the list displayed select **Labels**.



- The **Label Options** dialog box is displayed. First select the manufacturer of your labels.

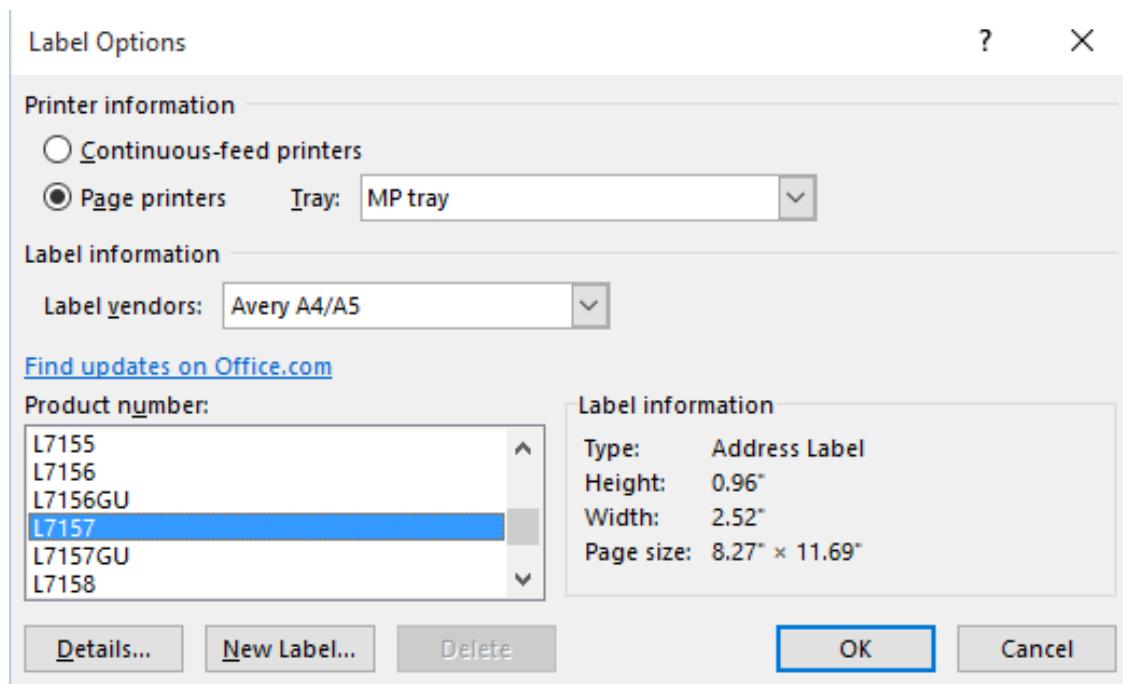


Avery is a popular supplier of label sheets.

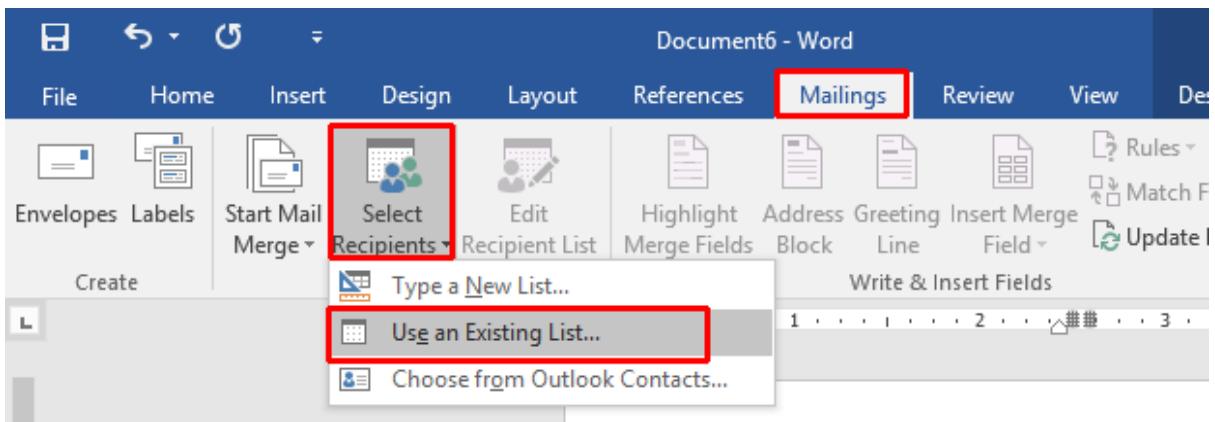
**NOTE:** Avery has different product codes for **A4** sized sheets and **US letter** sized label

sheets. Be sure to select the correct category if you are using Avery labels.

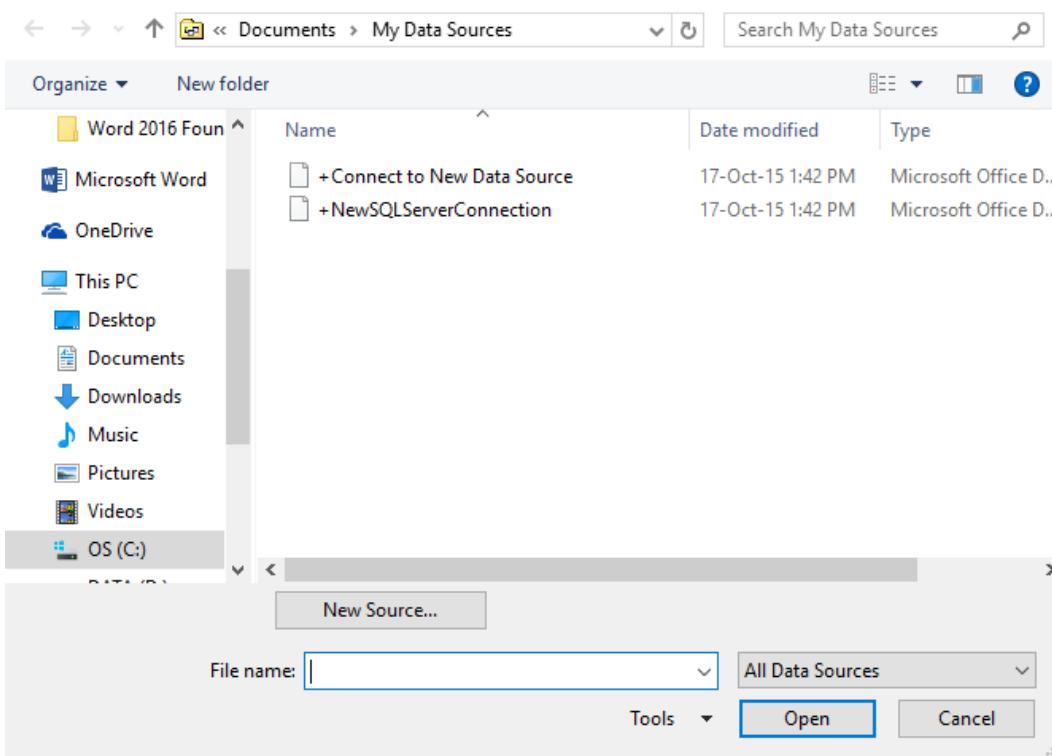
- In this case choose **Avery** as the manufacturer.
- Once you have selected a manufacturer you need to select a **Product Number**. The product number relates to the size of each individual label, how they are laid out on a sheet and how many labels are contained within each sheet. You will notice that as you select a **Product number**, information about this label type is displayed in the **Label Information** section.



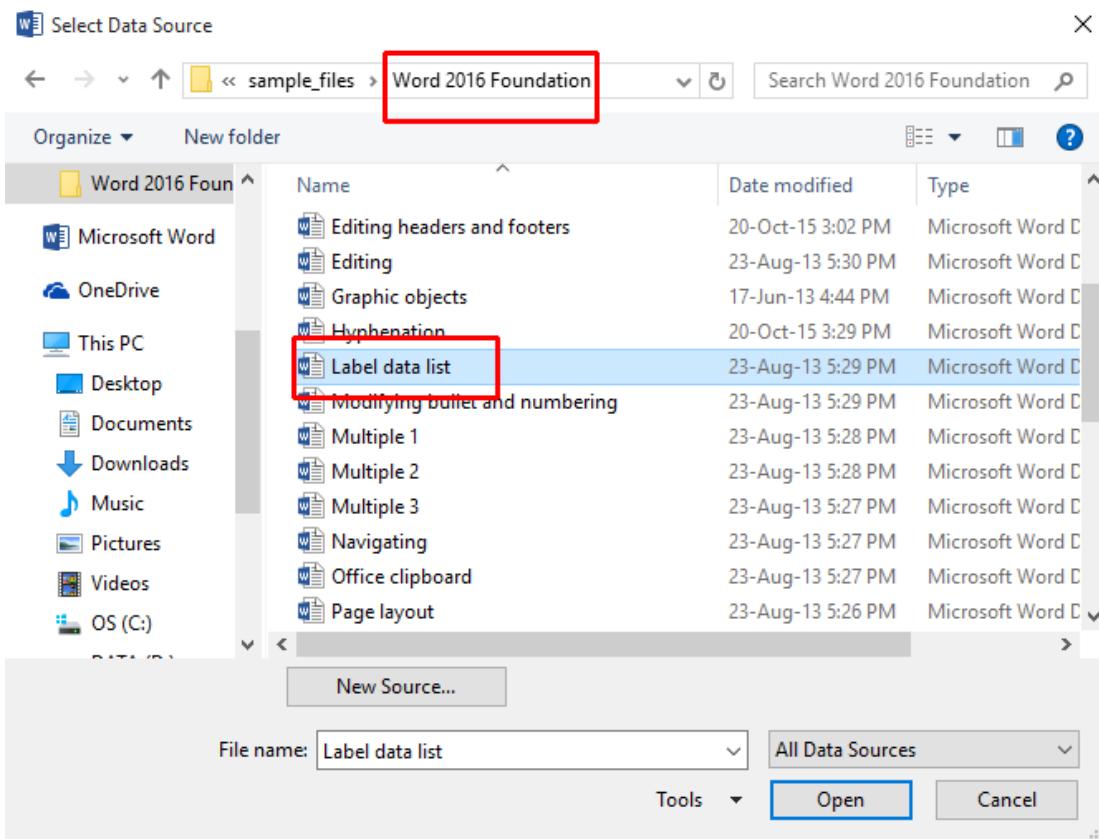
- Select an **Address Label**, the exact product number is not important as we will not actually be printing any labels in this exercise. Click on the **OK** button once you have made a selection.
- We have selected our label type; next we need to select a mailing list that will be used to print the labels. Click on the **Select Recipients** button and then click in **Use Existing List**.



- The **Select Data Source** dialog box will be displayed.



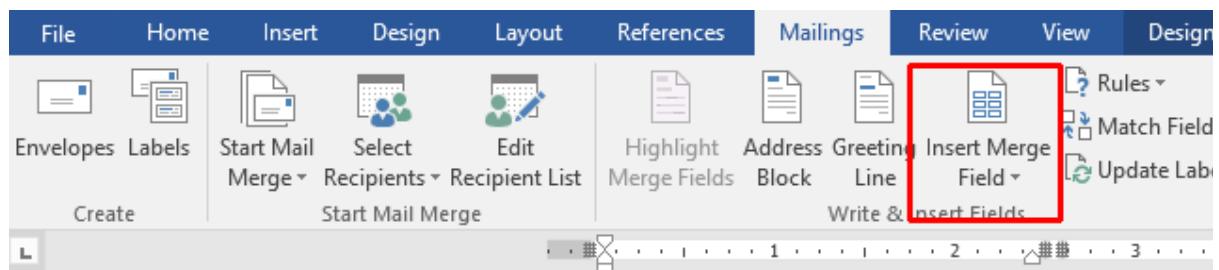
- You will need to navigate to the folder containing your sample files, which is in the **Word 2016 Foundation** folder, under the **Documents** folder.
- Within the **Word 2016 Foundation** folder select a Microsoft Word document called **Label data list**.



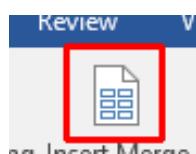
- Click on the **Open** button and you will see the following:



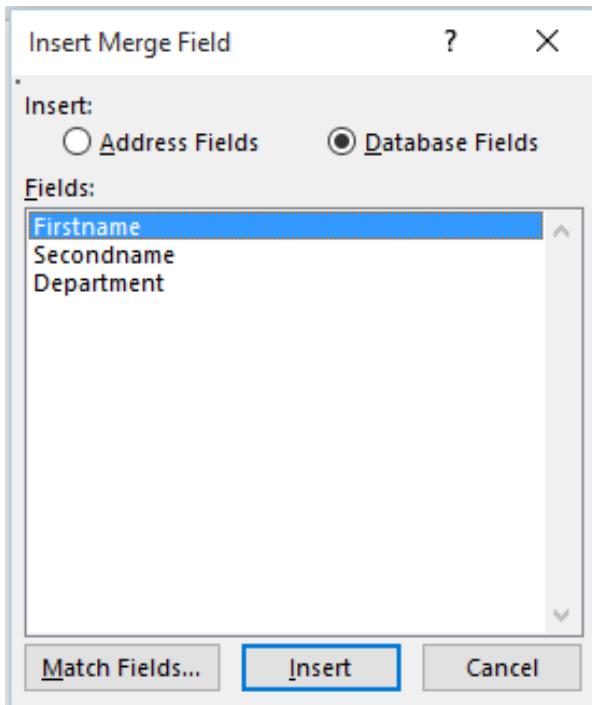
- The insertion point should be displayed at the start of the first line in the first label.
- Move the mouse pointer over the **Insert Merge Field** button.



You will notice that this button consists of two parts. Click on the upper part of this button, i.e. the part displaying as an icon.

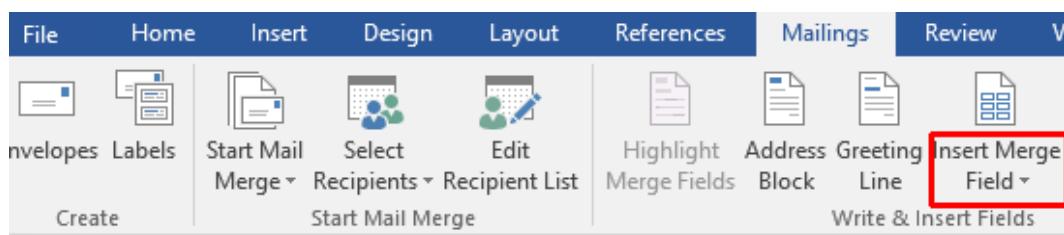


This will display the **Insert Merge Field** dialog box displaying fields you can insert into the document.

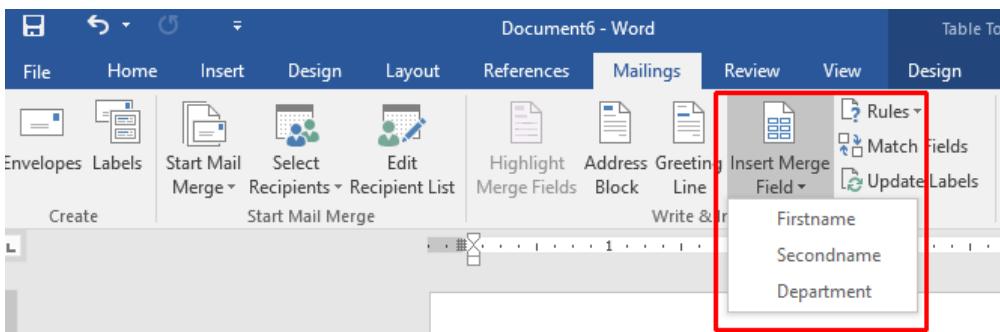


In this case click on the **Cancel** button.

- If you click on the lower part of the button, you will see a drop down list of merge fields.



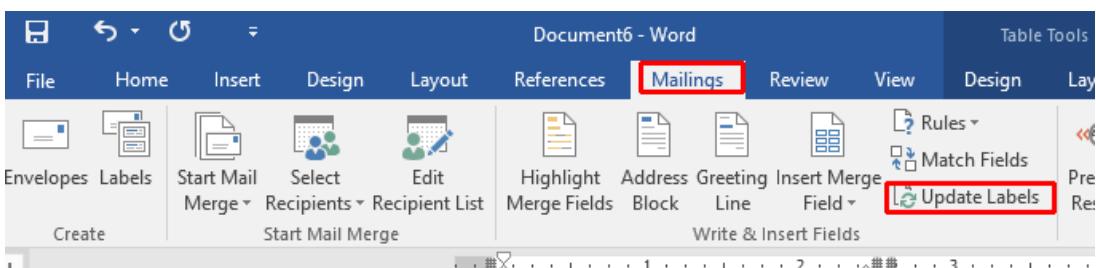
- You could use either method to insert your merge fields. In this example we will use the lower part of the button.



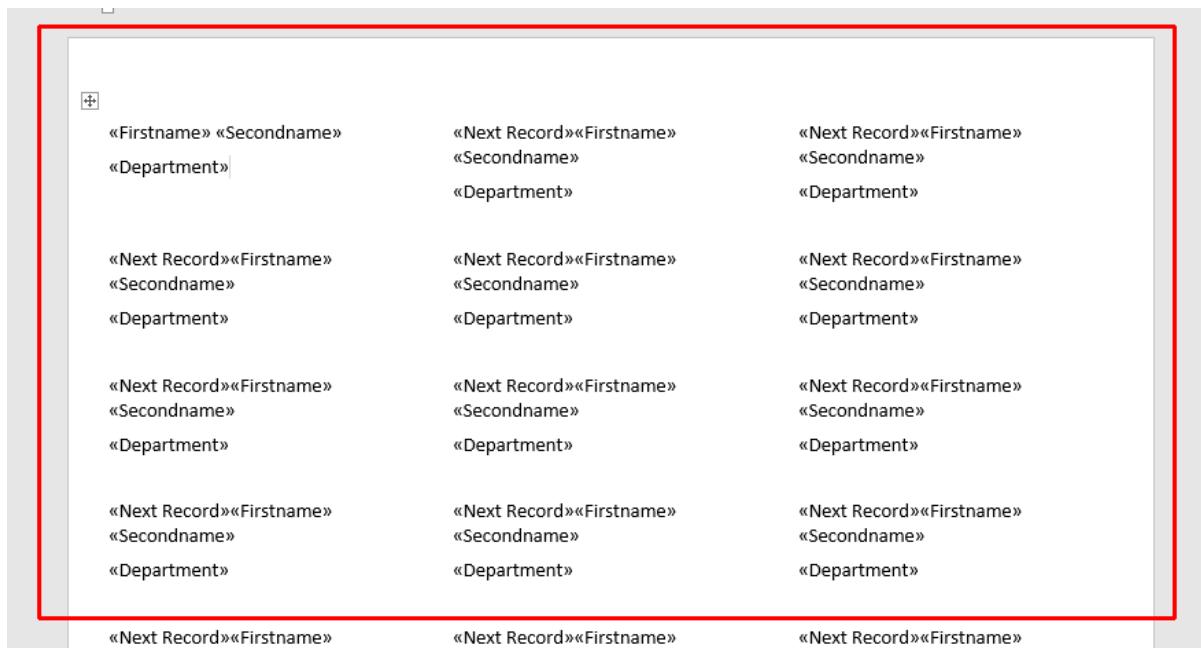
- Click on **Firstname** from the drop down list.
- Press the **Spacebar** and then insert the field name **Secondname**.
- Press the **Enter** key to drop down to the next line and insert the field name **Department**. Your page will now look like this.

«Firstname» «Secondname»	«Next Record»	«Next Record»
«Department»		
«Next Record»	«Next Record»	«Next Record»
«Next Record»	«Next Record»	«Next Record»
«Next Record»	«Next Record»	«Next Record»
«Next Record»	«Next Record»	«Next Record»
«Next Record»	«Next Record»	«Next Record»

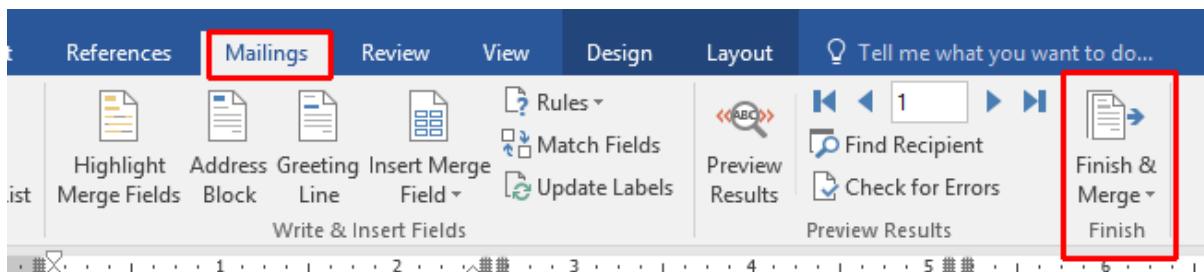
- Click on the **Update Labels** button.



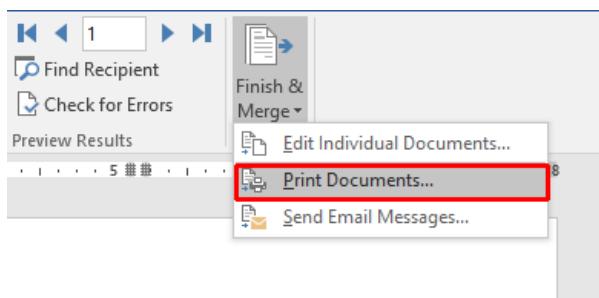
Your screen will now look like this.



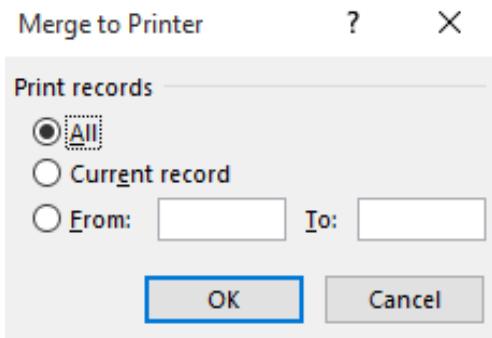
- Click on the **Finish & Merge** button.



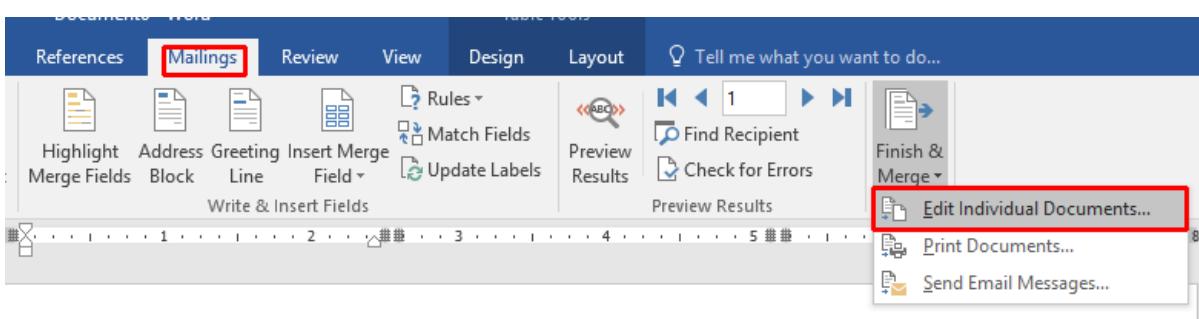
- You will see a drop down list displayed.



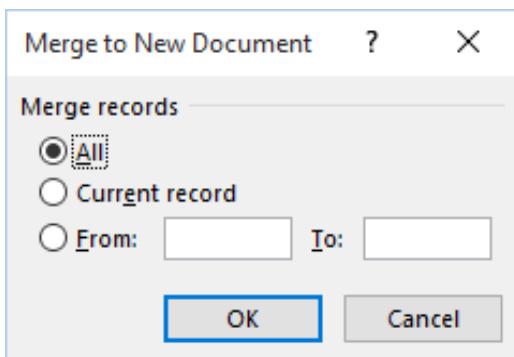
If you simply wished to print the merged labels you could click on the **Print Document** command. You would see the **Merge to Printer** dialog box, allowing some control of what to print, as illustrated.



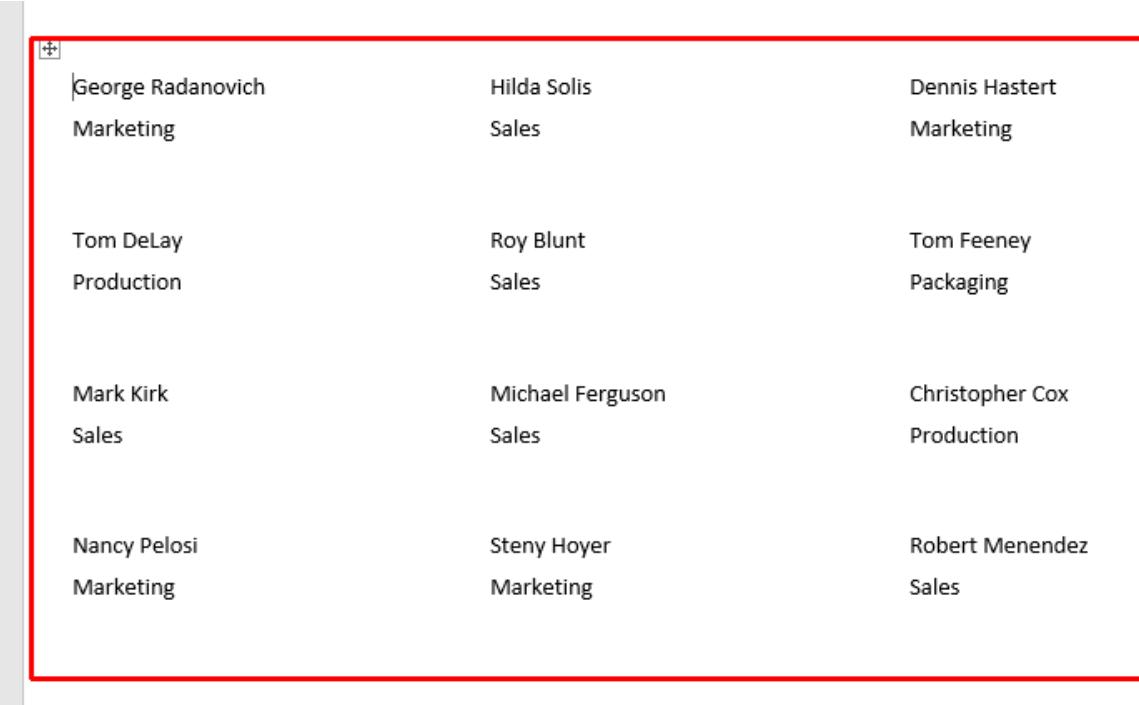
- In this case we will merge the data to a new document. To do this click on the **Edit Individual Documents** command.



You will see the **Merge to New Document** dialog box.



- Click on the **OK** button and the mailing list will be merged to create a new document which can later be printed to sheets of labels, as illustrated.



George Radanovich	Hilda Solis	Dennis Hastert
Marketing	Sales	Marketing
Tom DeLay	Roy Blunt	Tom Feeney
Production	Sales	Packaging
Mark Kirk	Michael Ferguson	Christopher Cox
Sales	Sales	Production
Nancy Pelosi	Steny Hoyer	Robert Menendez
Marketing	Marketing	Sales

- You may print the merged document if you ask your tutor first (to make sure that the printer is connected and contains labels).
  - Save and close all open files.
-

# **Excel 2016 Foundation**





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## Tutor Setup Information

- Copy the sample files folder, **Excel 2016 Foundation** to the **Documents** folder on the PC.
- At the end of the course, remove all files modified or created during the course, prior to re-running the course.
- At the end of the course, reset all program and operating system defaults that may have been modified during the course, prior to re-running the course.

## Sample files for this course

- During this course you will need to open samples files.

These are stored under the **Documents** folder in a sub-folder called:

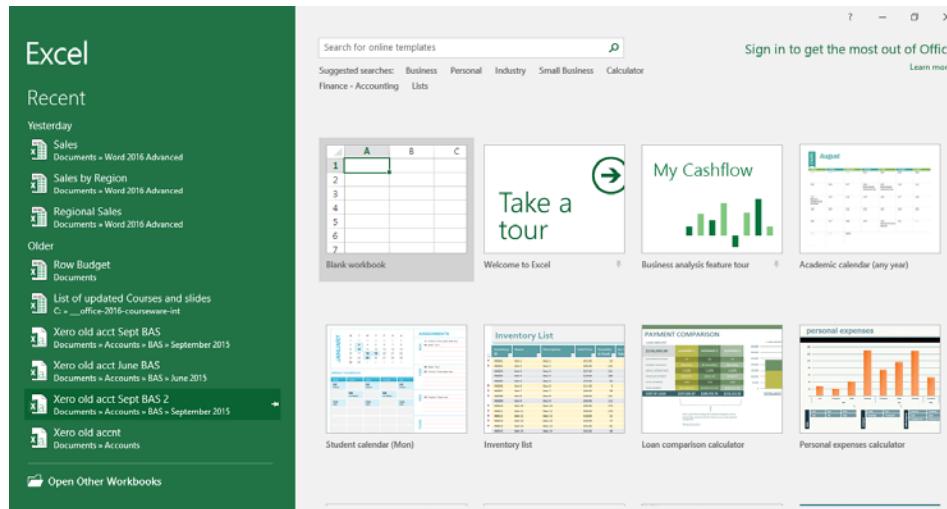
**Excel 2016 Foundation.**

If you create any new files, unless otherwise instructed, you should also save the files in this folder.

# Getting started with Excel 2016

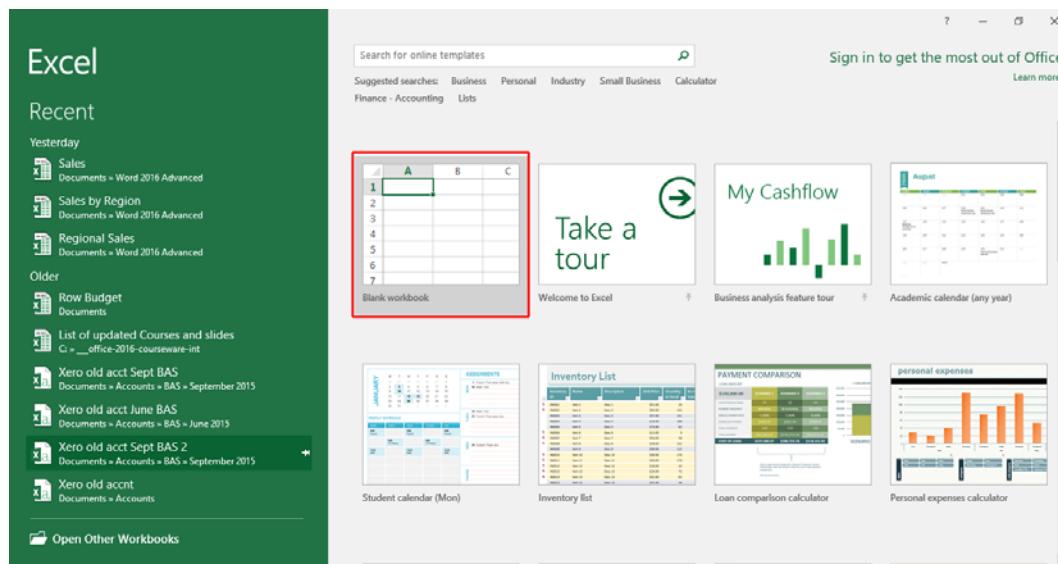
## Starting Excel 2016 using Windows 7 (or previous versions)

- If you are using Windows 10 (or previous versions of Windows) click on the **Start** button (bottom-left of the screen). Click on **All Apps**. Click on **Microsoft Excel 2016**. The opening Excel 2016 window will be displayed, as illustrated.

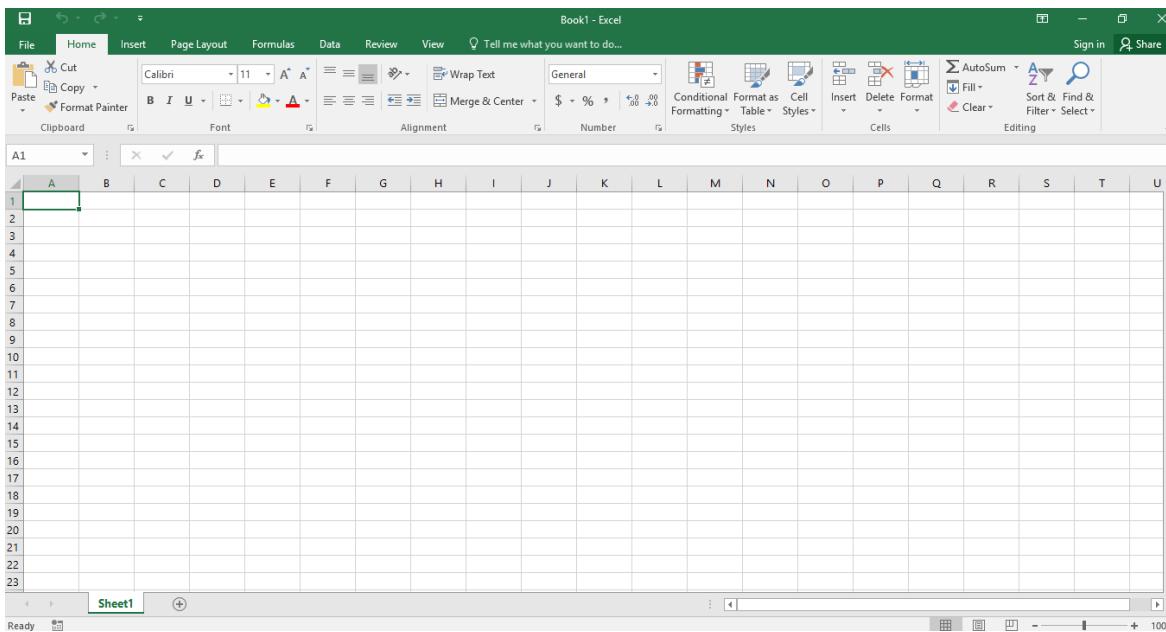


## Selecting the Blank Worksheet template

- Click on the **Blank Worksheet** template thumbnail.



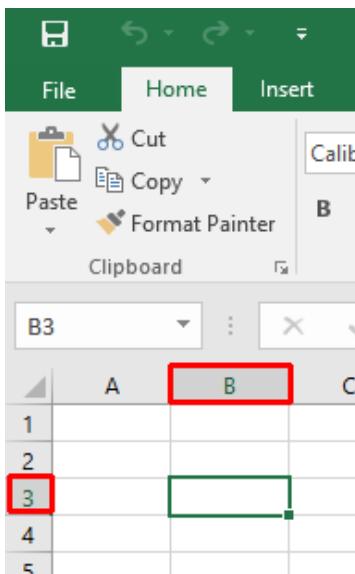
- The screen will now look like this.



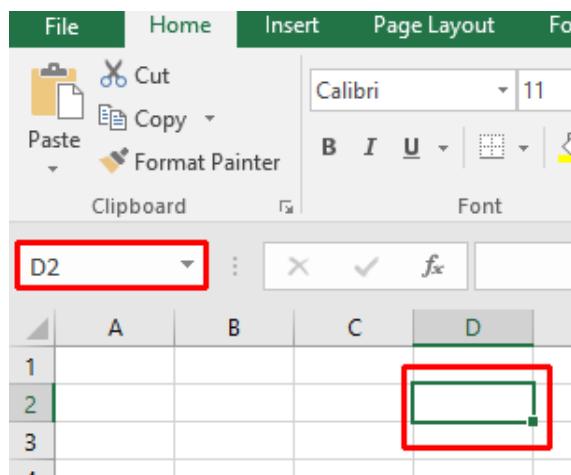
## The Excel 2016 cell referencing system

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- An Excel worksheet is made up of individual cells, each of which has a unique reference. Look at the illustration below. We have clicked on cell **B3**, which means that the cell is in **column B**, **row 3**.



- In the illustration below, we have clicked on cell **D2**.

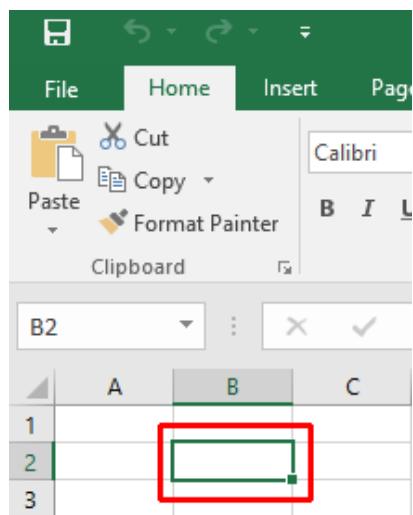


- If you look carefully you will see that the current cell reference is displayed just above the actual worksheet.

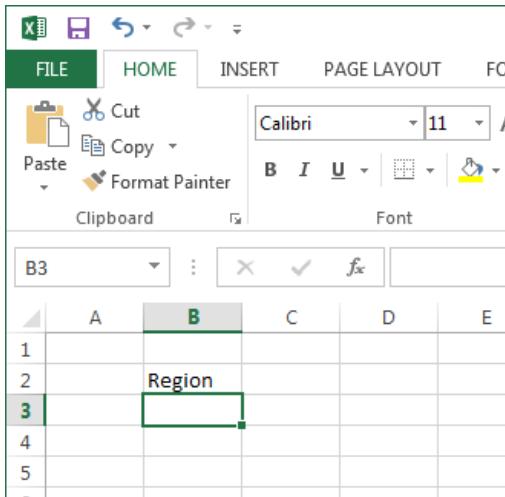
## Entering numbers and text

---

- Click on cell **B2** as illustrated.

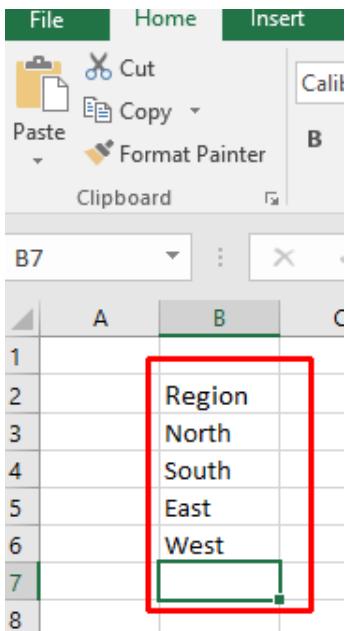


- Type in the word '**Region**'. Press the **Enter** key. When you press the **Enter** key you will automatically drop down to the next cell within the worksheet. Your screen will now look like this.



- The active cell is now **B3**. Type in the word '**North**'. Press the **Enter** key.
- The active cell is now **B4**. Type in the word '**South**'. Press the **Enter** key.
- The active cell is now **B5**. Type in the word '**East**'. Press the **Enter** key.
- The active cell is now **B6**. Type in the word '**West**'. Press the **Enter** key.

Your screen will now look like this:



- Click on cell **C2**.

A screenshot of Microsoft Excel showing a table. The table has columns A, B, C, and D. Row 1 is empty. Row 2 contains "Region" in column B and is highlighted with a red border. Row 3 contains "North" in column B. Row 4 contains "South" in column B. Row 5 contains "East" in column B. Row 6 contains "West" in column B. Row 7 is empty. The "Home" tab is selected in the ribbon. The font is Calibri, size 11, and the text is aligned to the left.

1			
2	Region		
3	North		
4	South		
5	East		
6	West		
7			

- Type in the word '**Sales**'. Press the **Enter** key.
- Type in the number **10488** and press the **Enter** key.
- Type in the number **11973** and press the **Enter** key.
- Type in the number **13841** and press the **Enter** key.
- Type in the number **16284** and press the **Enter** key.

Your screen will now look like this:

A screenshot of Microsoft Excel showing the completed table. The table now includes the word "Sales" in row 2, column C, and the numbers 10488, 11973, 13841, and 16284 in columns D, E, and F respectively. The "Home" tab is selected in the ribbon. The font is Calibri, size 11, and the text is aligned to the left.

1				
2	Region	Sales		
3	North	10488		
4	South	11973		
5	East	13841		
6	West	16284		
7				
8				

## Default text and number alignment

---

- If you look carefully at what you have typed in you will see that by default text is aligned within a cell to the left, while numbers are aligned within the cell to the right. This makes sense, as normally text starts from the left of a page and it is the same

within a cell. Numbers on the other hand normally align to the right. Think how you would write down a column of numbers on a page that you want to add up.  
Numbers align to the right.

## Summing a column of numbers

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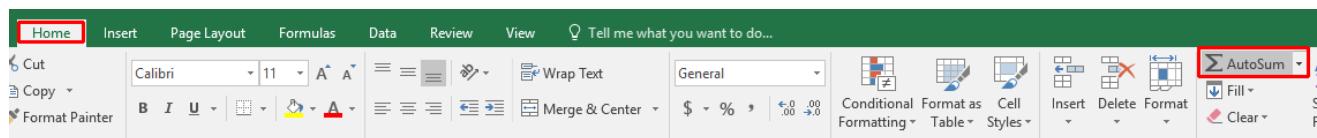
- Click on cell **B7**.

A	B	C	D
1			
2	Region	Sales	
3	North	10488	
4	South	11973	
5	East	13841	
6	West	16284	
7	Total		
8			

- Type in the word '**TOTAL**'.
- Click on the **right arrow** key to move to cell **C7**.

A	B	C	D
1			
2	Region	Sales	
3	North	10488	
4	South	11973	
5	East	13841	
6	West	16284	
7	Total	16284	
8			
9			

- Click on the **AutoSum** button (displayed towards the right end of the ribbon).
-



Your screen will look like this:

	A	B	C	D	E
1					
2		Region	Sales		
3		North	10488		
4		South	11973		
5		East	13841		
6		West	16284		
7		Total	=SUM(C3:C6)		
8			SUM(number1, [number2], ...)		
9					
10					

- Press the **Enter** key and Excel will automatically add up the column of numbers, as illustrated.

	A	B	C	D
1				
2		Region	Sales	
3		North	10488	
4		South	11973	
5		East	13841	
6		West	16284	
7		Total	52586	
8				

- We have hardly started to use Excel 2016 but already you have seen how powerful and easy to use it is. We will see more of the Excel functions for performing calculations later.
-

The best thing about Excel is that if you make changes to the numbers then totals and other calculations are automatically updated. Click on cell **C4** and type in a different number. When you press the **Enter** key you will see that the total value displayed in cell **C7** changes to recalculate the total value of the sales.

## Entering a date

---

- Click on cell **A1**.

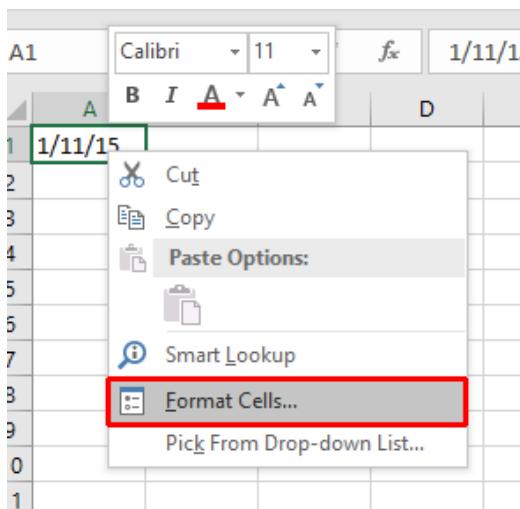
	A	B	C	D
2	Region	Sales		
3	North	10488		
4	South	11973		
5	East	13841		
6	West	16284		
7	Total	52586		
8				

- Enter todays date using the format Day/month/year or month/day/year depending of the format normally used in your country.

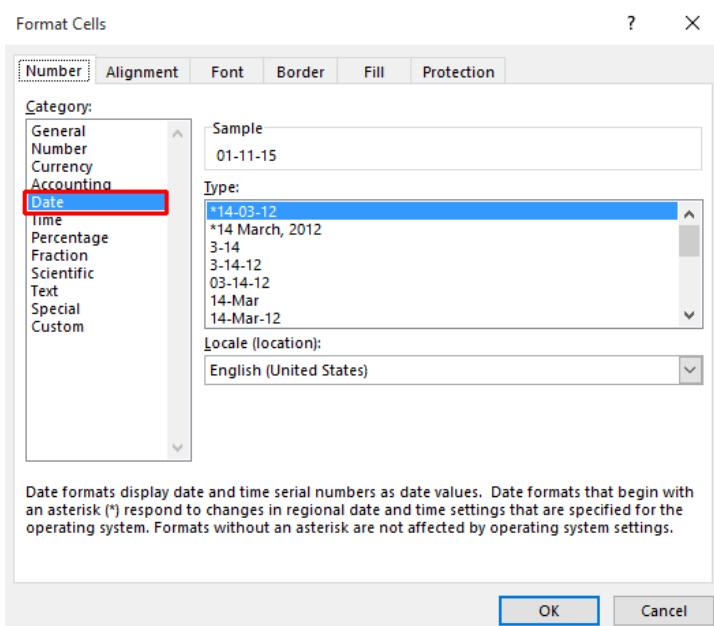
	A	B	C	D
1	1/11/15			
2	Region	Sales		
3	North	10488		
4	South	11973		
5	East	13841		
6	West	16284		
7	Total	52586		

Excel recognizes this as a date and automatically marks the cell as containing date information.

- Right click over the date you have just entered. From the popup menu displayed, select the **Format Cells** command, as illustrated.



- This will display the **Format Cells** dialog box.

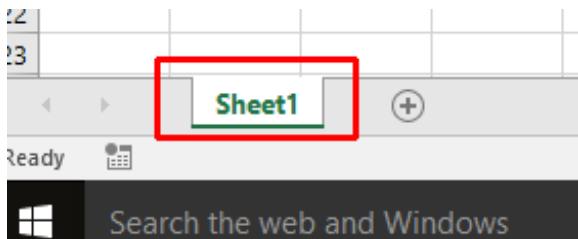


- If you have time you can select a different type of date format, using the **Type** section of the dialog box. Click on the **OK** button to apply any changes you make.

## Worksheets and Workbooks

---

- Look at the bottom-left of your screen and you will see the worksheet tabs displayed.



- By default, each new workbook contains a single worksheet. You can easily add more worksheets to your workbook. This is similar to a notebook that contains separate pages.

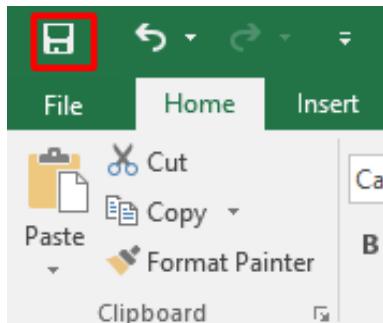
(Might want to put something about the plus sign for new tabs)

- Click on the **Sheet 2** worksheet tab and the second worksheet is displayed.
- Click on the **Sheet 3** worksheet tab and the third worksheet is displayed.
- Click on the **Sheet 1** worksheet tab and the first worksheet, containing your data is displayed again. As we will see later you can add or remove worksheets as well as reordering and renaming them.

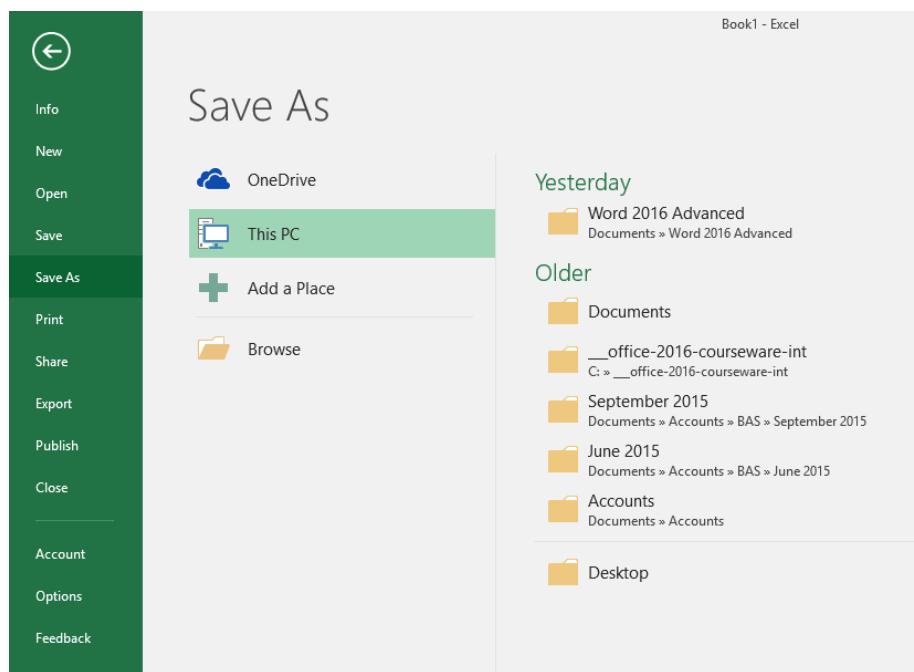
### Saving a workbook to your hard disk

---

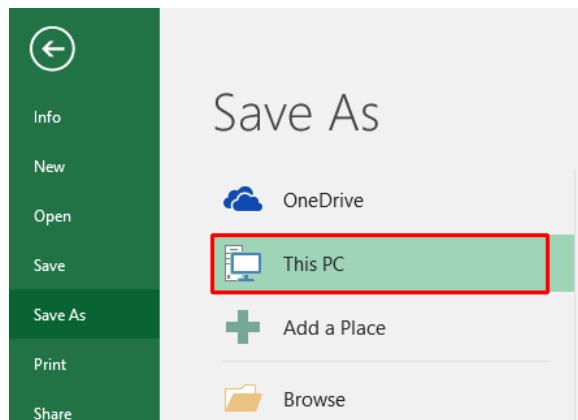
- To save the workbook click on the **Save** icon (top-left part of your screen).



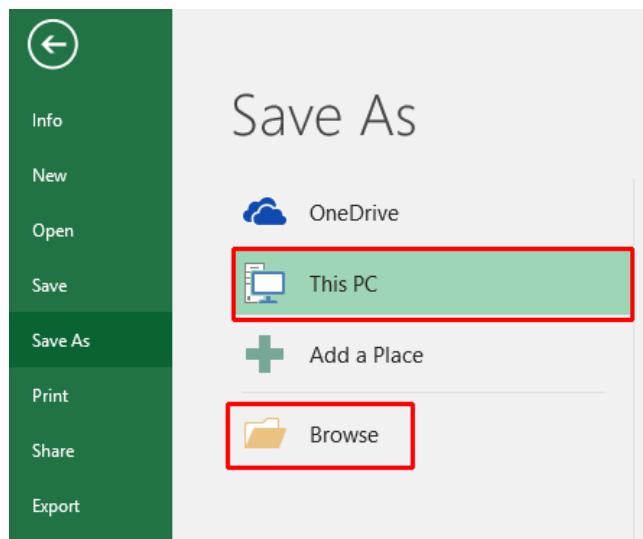
- This will display the **Save As** screen.



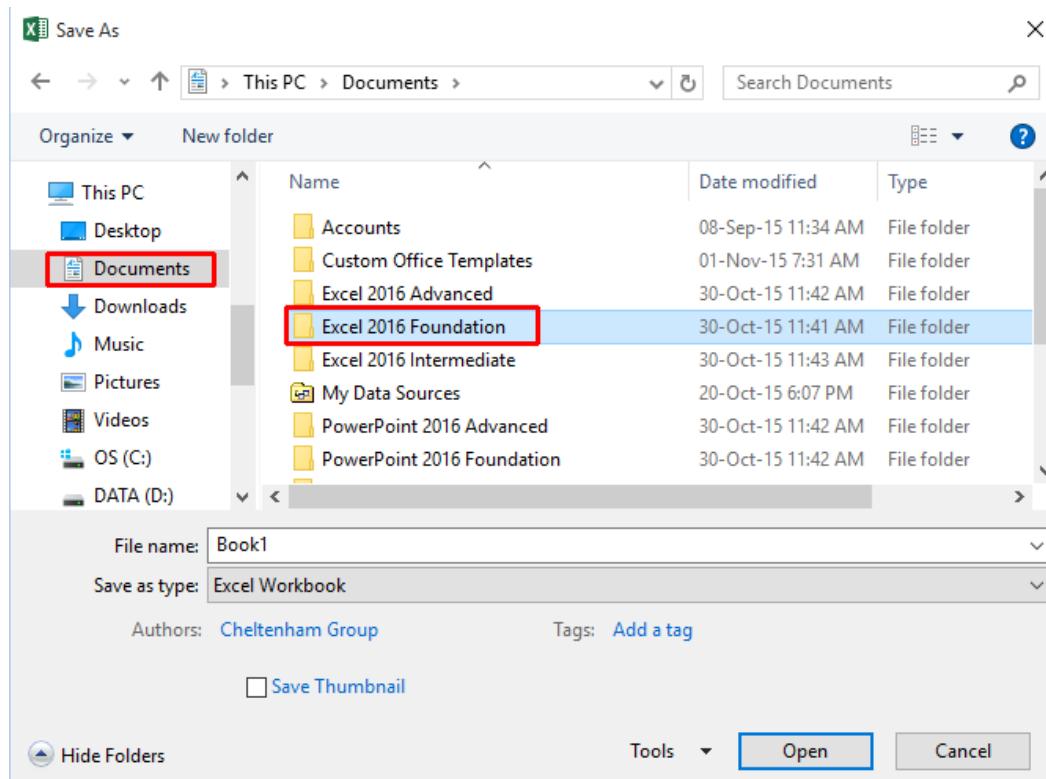
- In this case we want to save the file to our local hard disk on the computer.
- Click on the **This PC** item.



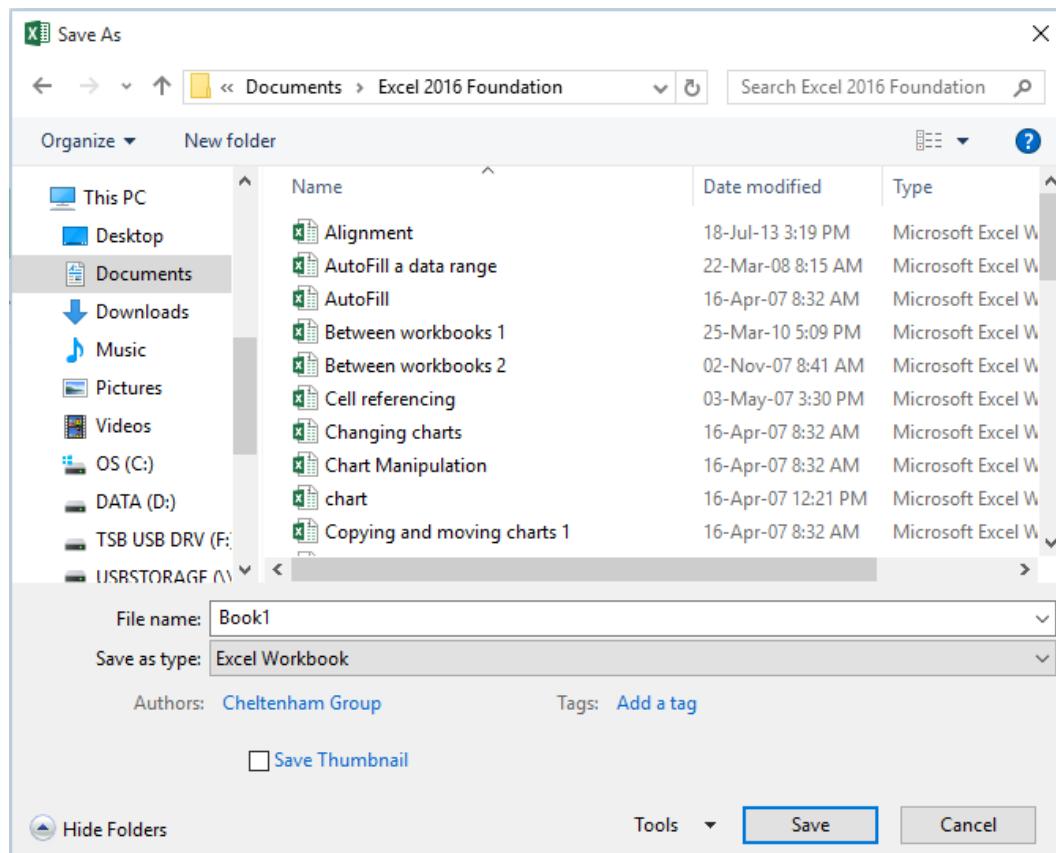
- In this case we need to save the file to a folder called **Excel 2016 Foundation**, which is located as a subfolder, under the **My Documents** folder.
- Click on the **Browse** button.



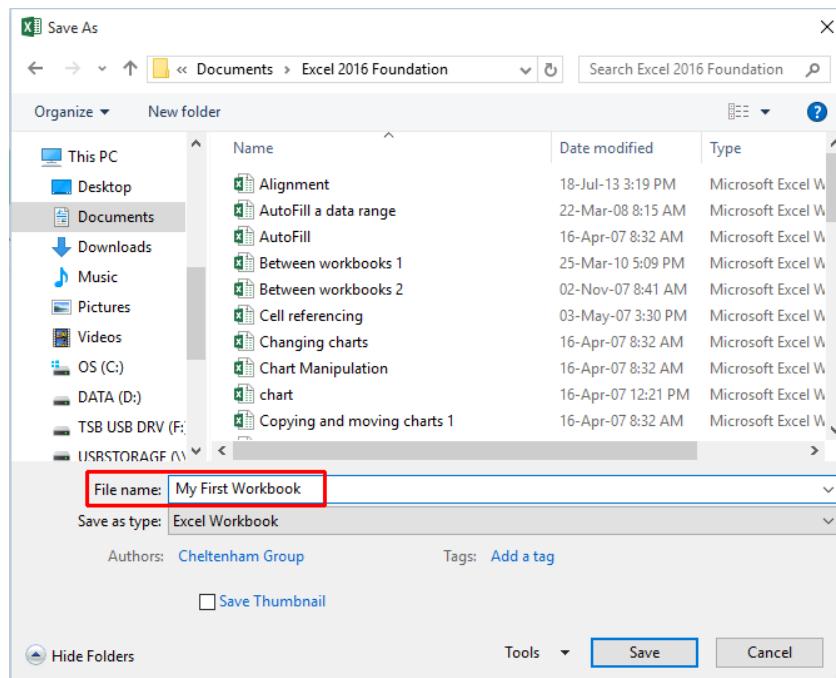
- This will display the **Save As** dialog box.



- Within the left side of the dialog box, make sure that **Documents** is selected.
- Within the right section of the dialog box, if necessary, scroll down until you see a folder called **Excel 2016 Foundation**.
- Double click on the **Excel 2016 Foundation** folder.



- Click within the **File name** section of the dialog box to name the file. In this case use the file name **My First Workbook**.

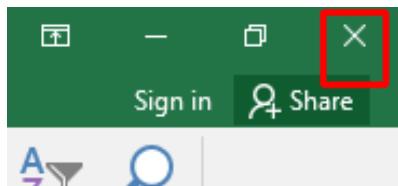


- Click on the **Save** button to save the file to disk.

## Closing a workbook

---

- To close the workbook, click on the **Close** (top-right of your screen).



- The workbook will close and also close the Excel program

## Creating a new workbook

---

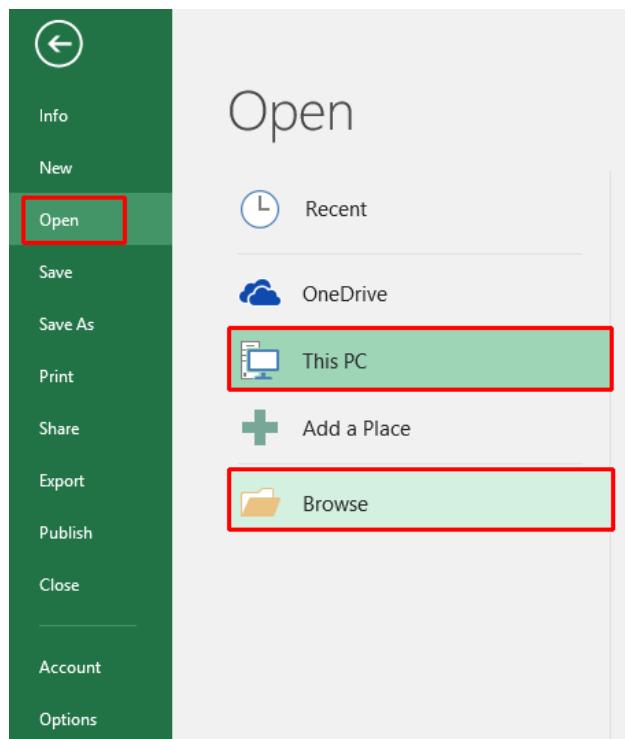
- Start the Excel program.
- Press **Ctrl+N** which is the keyboard shortcut to create a new blank workbook.
- Type in your **Second Name** in to cell **A1**.
- Save the file within the **Excel 2016 Foundation** folder using the name **My Second Workbook**.
- Close your workbook and if necessary close Excel.

## Opening a workbook

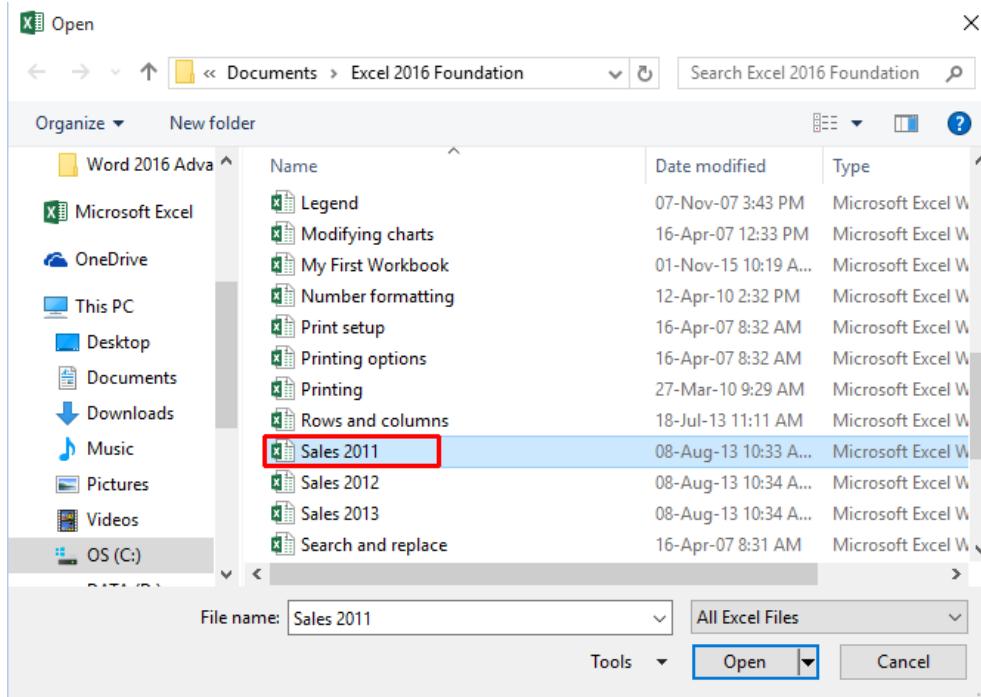
---

- Start the Excel program.
- Press **Ctrl+O** which is the keyboard shortcut to open an existing file.

Or click on the **File Tab** (top-left) and then click on the **Open** command.



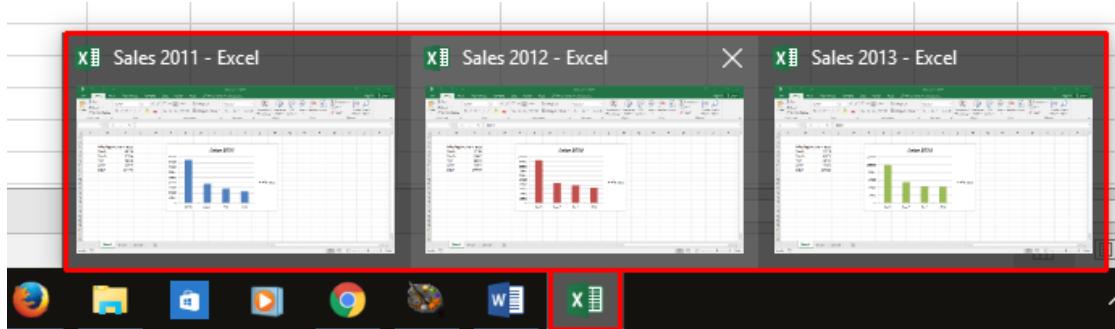
- Click on the **Computer** link and then click on the **Browse** button. This will display the **Open** dialog box. Navigate to the folder called **Excel 2016 Foundation**, (under the **Documents** folder), containing your sample files.
- Select a file called **Sales 2011**, and then click on the **Open** button to open the workbook.



- Open the workbook called **Sales 2012** and also a workbook called **Sales 2013**. You now have three open workbooks.

## Switching between workbooks

- To switch to a particular Excel workbook, click on the Excel workbook icon displayed within the Windows **Taskbar** (across the bottom of the screen). From the popup list displayed select the required wordbook.

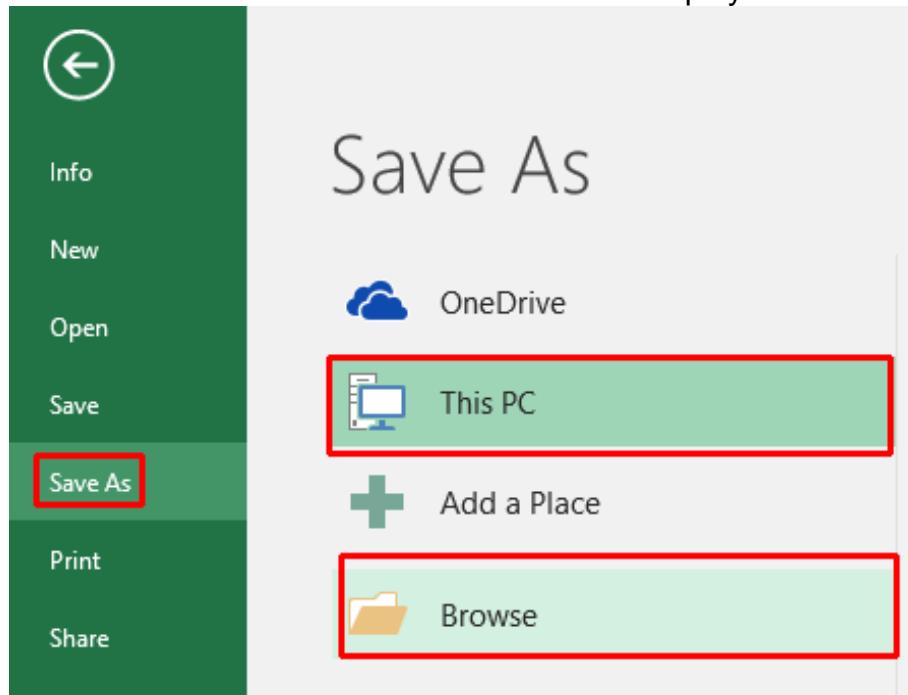


**TIP:** You can use the **Alt+Tab** keyboard shortcut to switch between open programs.

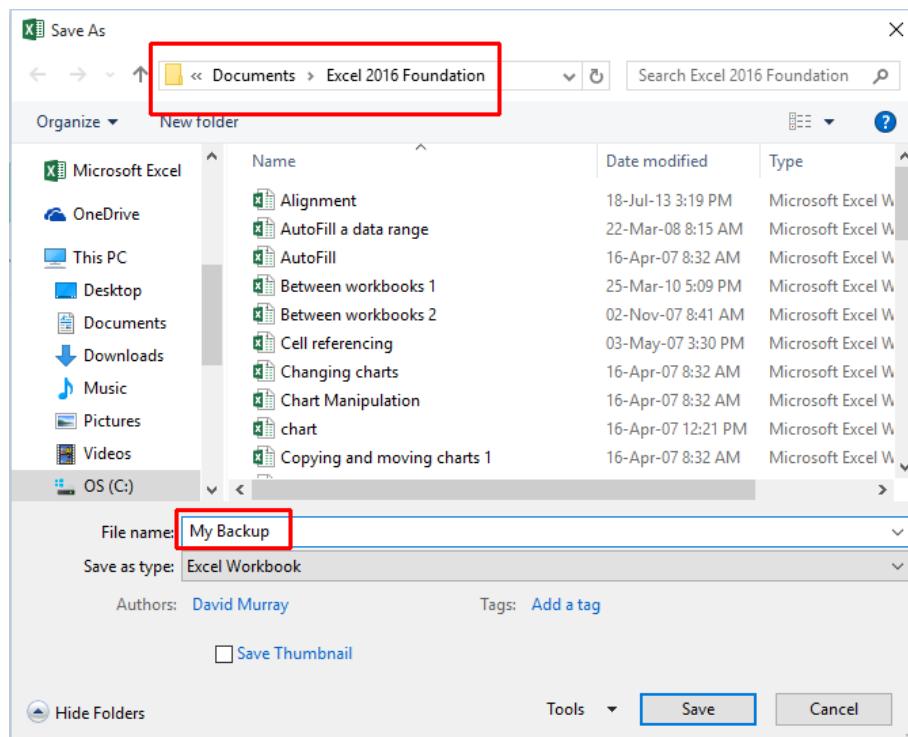
- Close all open workbooks.

## Saving a workbook using another name

- Open the workbook called **Sales 2011**. Click on the **File Tab** and then select the **Save As** command. The **Save As** screen is displayed. Select the **This PC**



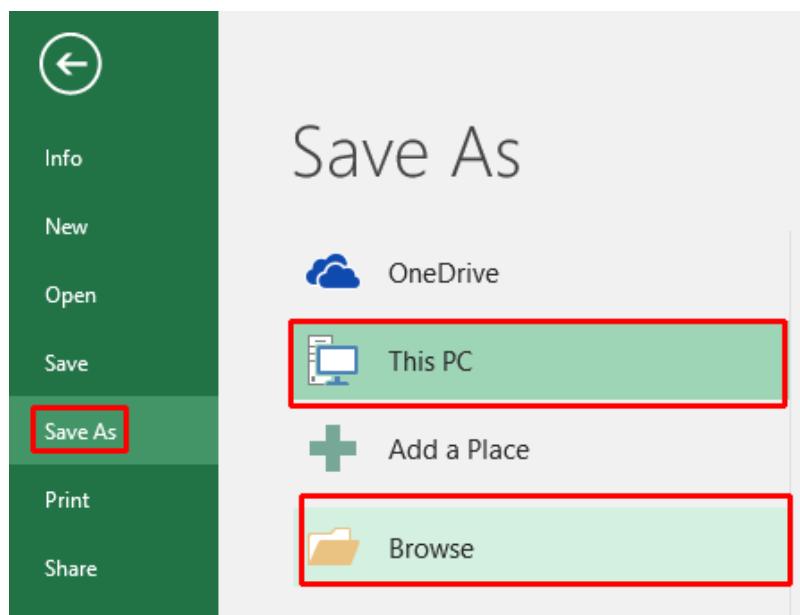
- The **Save As** dialog box will be displayed.



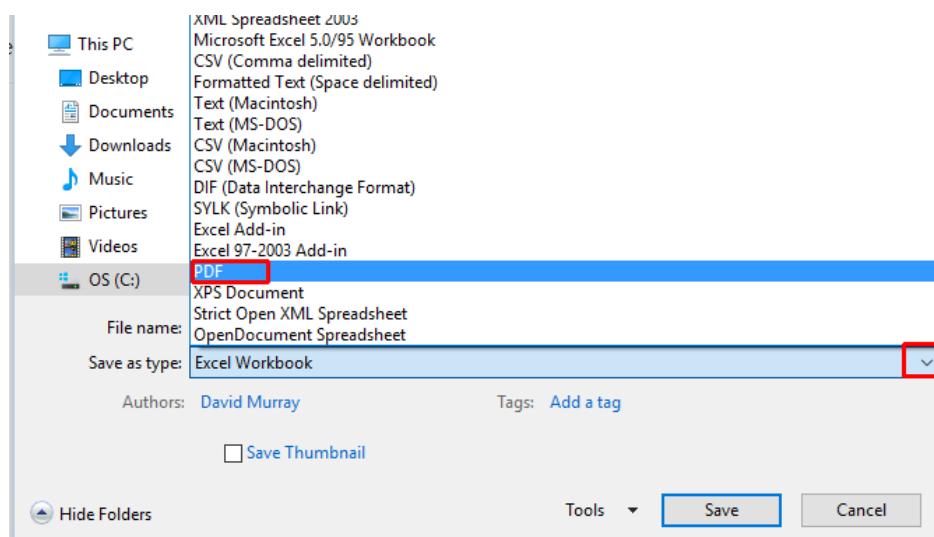
- In the **File name** section enter a new file name, in this case called **My Backup**.
- Click on the **Save** button. You now have two copies of the same file, both containing the same information. This can be useful for making backups of your data or for retaining copies of a workbook with different versions of the data in each file.

## Saving a workbook using a different file type

- Click on the **File Tab** and then select the **Save As** command. The **Save As** screen is displayed. Select the **This PC** link and then click on the **Browse** button.



- The **Save As** dialog is displayed. Click on the **down arrow** within the **Save as type** section of the dialog box. You can select the required file type from the drop down displayed. In this case select the PDF file format.



**TIP:** If you want to email a copy of an Excel 2016 workbook to someone that has an earlier version of Excel, such as Excel 2003, then you may need to save the file in the **Excel 97-2003 Workbook** file format.

Alternatively, people with earlier versions of Excel can download additional free software from Microsoft allowing them to open and view (but not necessary edit), files created using Excel 2016.

- Other commonly used file type options include:

**Text file:**

Saving your worksheet as a plain text file will remove all the formatting you have added to your worksheet (such as bold, italics & underlining). It will also remove any pictures or other features such as tables. Only plain text will be saved. Be very careful about using this option.

**Template:**

You normally save a workbook as a workbook file. You can however save a workbook as a template. This means that you can create new workbooks in the future; based on the templates you create.

**CSV file:**

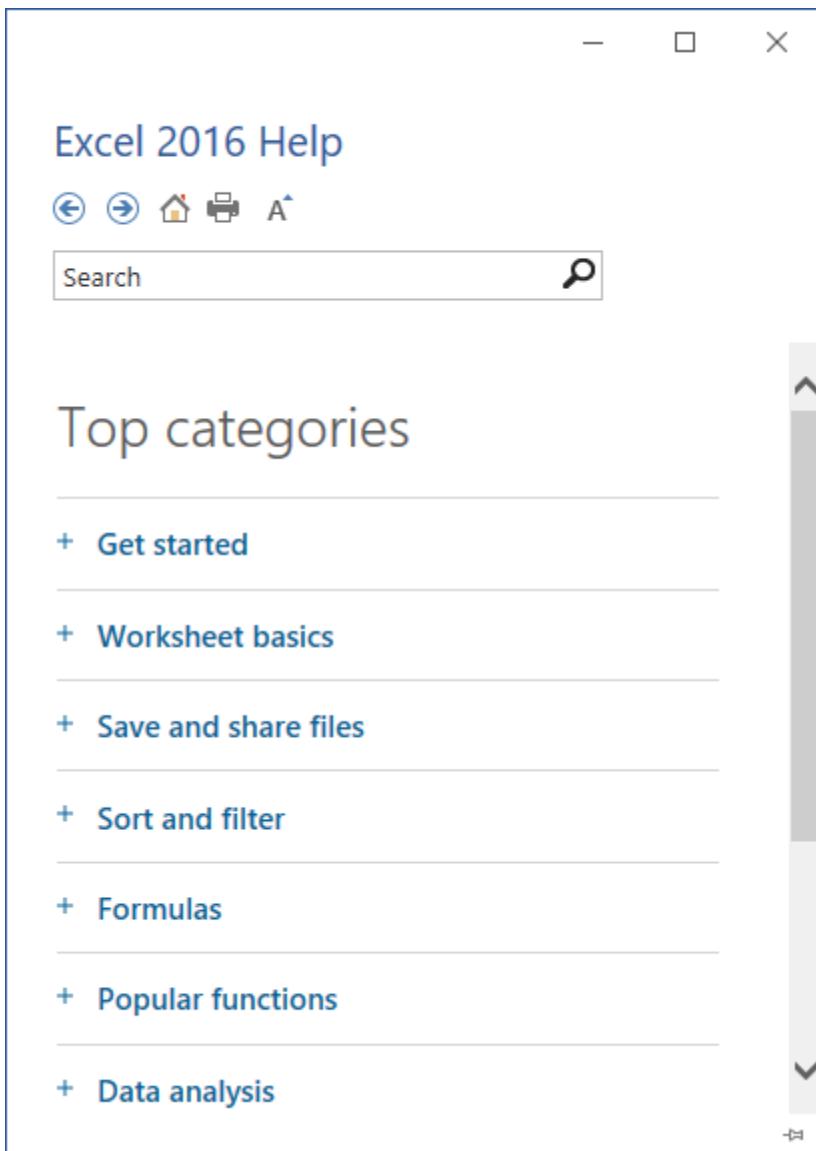
This saves table data in a form that can be used by other programs. It is short for Comma Separated Value.

- Close any open dialog boxes and close all open worksheets.

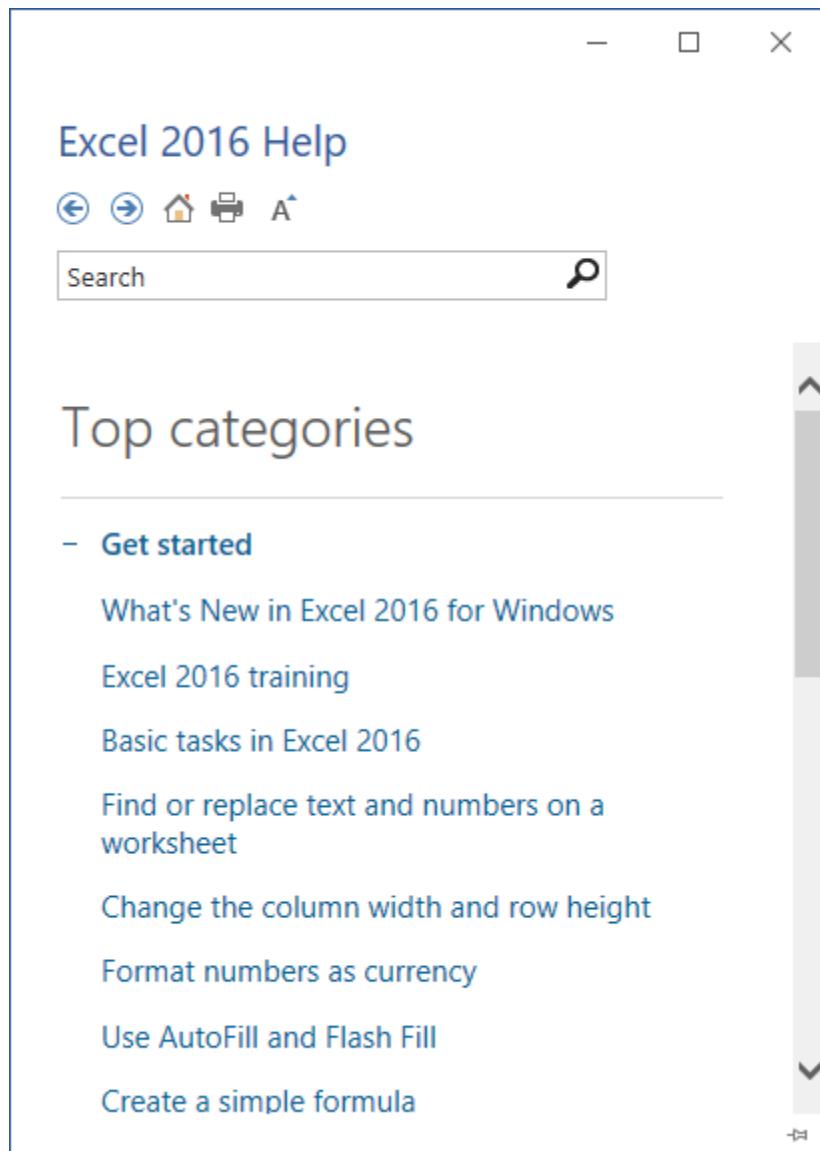
## Getting help within Excel 2016

---

- If necessary, restart Excel.
- Press **Ctrl+N** to create a new blank workbook.
- Press the **F1** help key and the **Excel Help** window is displayed.



- As you can see a wide range of help topics are displayed.
  - Click on the **Get Started** link. This will display the following information.
-



- Click on the **What's New in Excel 2016 for Windows** item. You will see the following.

The screenshot shows the 'Excel 2016 Help' window. At the top, there is a toolbar with icons for back, forward, home, print, and search, along with a search input field and a magnifying glass icon. The main content area features a large title 'What's new in Excel 2016 for Windows'. Below the title, a paragraph of text describes the new features. A smaller section titled 'Six new chart types' is shown with a brief description. The window has scroll bars on the right side.

- As you can see you can see details of new and enhanced features within Excel.
- Spend a little time investigating the new features of Excel 2016.
- When you have finished experimenting, close the **Excel Help** window.

### Searching for online help

- You can search for help on a topic of particular interest. Press **F1** to display the **Excel Help** window. Within the text box near the top of the Excel Help window, type in a word or words relating to the help you need. For instance, to display help about printing, type in the word '**printing**'.
- Click on the **Search** button next to the text input box. You will see a range of topics related to printing. Clicking on any of these topics will display more information about printing.

The screenshot shows the Microsoft Excel Help window titled "Excel 2016 Help". A search bar at the top contains the text "printing". Below the search bar, there is a list of articles related to printing:

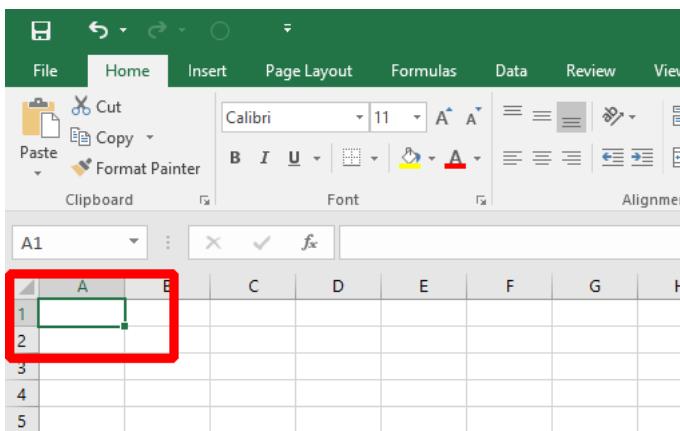
- [Print gridlines in a worksheet](#)  
Print gridlines in a worksheet. By default, gridlines don't appear on a printed Microsoft Excel worksheet or workbook. This article describes how you can make the ...
- [Cancel printing](#)  
Cancel printing. You've started a print job, but you want to cancel it. You can attempt to stop printing either directly from Excel or from Windows.
- [Print a worksheet or workbook](#)  
Print a worksheet or workbook. You can print Microsoft Excel worksheets and workbooks one at a time, or several at one time. You can also print a partial worksheet ...
- [Quick start: Print a worksheet](#)  
Quick start: Print a worksheet. Before you print a worksheet, it's a good idea to preview it to make sure that it looks the way you want. ... Set printing options.
- [Print row and column headings](#)  
Print row and column headings. By default, Microsoft Excel does not print the column headings

- Investigate some of the options displayed.
- Close the **Excel Help** window when you have finished experimenting.

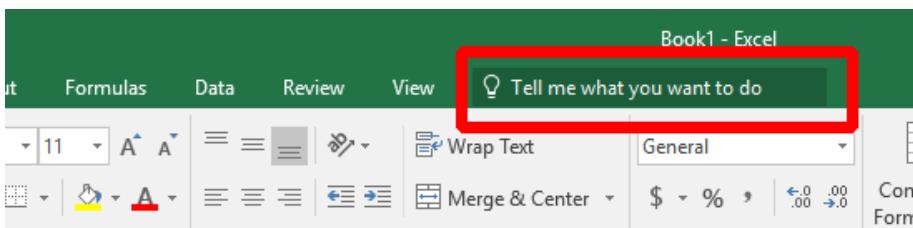
## Tell Me Help

---

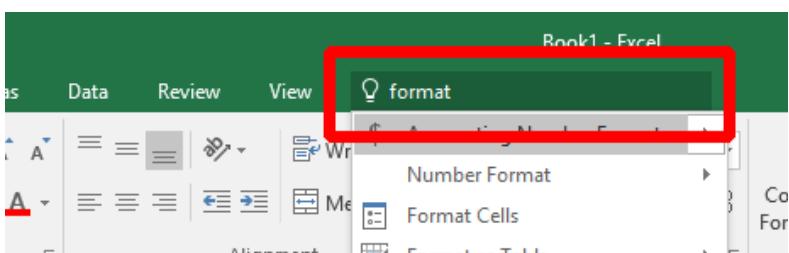
- Click within the very first cell in the Excel table.



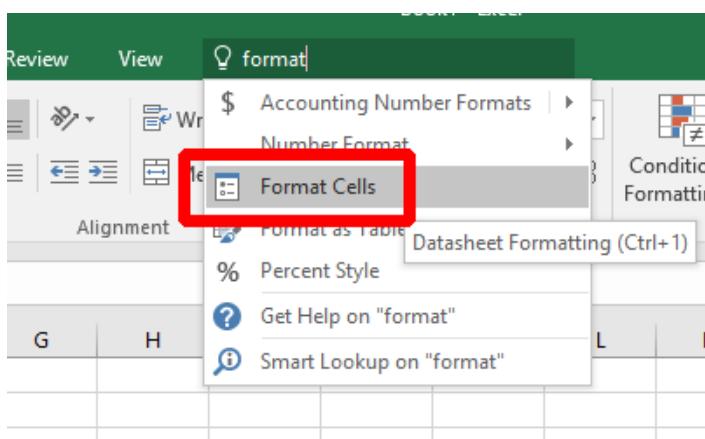
- Enter the number **99**.
- Now let's say you wanted to format the number to display two decimal places, but weren't quite sure how to do this.
- You will see the **Tell me what you want to do** box displayed within the Ribbon.



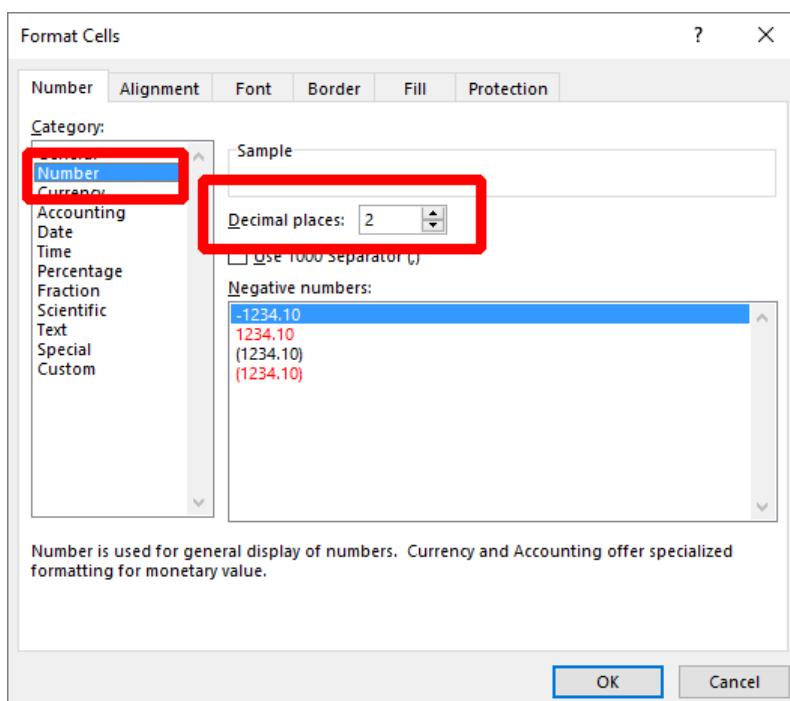
- Type the word **Format** into the **Tell Me** box.



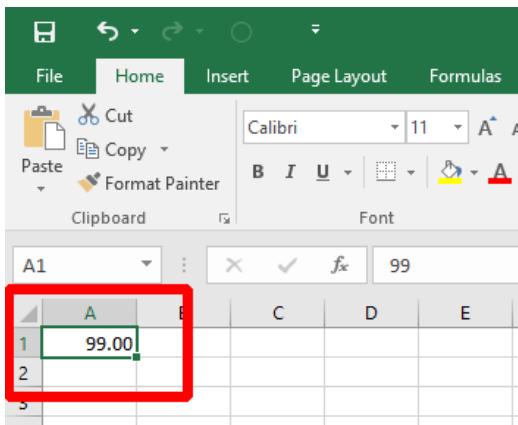
- Select the **Format Cells** option from the drop down displayed.



- Instead of just displaying a box containing help information, Excel automatically opens the dialog box you need to allow you to format the cells.
- Within the **Category** section, click on **Number**.
- Within the **Decimal Places** section, click on **2**.
- 



- Click on the **OK** button to apply 2 decimal place formatting to the number you typed in, as illustrated.



- Close any open workbooks without saving your changes.

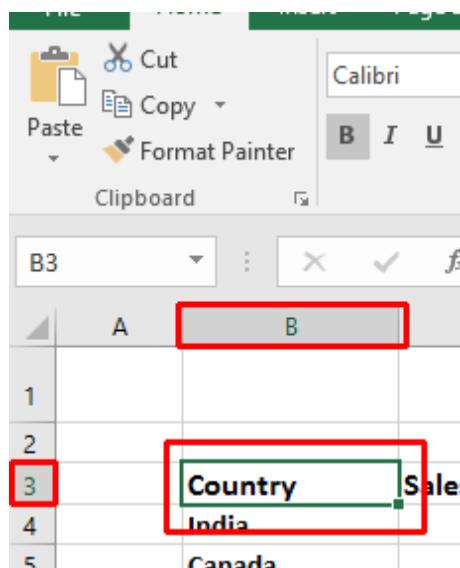
# Excel 2016 Selection techniques

## Why are selection techniques important?

- Often when you want to do something within Excel you need to select an item first. This could involve selecting a cell or multiple cells. You may need you to select a row, a column or even the entire table.

## Selecting a cell

- Open a workbook called **Selection techniques**. To select a cell simply click on that cell. Thus to select cell **B3**, click on cell **B3**.



## Selecting a range of connecting cells

- We want to select the cells from **C3** to **G3**. To do this click on the first cell within the range, i.e. **C3**. Then press down the **Shift** key (and keep it held down). Click on cell **G3**. When you release the **Shift** key the cell range will remain selected, as illustrated.

Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
India	102	129	189	192	201
Canada	98	120	121	132	143
	109	110	109	102	94

### Selecting a range of non-connecting cells

- Sometimes we need to select multiple cells that are not next to each other, as in the example below, where **C3**, **E3** and **G3** have been selected.

Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
India	102	129	189	193	201
Canada	98	120	121	132	143

To do this click on the first cell, i.e. **C3**. Then while keeping the **Ctrl** key pressed click on the cells **E3** and **G3**. When you release the **Ctrl** key the cells will remain selected.

### Selecting the entire worksheet

- To select the entire worksheet, click on the intersection between the column and row referencing numbers (or press **Ctrl+A**).

	A	B	C
1			
2			
3	<b>Country</b>	<b>Sales 2009</b>	<b>Sales 2010</b>
4	India	102	
5	Canada	98	
6	USA	109	
7	United Kingdom	109	

## Selecting a row

---

- To select a row, say the row relating to **Canada**, click on the relevant row number displayed down the left side of the worksheet.

	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
1						
2						
3	<b>Country</b>	<b>Sales 2009</b>	<b>Sales 2010</b>	<b>Sales 2011</b>	<b>Sales 2012</b>	<b>Sales 2013</b>
4	India	102	129	189	193	201
5	Canada	98	120	121	132	143
6	USA	109	110	109	102	94
7	United Kingdom	92	99	98	95	85
8	Australia	92	95	96	92	93
9	New Zealand	32	43	54	74	84
10	China	96	102	112	102	149
11	Pakistan	24	34	43	54	73
12	Mexico	12	24	20	23	32

- The selected row will look like this.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	96	102	112	102	149	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	

### Selecting a range of connecting rows

- To select the rows relating to Canada, USA, UK and Australia. First click on the row number next to **Canada** (i.e. 5). Press down the **Shift** key and keep it pressed. Click on the row number relating to **Australia** (i.e. 8). When you release the **Shift** key the multiple rows remain selected.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	96	102	112	102	149	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	

### Selecting a range of non-connected rows

- Click on the row number 3 and press down the **Ctrl** key. Click on row number 5, then row number 7 and finally number 9. Release the **Ctrl** key and the rows will remain selected.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	96	102	112	102	149	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	

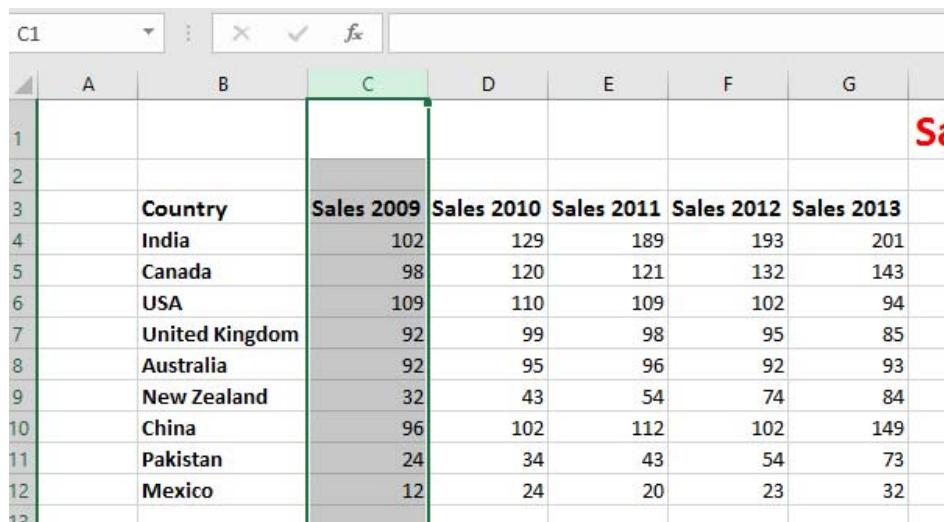
## Selecting a column

---

- To select the column containing data relating to **2009**, click on the column header C, as illustrated.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	96	102	112	102	149	

- The selected column will look like this.

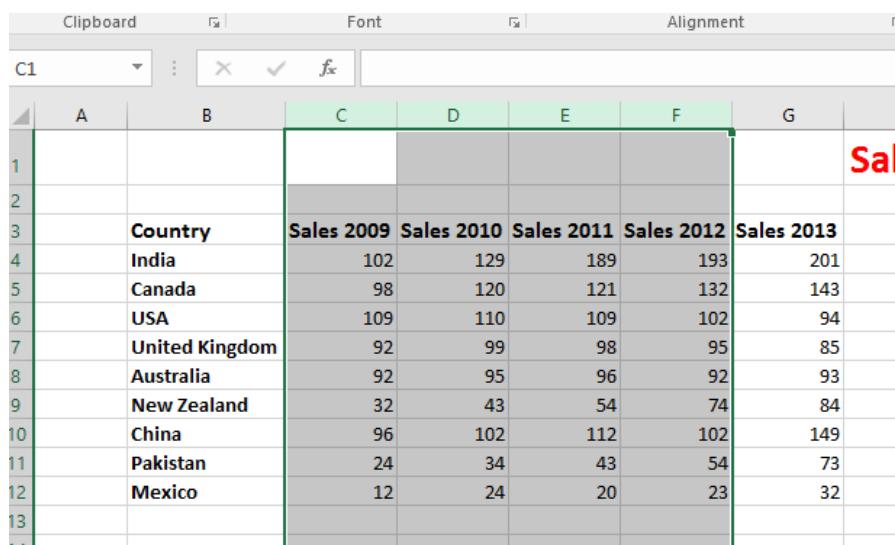


A screenshot of an Excel spreadsheet. Column C is highlighted with a green border. The data starts at row 3 with the header "Country" and continues through row 13 with the entry "Mexico". The columns are labeled "Sales 2009" through "Sales 2013". A red "Sa" is written in the empty cell at the top right of the grid.

	A	B	C	D	E	F	G
1							
2							
3	Country		Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India		102	129	189	193	201
5	Canada		98	120	121	132	143
6	USA		109	110	109	102	94
7	United Kingdom		92	99	98	95	85
8	Australia		92	95	96	92	93
9	New Zealand		32	43	54	74	84
10	China		96	102	112	102	149
11	Pakistan		24	34	43	54	73
12	Mexico		12	24	20	23	32
13							

### Selecting a range of connecting columns

- To select the columns relating to the sales figures for **2009-2012**, first select column **C**. Press the **Shift** key and while keeping it pressed select column **F**. When you release the **Shift** key the columns will remain selected.

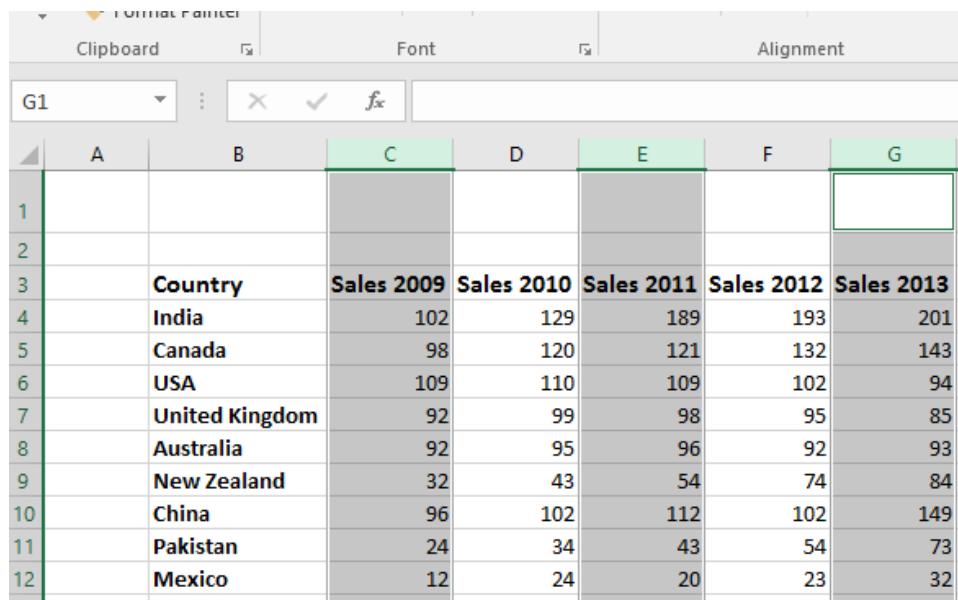


A screenshot of an Excel spreadsheet. Columns C through F are highlighted with a green border. The data starts at row 3 with the header "Country" and continues through row 13 with the entry "Mexico". The columns are labeled "Sales 2009" through "Sales 2013". A red "Sal" is written in the empty cell at the top right of the grid.

	A	B	C	D	E	F	G
1							
2							
3	Country		Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India		102	129	189	193	201
5	Canada		98	120	121	132	143
6	USA		109	110	109	102	94
7	United Kingdom		92	99	98	95	85
8	Australia		92	95	96	92	93
9	New Zealand		32	43	54	74	84
10	China		96	102	112	102	149
11	Pakistan		24	34	43	54	73
12	Mexico		12	24	20	23	32
13							

### Selecting a range of non-connecting columns

- To select the columns relating to **2009, 2011 and 2013**, first select the column **C**. Press the **Ctrl** key and keep it pressed. Select column **E** and then select column **G**. Release the **Ctrl** key and the columns remain selected.



	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	96	102	112	102	149	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	

- Close the workbook without saving any changes you may have made.

### Recommended techniques when creating or editing lists

- Each cell should contain the smallest data element. For instance, if you are storing a person's name, use one cell for the first name and another cell for the second name. This means that at a later date you could manipulate the data to sort by the second name. For the same reason split the details of an address into as many smaller parts as possible so that later you could search by state/region, by post code/zip code or even by country if you are maintaining an international list.
- The top row of your data will often contain the headers of each column. These are called field names.
- A list should not contain blank rows or columns within the data. This can cause problems when later sorting your data.
- Ensure that cells bordering your list are blank.
- If your data has a bottom row which contains totals, it is often a good idea to insert a blank line above the row of totals.

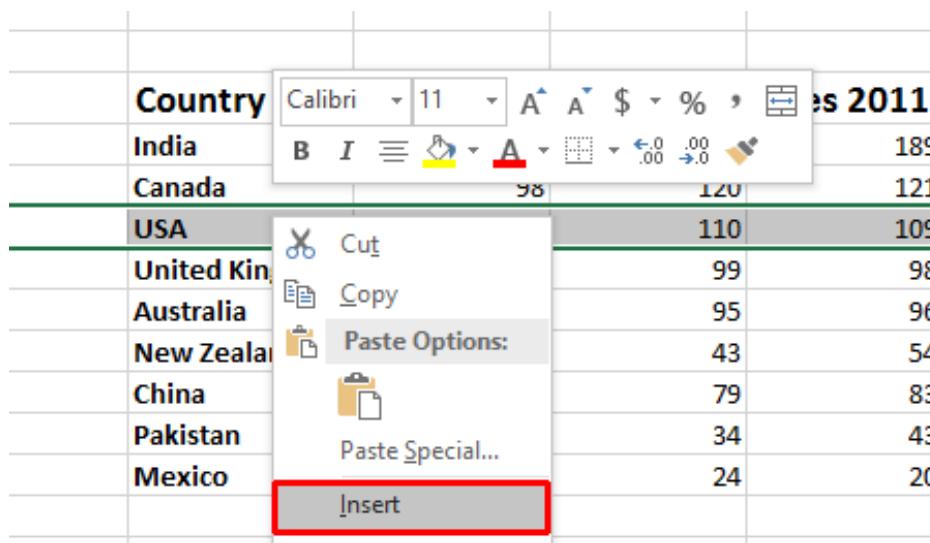
# Manipulating rows and columns within Excel 2016

## Inserting rows into a worksheet

- Open a workbook called **Rows and columns**. We need to insert a row for **Japan** between the row for **Canada** and the row for the **USA**. Select the row for the **USA**, as illustrated.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	67	79	83	88	93	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	

- Right click over the selected row and from the popup menu displayed select the **Insert** command.



- The table will now look like this.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6							
7	USA	109	110	109	102	94	
8	United Kingdom	92	99	98	95	85	
9	Australia	92	95	96	92	93	
10	New Zealand	32	43	54	74	84	
11	China	67	79	83	88	93	
12	Pakistan	24	34	43	54	73	
13	Mexico	12	24	20	23	32	
...							

- Click on cell **B6** and type in the word '**Japan**'. Enter the following sales figures for **Japan**.

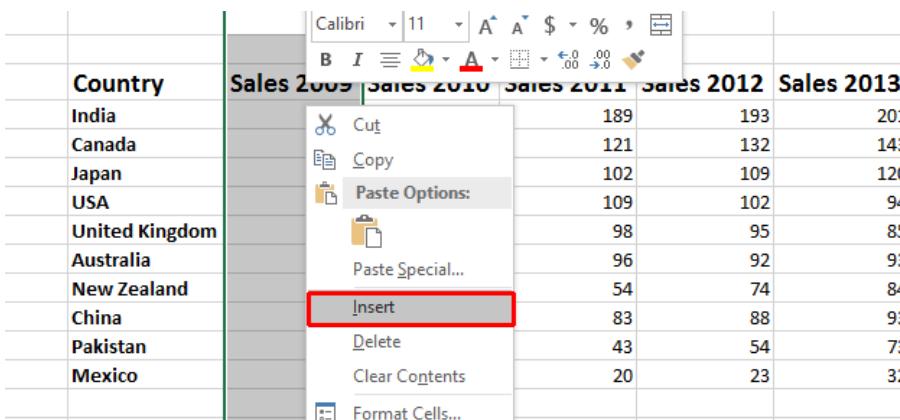
	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	Japan	89	93	102	109	120	
7	USA	109	110	109	102	94	
8	United Kingdom	92	99	98	95	85	
9	Australia	92	95	96	92	93	
10	New Zealand	32	43	54	74	84	
11	China	67	79	83	88	93	
12	Pakistan	24	34	43	54	73	
13	Mexico	12	24	20	23	32	

## Inserting columns into a worksheet

- We want to insert a column for sales figures in 2008, which needs to be inserted before the **2009** column. Select the column relating to **2009**, as illustrated.

	A	B	C	D	E	F	G
1							
2							
3		<b>Country</b>	<b>Sales 2009</b>	<b>Sales 2010</b>	<b>Sales 2011</b>	<b>Sales 2012</b>	<b>Sales 2013</b>
4		India	102	129	189	193	201
5		Canada	98	120	121	132	143
6		Japan	89	93	102	109	120
7		USA	109	110	109	102	94
8		United Kingdom	92	99	98	95	85
9		Australia	92	95	96	92	93
10		New Zealand	32	43	54	74	84
11		China	67	79	83	88	93
12		Pakistan	24	34	43	54	73
13		Mexico	12	24	20	23	32

- Right click over the selected column and from the popup menu displayed select the **Insert** command.



The screenshot shows a context menu open over the second column of the table. The menu includes options like Cut, Copy, Paste Options, Insert (which is highlighted with a red box), Delete, Clear Contents, and Format Cells. The table rows and columns are labeled with country names and sales figures for the years 2009 through 2013.

	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
	India			189	193	201
	Canada			121	132	143
	Japan			102	109	120
	USA			109	102	94
	United Kingdom			98	95	85
	Australia			96	92	93
	New Zealand			54	74	84
	China			83	88	93
	Pakistan			43	54	73
	Mexico			20	23	32

- The column will be inserted, as illustrated.

	A	B	C	D	E	F	G	H
1								
2								
3		<b>Country</b>		<b>Sales 2009</b>	<b>Sales 2010</b>	<b>Sales 2011</b>	<b>Sales 2012</b>	<b>Sales 2013</b>
4		India		102	129	189	193	201
5		Canada		98	120	121	132	143
6		Japan		89	93	102	109	120
7		USA		109	110	109	102	94
8		United Kingdom		92	99	98	95	85
9		Australia		92	95	96	92	93
10		New Zealand		32	43	54	74	84
11		China		67	79	83	88	93
12		Pakistan		24	34	43	54	73
13		Mexico		12	24	20	23	32

- Enter the following data into the column.

	A	B	C	D	E	F	G
1							
2							
3	Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India	93	102	129	189	193	201
5	Canada	103	98	120	121	132	143
6	Japan	50	89	93	102	109	120
7	USA	120	109	110	109	107	104
8	United Kingdom	93	92	99	98	96	94
9	Australia	25	92	95	96	97	98
10	New Zealand	105	32	43	54	65	76
11	China	92	67	79	83	91	97
12	Pakistan	56	24	34	43	52	61
13	Mexico	82	12	24	20	28	36

## Deleting rows within a worksheet

- Select the row relating to Canada.

	A	B	C	D	E	F	G	H
1								
2								
3	Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	93	102	129	189	193	201	
5	Canada	103	98	120	121	132	143	
6	Japan	50	89	93	102	109	120	
7	USA	120	109	110	109	107	104	

- Right click over the selected row and from the popup menu displayed select the Delete command.

Country	Calibri	11	A	\$	%			
India	B	I	A	£	€	¥	₹	₪
Canada	Cut							
Japan	Copy							
USA	Paste Options:							
United Kingdom								
Australia								
New Zealand								
China								
Pakistan								
Mexico	Delete							

- The row is deleted without any additional warning.

	A	B	C	D	E	F	G	H
1								
2								
3	Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	93	102	129	189	193	201	
5	Japan	50	89	93	102	109	120	
6	USA	120	109	110	109	102	94	
7	United Kingdom	93	92	99	98	95	85	
8	Australia	25	92	95	96	92	93	
9	New Zealand	105	32	43	54	74	84	
10	China	92	67	79	83	88	93	
11	Pakistan	56	24	34	43	54	73	
12	Mexico	82	12	24	20	23	32	

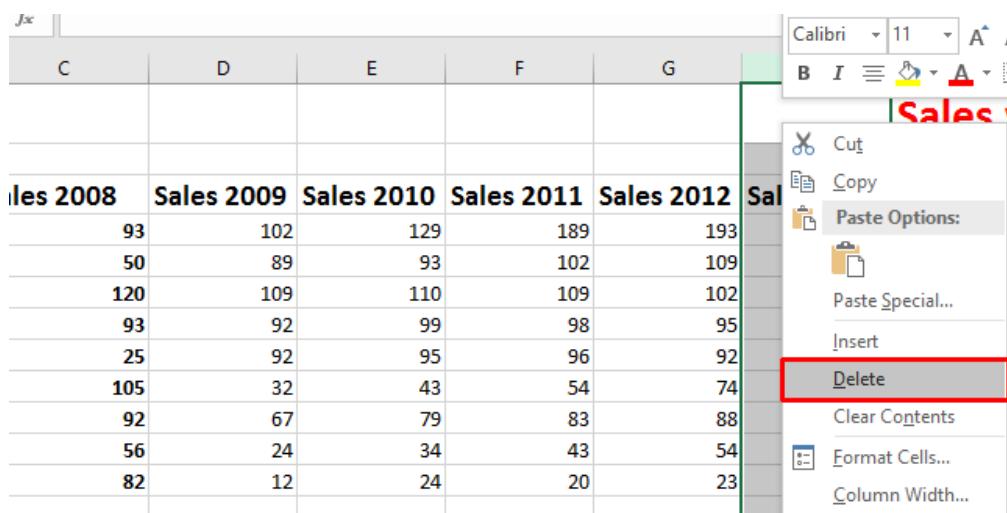
**TIP:** To delete multiple connected rows, use the **Shift** key trick to select multiple rows and then right click to delete the rows. To delete multiple non-connected rows, use the **Ctrl** key trick to select the multiple rows and then right click to delete the rows.

### Deleting columns within a worksheet

- Select the column relating to **Sales 2013**.

	A	B	C	D	E	F	G	H
1								
2								
3	Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013	
4	India	93	102	129	189	193	201	
5	Japan	50	89	93	102	109	120	
6	USA	120	109	110	109	102	94	
7	United Kingdom	93	92	99	98	95	85	
8	Australia	25	92	95	96	92	93	
9	New Zealand	105	32	43	54	74	84	
10	China	92	67	79	83	88	93	
11	Pakistan	56	24	34	43	54	73	
12	Mexico	82	12	24	20	23	32	

- Right click over the selected column and from the popup menu displayed select the **Delete** command.



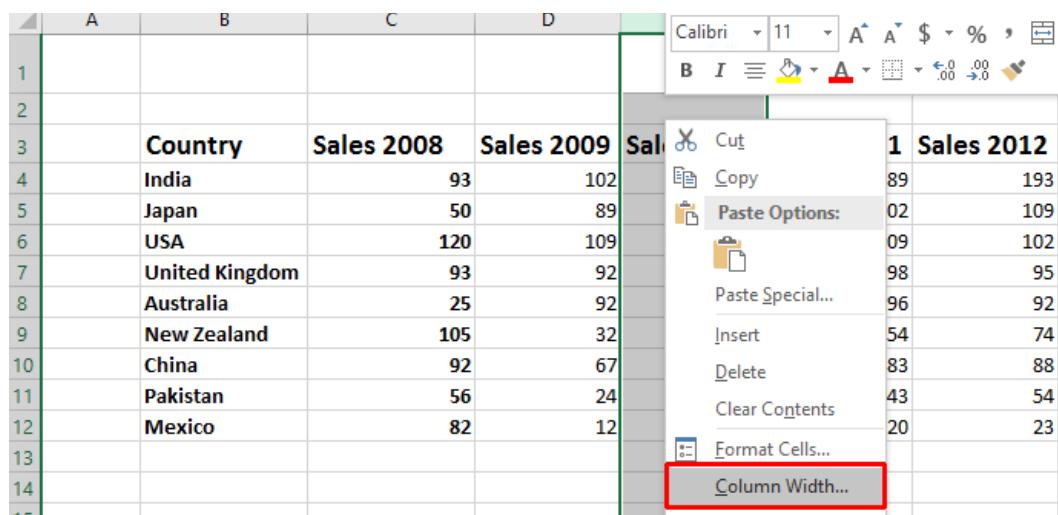
- The column is deleted without any additional warning.

A	B	C	D	E	F	G
1						
2						
3	Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012
4	India	93	102	129	189	193
5	Japan	50	89	93	102	109
6	USA	120	109	110	109	102
7	United Kingdom	93	92	99	98	95
8	Australia	25	92	95	96	92
9	New Zealand	105	32	43	54	74
10	China	92	67	79	83	88
11	Pakistan	56	24	34	43	54
12	Mexico	82	12	24	20	23

**TIP:** To delete multiple connected columns, use the **Shift** key trick to select multiple columns and then right click to delete the columns. To delete multiple non-connected columns, use the **Ctrl** key trick to select the multiple columns and then right click to delete the columns.

## Modifying column widths

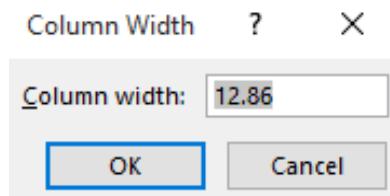
- Select a column, such as the **Sales 2010** column. Right click over the selected column and from the popup menu displayed select the **Column Width** command.



A screenshot of an Excel spreadsheet showing sales data for various countries across four years. The columns are labeled A through E. The context menu for column D is open, with the 'Column Width...' option highlighted by a red box.

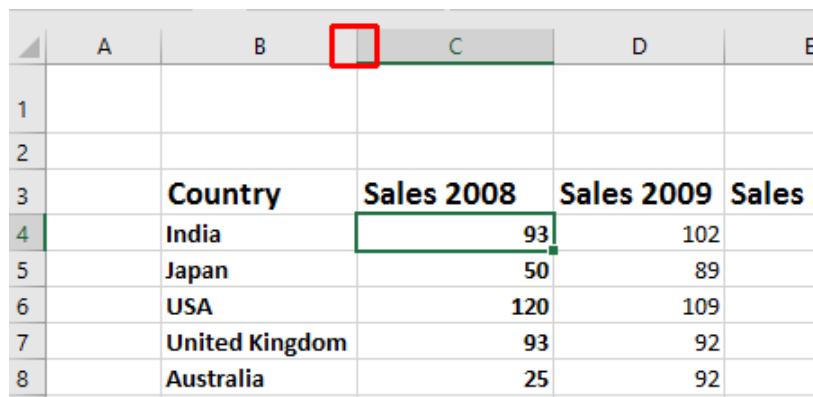
	A	B	C	D	E
1					
2					
3		<b>Country</b>	<b>Sales 2008</b>	<b>Sales 2009</b>	<b>Sales 2010</b>
4		India	93	102	115
5		Japan	50	89	98
6		USA	120	109	96
7		United Kingdom	93	92	74
8		Australia	25	92	54
9		New Zealand	105	32	43
10		China	92	67	54
11		Pakistan	56	24	20
12		Mexico	82	12	23
13					
14					

- The **Column Width** dialog box is displayed which allows you to set the column width. Within the dialog box displayed, enter a slightly larger value for the column width and then click on the **OK** button.



### Modifying column widths using 'drag and drop'

- Move the mouse pointer to the line between the header for **column B** and **column C**, as illustrated below.



A screenshot of an Excel spreadsheet showing sales data for five countries. The cursor is positioned over the vertical line between the B and C columns, indicating that the column width is being adjusted. Column B is highlighted with a green background.

	A	B	C	D	E
1					
2					
3		<b>Country</b>	<b>Sales 2008</b>	<b>Sales 2009</b>	<b>Sales 2010</b>
4		India	93	102	115
5		Japan	50	89	98
6		USA	120	109	96
7		United Kingdom	93	92	74
8		Australia	25	92	54

- Press the mouse button and keep it pressed.

The pointer changes to a black cross with double arrows when placed on the line

between two columns.

- Move the mouse pointer left or right to make the column narrower or wider. Release the mouse button and the column width will change as required.

### Automatically resizing the column width to fit contents

---

- Resize all the columns so that they are too narrow to properly display the data contained within the columns. Your screen will look similar to the illustration below.

A	B	C	D	E	F	G
1						Sa
2						
3	Country	Sales 2010	Sales 2011	Sales 2012	Sales 2013	Sales 2014
4	India	93	102	129	189	193
5	Japan	50	89	93	102	109
6	USA	120	109	110	109	102
7	United Kingdom	93	92	99	98	95
8	Australia	25	92	95	96	92
9	New Zealand	105	32	43	54	74
10	China	92	67	79	83	88
11	Pakistan	56	24	34	43	54
12	Mexico	82	12	24	20	23

- To automatically resize each column width to fit the contents, select all the columns containing data (i.e. column **B** to column **G**).

A	B	C	D	E	F	G
1						Sa
2						
3	Country	Sales 2010	Sales 2011	Sales 2012	Sales 2013	Sales 2014
4	India	93	102	129	189	193
5	Japan	50	89	93	102	109
6	USA	120	109	110	109	102
7	United Kingdom	93	92	99	98	95
8	Australia	25	92	95	96	92
9	New Zealand	105	32	43	54	74
10	China	92	67	79	83	88
11	Pakistan	56	24	34	43	54
12	Mexico	82	12	24	20	23

- Double click on the junction between one of the column headers within the selected columns.

A	B	C	D	E	F	G
Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012	
India	93	102	129	189	193	
Japan	50	89	93	102	109	
USA	120	109	110	109	102	
United Kingdom	93	92	99	98	95	

- The columns will automatically resize to accommodate the data within each column.

A	B	C	D	E	F	G
Country	Sales 2008	Sales 2009	Sales 2010	Sales 2011	Sales 2012	
India	93	102	129	189	193	
Japan	50	89	93	102	109	
USA	120	109	110	109	102	
United Kingdom	93	92	99	98	95	
Australia	25	92	95	96	92	
New Zealand	105	32	43	54	74	
China	92	67	79	83	88	
Pakistan	56	24	34	43	54	
Mexico	82	12	24	20	23	

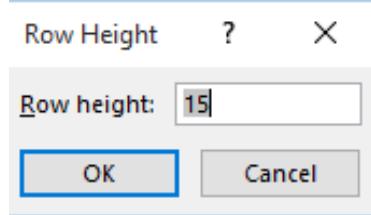
## Modifying row heights

---

- Select one or more rows and then right click over the selected row(s). From the popup menu displayed select the **Row Height** command.

	A	B	C	D
1				
2				
3		Count		
4		India		
5	Japan	50	89	
6	USA	20	109	
7	United	93	92	
8	Australi	25	92	
9	New Ze	05	32	
10	China	92	67	
11	Pakistan	56	24	
12	Mexico	82	12	
13				
14				
15				
16				
17				
18				

- The **Row Height** dialog is displayed allowing you to set the exact row height, as required.



**TIP:** If you click between any two row headers, you can drag the row height up or down as required, to modify the row height.

- Save your changes and close the workbook.

# Manipulating cells and cell content within Excel 2016

## Copying a cell or range contents within a workbook

- Open a workbook called **Copying moving and deleting**.
- Select a cell, range, row or column to copy. In this case select the range **B4** to **E4**.

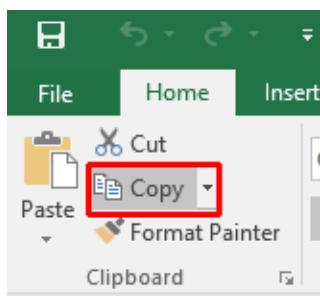
**TIP:** A range like this is often written as **B4:E4**.

Your screen will look something like this:

	A	B	C	D	E
1	<b>Stock Levels</b>				
2					
3					
4		Component number	Number in stock	Value each item	Total value in stock
5		100846	2	56.99	113.98
6		100332	0	28.38	0
7		100622	5	12.74	63.7
8		100847	2	32.99	65.98
9		100743	5	18.99	94.95
10		100934	1	12.99	12.99

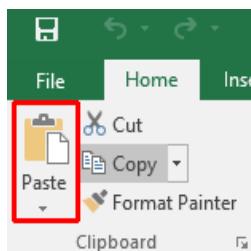
- Press **Ctrl+C** to copy the selected range to the Clipboard.

**TIP:** To copy a selected item to the Clipboard using the Ribbon, click on the **Home** tab and then click on the **Copy** icon in the **Clipboard** group on the **Ribbon**.



- Click at the location you wish to paste the data to. In this case click on cell **B14** and press the **Ctrl+V** keys to paste the data from the Clipboard.

**TIP:** To paste an item from the Clipboard using the Ribbon, click on the **Home** tab and then click on the **Paste** icon, in the **Clipboard** group on the **Ribbon**.



- Your data will now look like this.

Stock Levels				
	Component number	Number in stock	Value each item	Total value in stock
1	100846	2	56.99	113.98
2	100332	0	28.38	0
3	100622	5	12.74	63.7
4	100847	2	32.99	65.98
5	100743	5	18.99	94.95
6	100934	1	12.99	12.99
7				
8	Component number	Number in stock	Value each item	Total value in stock
9				

**TIP:** You can use the same technique to copy entire rows or columns. Pressing **Ctrl+A** will select everything within a worksheet and allow you to copy the entire worksheet contents to the Clipboard when you press **Ctrl+C**.

## Deleting cell contents

- Select the range that you wish to delete the contents of. In this case select the range **B10:E10**, as illustrated.

A	B	C	D	E
Stock Levels				
1	Component number	Number in stock	Value each item	Total value in stock
2	100846	2	56.99	113.98
3	100332	0	28.38	0
4	100622	5	12.74	63.7
5	100847	2	32.99	65.98
6	100743	5	18.99	94.95
7	100934	1	12.99	12.99

- Press the **Del** key and the cell contents will be deleted.

**TIP:** You can use the same technique to delete entire rows or column contents. Pressing **Ctrl+A** will select everything within a worksheet and allow you to delete the entire worksheet contents when you press the **Del** key.

## Moving the contents of a cell or range within a workbook

---

- Select the range you wish to move and then cut it to the Clipboard. In this case select the data, as illustrated. This is referred to as the range **B5:E9**.

A	B	C	D	E
1	<b>Stock Levels</b>			
2				
3				
4	Component number	Number in stock	Value each item	Total value in stock
5	100846	2	56.99	113.98
6	100332	0	28.38	0
7	100622	5	12.74	63.7
8	100847	2	32.99	65.98
9	100743	5	18.99	94.95

- Press the **Ctrl+X** keys to cut the selected data to the Clipboard.
- Click at the location you wish to move the selected data to, in this case click in cell **B15**, and press **Ctrl+V**, to paste the data.

A	B	C	D	E
1	<b>Stock Levels</b>			
2				
3				
4	Component number	Number in stock	Value each item	Total value in stock
5				
6				
7				
8				
9				
10	Component number	Number in stock	Value each item	Total value in stock
11	100846	2	56.99	113.98
12	100332	0	28.38	0
13	100622	5	12.74	63.7
14	100847	2	32.99	65.98
15	100743	5	18.99	94.95

**TIP:** You can use the same technique to move entire rows or columns.

---

- Save your changes and close the workbook.

## Editing cell content

---

- It is easy to edit existing data within a cell or to replace existing data within a cell. Open a workbook called **Editing**.
- Click on cell **B3**. Double click in front of the word '**Region**' and insert the word '**Sales**' followed by a space. Press the **Enter** key to commit your changes to the cell.

A	B	C	D
1			
2			
3	<b>Sales Region</b>	<b>2012</b>	<b>2013</b>
4	<b>North</b>	3847	4382
5	<b>South</b>	2847	3847
6	<b>East</b>	5437	6349
7	<b>West</b>	1847	2746

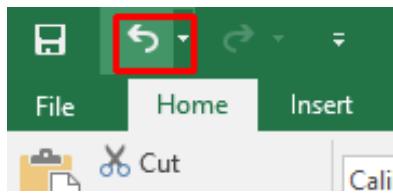
- Click on cell **B7**. Double click on the word '**West**', to select it and then over type the selected word with the word '**Central**'. Press the **Enter** key to commit your changes to the cell.

A	B	C	D
1			
2			
3	<b>Sales Region</b>	<b>2012</b>	<b>2013</b>
4	<b>North</b>	3847	4382
5	<b>South</b>	2847	3847
6	<b>East</b>	5437	6349
7	<b>Central</b>	1847	2746

## Undo and Redo

---

- Click on the **Undo** icon (top-left of your screen) to reverse the last action. Try it now.
-



- Click on the **Redo** icon (top-left of your screen) to reapply the last action. Try it now.



- Save your changes and close the workbook.

### **Copying data between worksheets (within the same workbook)**

---

- Open a workbook called **Worksheet manipulation**.
- Select a cell, range, row or column to copy. In this case select the range **B3:C8**. Your screen will look something like this:

	A	B	C
1	2013		
2			
3	Region	Sales	
4	Europe	727,463	
5	Africa	343,745	
6	Asia	283,174	
7	Australia	287,636	
8	America	831,173	

- Press **Ctrl+C** to copy the selected range to the Clipboard. Click on the second worksheet tab (called **Projections**).



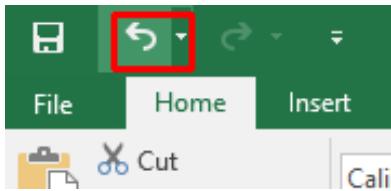
You will now see the contents of the second, empty worksheet displayed.

- Click at the location you wish to paste the data to. In this case click on cell **C4** and press the **Ctrl+V** keys to paste the data from the Clipboard. You have successfully copied selected data from one worksheet to another worksheet within the same workbook.

**BEFORE CONTINUING:** Click on the **Undo** icon to undo this copy.

The **Undo** icon is displayed towards the top-left of your screen.

Leave the workbook open and carry on to the next section.



## Moving data between worksheets (within the same workbook)

---

- Switch back to the first worksheet within the workbook called **Worksheet manipulation**.
- Select a cell, range, row or column to move. In this case select the range **B3:C8**. Your screen will look something like this:

	A	B	C
1		2013	
2			
3		Region	Sales
4		Europe	727,463
5		Africa	343,745
6		Asia	283,174
7		Australia	287,636
8		America	831,173

- Press **Ctrl+X** to cut (move) the selected range to the Clipboard.
- Click on the second worksheet tab (called **Projections**).



You will now see the contents of the second, empty worksheet displayed.

- Click at the location you wish to paste the data to. In this case click on cell **C4** and press the **Ctrl+V** keys to paste the data from the Clipboard. You have successfully moved selected data from one worksheet to another worksheet within the same workbook.

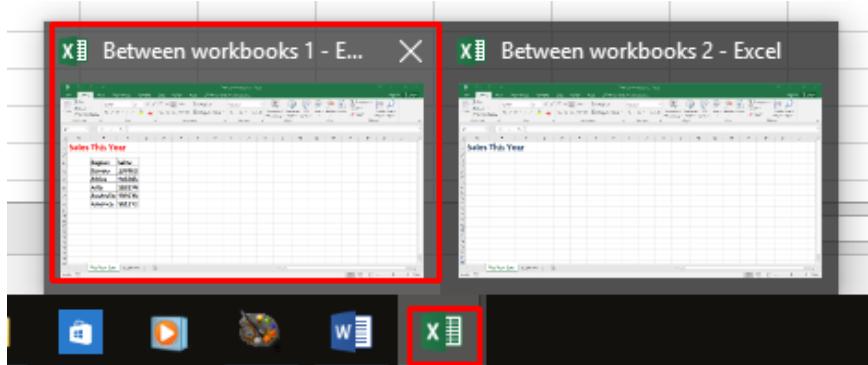
- Save your changes and close the workbook.

### Moving data worksheets (between different workbooks)

---

- Open a workbook called **Between workbooks 1**.
- Open a second workbook called **Between workbooks 2**.
- Display the contents of the **Between workbooks 1** workbook.

**NOTE:** To switch between multiple open workbooks, click on the **Excel** icon displayed within the Taskbar at the bottom of the screen and click on **Between Workbooks 1**.



- Within the **Between workbooks 1** workbook, select a cell, range, row or column to move. In this case select the range **B3:C8**. Your screen will look something like this:

	A	B	C
1	Sales This Year		
2			
3		Region	Sales
4		Europe	127463
5		Africa	943745
6		Asia	283174
7		Australia	987636
8		America	381173

- Press **Ctrl+X** to cut (move) the selected range to the Clipboard.
- Switch to the second workbook (called **Between workbooks 2**).
- Click at the location you wish to paste the data to. In this case click on cell **C4** and press the **Ctrl+V** keys to paste the data from the Clipboard. You have successfully moved selected data from one workbook to another workbook.

**NOTE:** You could have selected a different worksheet within the second workbook if you wanted.

Leave the workbook open and carry on to the next exercise.

### Copying data between worksheets (in different workbooks)

---

- Select the data in the second workbook.
- Press **Ctrl+C** to copy the selected data to the Clipboard.
- Switch back to the first workbook.
- Click where you wish to paste the data to.
- Press **Ctrl+V** to paste the data from the Clipboard.

You have now copied selected data from one workbook to another workbook.

- Close any open workbooks and save your changes.

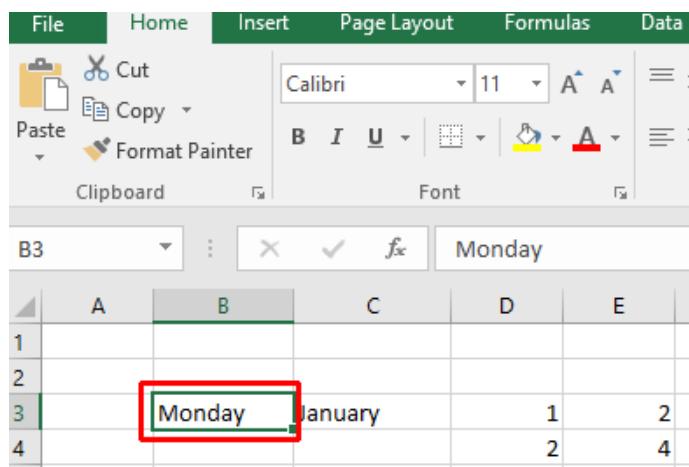
### AutoFill

---

- Open a workbook called **AutoFill**.

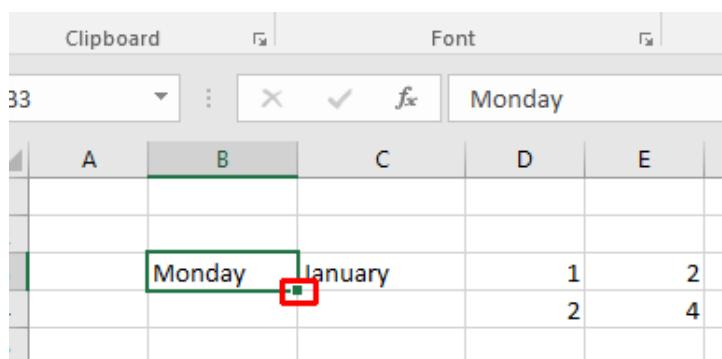
	A	B	C	D	E	F
1						
2					2	
3		Monday	January		1	2
4					2	4
5						
6						

- Click on cell **B3** which contains the word **Monday**.



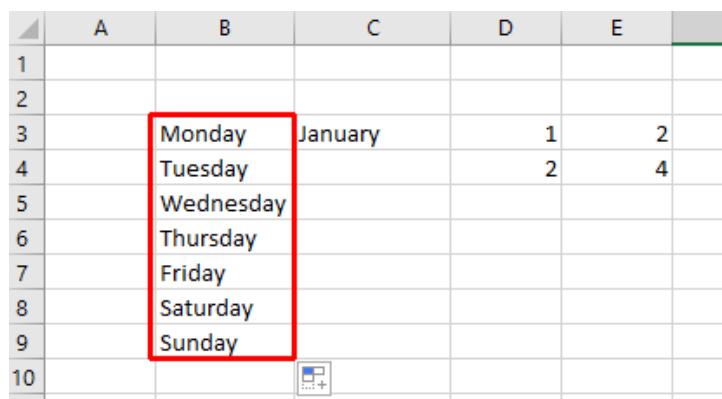
A	B	C	D	E
1				
2				
3	Monday	January	1	2
4			2	4

- Move the mouse pointer to the bottom-right corner of this cell and the mouse pointer shape will change to the shape of a small black cross.



A	B	C	D	E
1				
2				
3	Monday	January	1	2
4			2	4

When the mouse pointer changes shape, press the mouse button down, and while keeping it pressed move slowly down the page to cell **B7**. When you release the mouse button you will see that Excel has 'AutoFilled' the range you dragged across with days of the week.



A	B	C	D	E
1				
2				
3	Monday	January	1	2
4	Tuesday		2	4
5	Wednesday			
6	Thursday			
7	Friday			
8	Saturday			
9	Sunday			
10				

- Click on cell C3 which contains the word **January**.

		FILE	HOME	INSERT	PAGE LAYOUT	FORMULAS	DATA	
Cut	Copy	Paste	Format Painter	Font				
Clipboard								
C3								

January

A	B	C	D	E	F
1					
2					
3	Monday	January	1	2	
4	Tuesday		2	4	
5	Wednesday				
6	Thursday				
7	Friday				
8					
9					

- Use the AutoFill feature to automatically create a column containing all the months of the year.

A	B	C	D	E
1				
2				
3	Monday	January	1	2
4	Tuesday	February	2	4
5	Wednesday	March		
6	Thursday	April		
7	Friday	May		
8	Saturday	June		
9	Sunday	July		
10		August		
11		September		
12		October		
13		November		
14		December		

- Select the cell range D3:D4.

	A	B	C	D	E	F
1						
2						
3	Monday	January		1	2	
4	Tuesday	February		2	4	
5	Wednesday	March				
6	Thursday	April				
7	Friday	May				
8	Saturday	June				
9	Sunday	July				

- Use **AutoFill** to extend the series down the page. As you will see the series becomes **1,2,3,4,5,6,7** etc.

	A	B	C	D	E	F
1						
2						
3	Monday	January		1	2	
4	Tuesday	February		2	4	
5	Wednesday	March		3		
6	Thursday	April		4		
7	Friday	May		5		
8	Saturday	June		6		
9	Sunday	July		7		
10		August		8		
11		September		9		
12		October		10		
13		November		11		
14		December		12		

- Select the cell range **E3:E4**.

	A	B	C	D	E
1					
2					
3	Monday	January		1	2
4	Tuesday	February		2	4
5	Wednesday	March		3	

- Use **AutoFill** to extend the series down the page. As you will see the series becomes **2,4,6,8,10** etc.

	A	B	C	D	E
1					
2					
3		Monday	January	1	2
4		Tuesday	February	2	4
5		Wednesday	March	3	6
6		Thursday	April	4	8
7		Friday	May	5	10
8		Saturday	June	6	12
9		Sunday	July	7	14
10			August	8	16
11			September	9	18
12			October	10	20
13			November	11	22
14			December	12	24

- Save your changes and close the workbook.

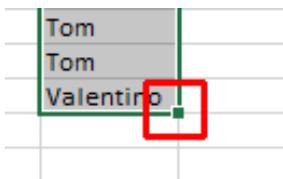
### Copying a data range using AutoFill

---

- Open a workbook called **AutoFill a data range**.
- Select the range **B2:B24**.

	A      B
1	
2	Name
3	Agustín
4	Amerigo
5	Birgit
6	Christa
7	Dennis
8	Enrique
9	Ernst
10	George
11	Girish
12	Hilda
13	Jan
14	Lou
15	Louis
16	Mallika
17	Mark
18	Nancy
19	Robert
20	Ruth
21	Susan
22	Tom
23	Tom
24	Valentino
25	

- Move the mouse pointer to the bottom-right corner of this range and the mouse pointer shape will change to the shape of a small black cross.



When the mouse pointer changes shape, press the mouse button down, and while keeping it pressed move slowly to the right, by two columns.

---

	A	B	C	D
1				
2		Name		
3		Agustín		
4		Amerigo		
5		Birgit		
6		Christa		
7		Dennis		
8		Enrique		
9		Ernst		
10		George		
11		Girish		
12		Hilda		
13		Jan		
14		Lou		
15		Louis		
16		Mallika		
17		Mark		
18		Nancy		
19		Robert		
20		Ruth		
21		Susan		
22		Tom		
23		Tom		
24		Valentino		

When you release the mouse button you will see that Excel has 'AutoFilled' the range you dragged across with data, as illustrated below.

	A	B	C	D	E
1					
2		Name	Name	Name	
3		Agustín	Agustín	Agustín	
4		Amerigo	Amerigo	Amerigo	
5		Birgit	Birgit	Birgit	
6		Christa	Christa	Christa	
7		Dennis	Dennis	Dennis	
8		Enrique	Enrique	Enrique	
9		Ernst	Ernst	Ernst	
10		George	George	George	
11		Girish	Girish	Girish	
12		Hilda	Hilda	Hilda	
13		Jan	Feb	Mar	
14		Lou	Lou	Lou	
15		Louis	Louis	Louis	
16		Mallika	Mallika	Mallika	
17		Mark	Mark	Mark	
18		Nancy	Nancy	Nancy	
19		Robert	Robert	Robert	
20		Ruth	Ruth	Ruth	
21		Susan	Susan	Susan	
22		Tom	Tom	Tom	
23		Tom	Tom	Tom	
24		Valentino	Valentin	Valentino	
25					

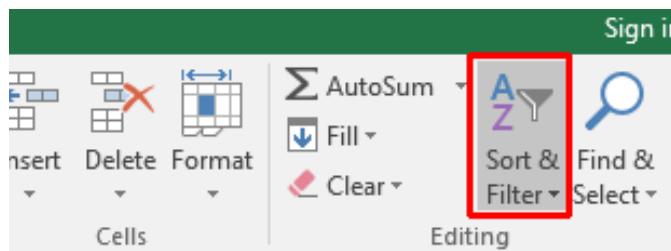
- Save your changes and close the workbook.

## Sorting a cell range

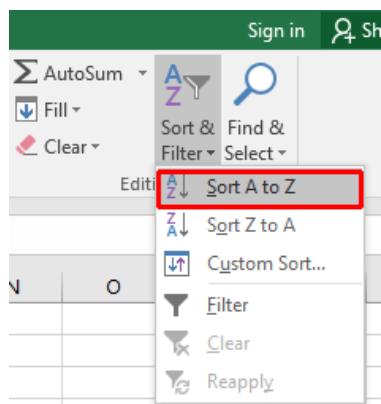
---

- Open a workbook called **Sorting**.
-

- The data within column **B** consists of text, while the data in column **C** consists of numbers.
- Click within the data contained within column **B** (for instance click on cell **B7**).
- Click on the **Home** tab and from within the **Editing** group click on the **Sort & Filter** button.



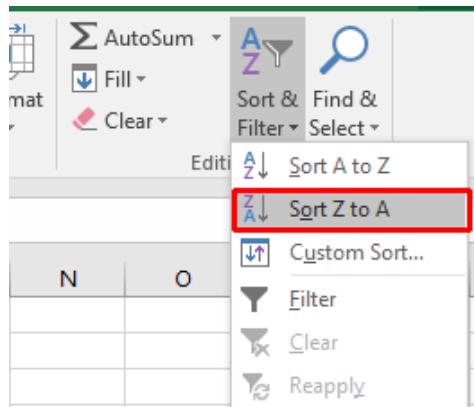
- Click on the **Sort A to Z** option.



- The data will be displayed as illustrated.

	A	B	C
1			
2			
3			
4	Countries	Value of Sales	
5	Australia	3281746	
6	Canada	2183721	
7	China	2917438	
8	India	1846276	
9	Ireland	2948183	
10	New Zealand	1019483	
11	Pakistan	1281637	
12	United Kingdom	2093627	
13	USA	4817423	
14			

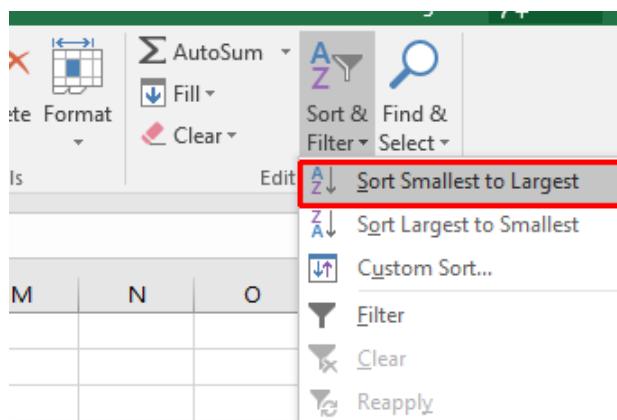
- Click on the 'Sort Z to A' option under the Sort & Filter button.



- The data will be displayed as illustrated.

	Countries	Value of Sales
5	USA	4817423
6	United Kingdom	2093627
7	Pakistan	1281637
8	New Zealand	1019483
9	Ireland	2948183
10	India	1846276
11	China	2917438
12	Canada	2183721
13	Australia	3281746

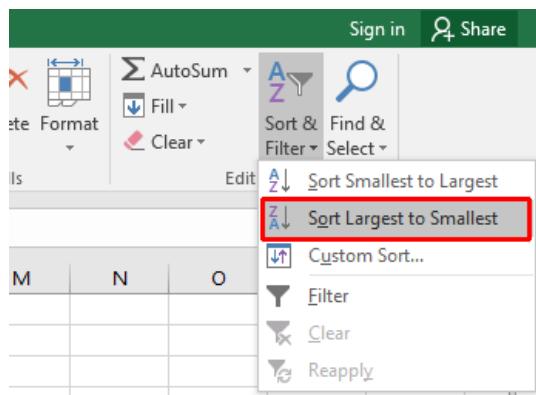
- Click within the data contained in column **C** (for instance click on cell **C8**).
- Click on the **Home** tab, and from within the **Editing** group click on the **Sort & Filter** button. From the drop down list displayed, click on the **Sort Smallest to Largest** option.



The data will be displayed as illustrated.

Countries	Value of Sales
New Zealand	1019483
Pakistan	1281637
India	1846276
United Kingdom	2093627
Canada	2183721
China	2917438
Ireland	2948183
Australia	3281746
USA	4817423

- Click on the 'Sort Largest to Smallest' option.



The data will be displayed as illustrated.

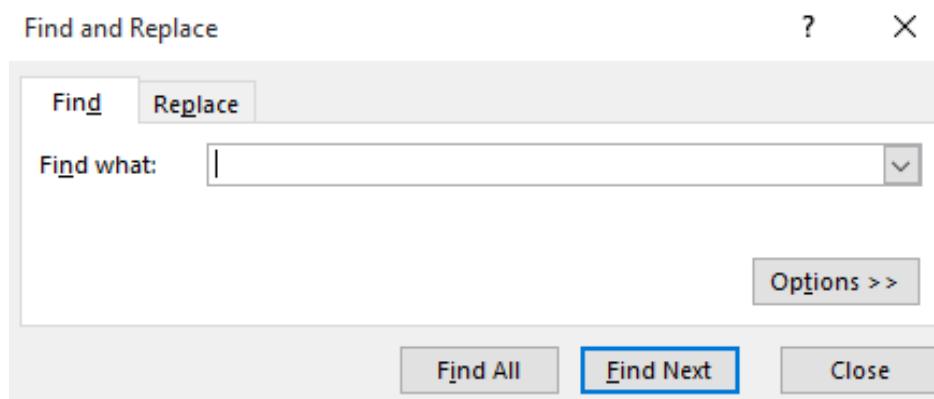
Countries	Value of Sales
USA	4817423
Australia	3281746
Ireland	2948183
China	2917438
Canada	2183721
United Kingdom	2093627
India	1846276
Pakistan	1281637
New Zealand	1019483

- Save your changes and close the workbook.

## Searching and replacing data

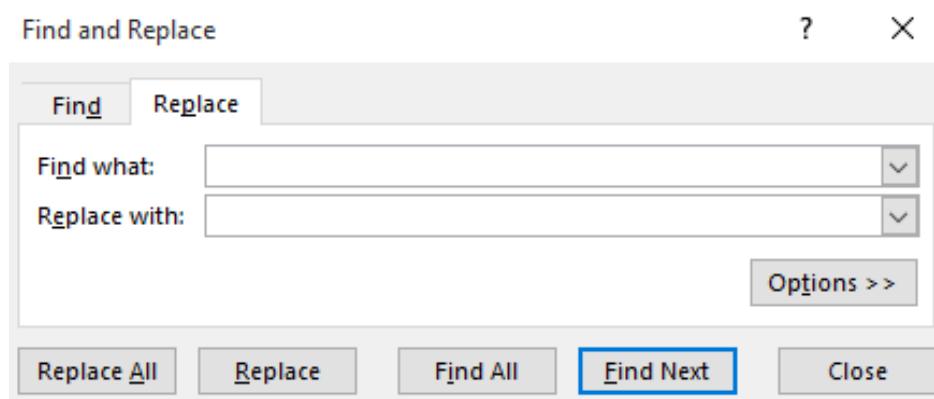
- Open a workbook called **Search and replace**.
- Press **Ctrl+F** to start the **Search** utility (or click on the **Home** tab, then click on the **Find & Select** icon, from the menu displayed select the **Find** command).

This will display the **Find and Replace** dialog box, as illustrated.



- Within the **Find what** section of the dialog box, enter the word '**Blue**'. Click on the **Find Next** button and you will find the next occurrence of the word Blue. Keep pressing on this button to find all occurrences within the worksheet.
- Click on the **Replace** tab within the **Find and Replace** dialog box.

**TIP:** Or use the keyboard shortcut **Ctrl+H**.



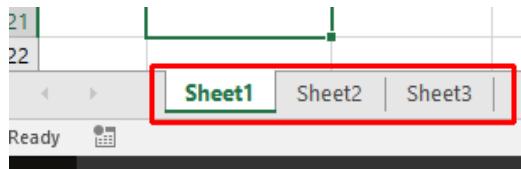
- Within the **Find what** section type in the word '**Blue**'.
- Within the **Replace with** section type in the word '**Purple**'.

- Click on the **Find Next** button and once found click on the **Replace** button. Carry on replacing all occurrence of the word **Blue** with the word **Purple**.
- Close the **Find and Replace** dialog box.
- Press **Ctrl+H** to display the **Find and Replace** dialog box, with the **Replace** tab already selected for you.
- Within the **Find what** section type in the word '**Red**'.
- Within the **Replace with** section type in the word '**Orange**'.
- Click on the **Replace All** button and all occurrences of the word **Red** will immediately be replaced by the word **Orange**.
- Save your changes and close the workbook.

# Excel 2016 Worksheets

## Switching between worksheets

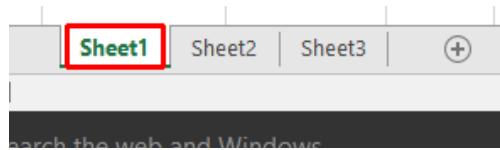
- Open a workbook called **Worksheets**.
- The worksheet tabs are displayed at the bottom-left of the Excel screen.



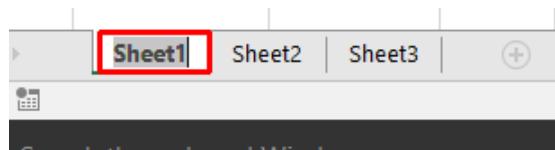
- To switch to another worksheet, click on the worksheet tabs.

## Renaming a worksheet

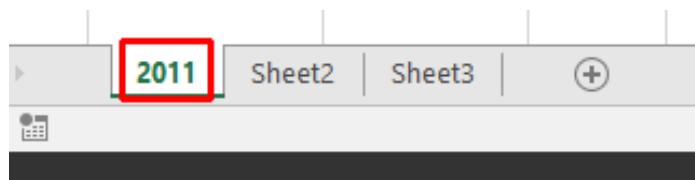
- Click on the **Sheet1** tab to display the first worksheet. Double click on the **Sheet1** tab.



- The worksheet tab will be highlighted and you will be able to type in a new name.



- In this case type in the name **2011** and then press the **Enter** key to confirm the change, as illustrated.



- Double click on the **Sheet2** tab and rename it **2012**.

- Double click on the **Sheet3** tab and rename it **2013**. Your tabs will now look like this:



## Recommended techniques with naming worksheets

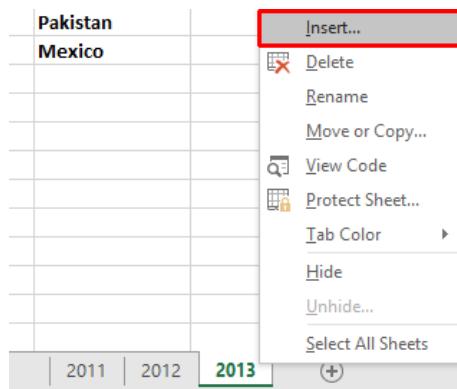
---

- By default, the worksheets are called **Sheet1**, **Sheet2** and **Sheet3**. You should use meaningful names for your worksheets, especially if you are using multiple worksheets within a workbook. This can make a complicated workbook much easier to understand.

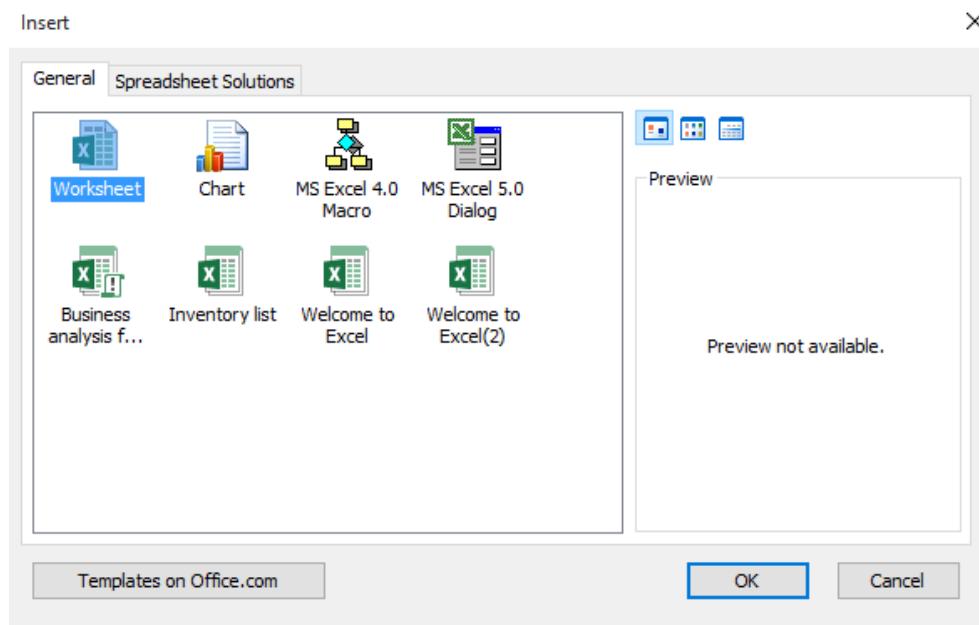
## Inserting a new worksheet

---

- Click on the **2013** worksheet tab to select it. Right click over the tab and from the popup menu displayed, click on the **Insert** command.



- The **Insert** dialog is displayed. Make sure that the **Worksheet** object is selected within the dialog box.

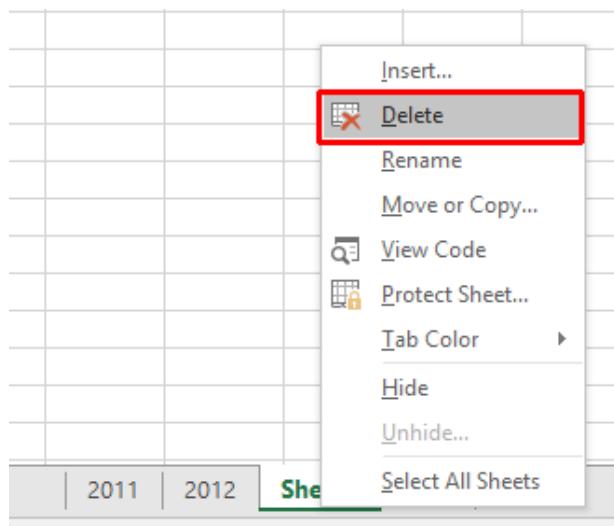


- Click on the **OK** button and a new worksheet will be inserted just before the selected worksheet, as illustrated.



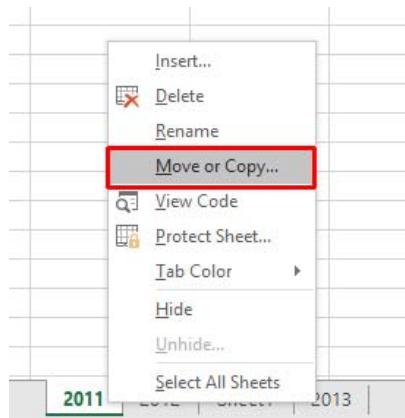
## Deleting a worksheet

- Make sure that the new tab that you have just inserted is selected. Right click on the tab and from the popup menu displayed select the **Delete** command. The new worksheet will be deleted.

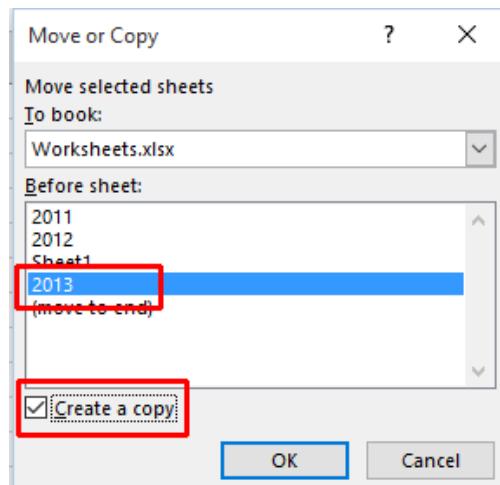


## Copying a worksheet within a workbook

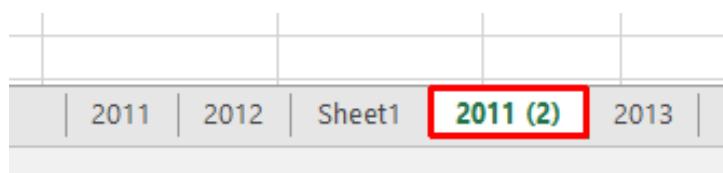
- Select the **2011** tab. Right click on the tab and from the popup menu displayed select the **Move or Copy** command.



- The **Move or Copy** dialog box is displayed. As we want to copy rather than move, click on the **Create a copy** check box. In the **Before sheet** section of the dialog box, select which worksheet you wish to insert the copy in front of. In this case select **2013**.



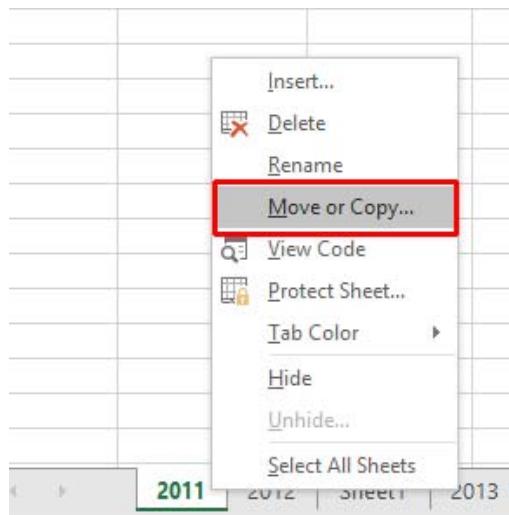
- When you click on the **OK** button a copy of the first worksheet will be inserted, as illustrated.



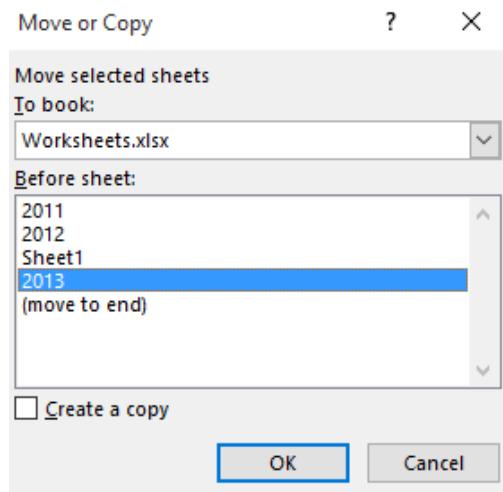
- Delete this copied worksheet before continuing.

### Moving a worksheet within a workbook

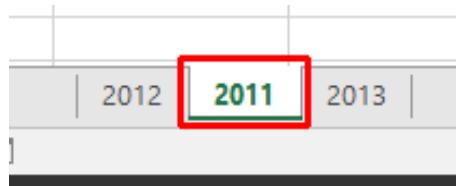
- Select the **2011** tab. Right click on the tab and from the popup menu displayed select the **Move or Copy** command.



- The **Move or Copy** dialog box is displayed. In the **Before sheet** section of the dialog box, select which worksheet you wish to insert the moved worksheet in front of. In this case select **2013**.



- When you click on the **OK** button the worksheet will be moved, as illustrated below.



- Before continuing, rearrange the worksheets in the original order.

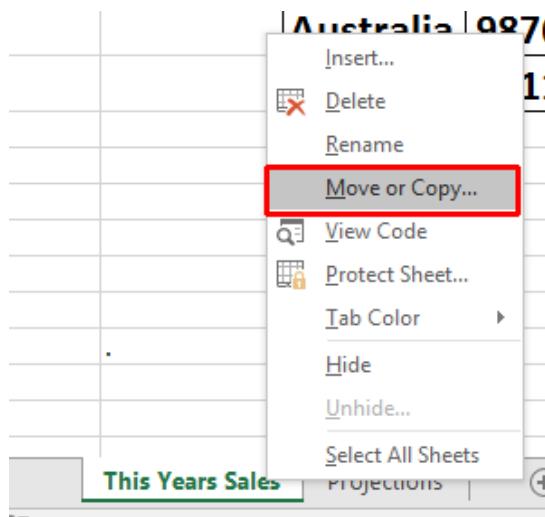


- Save your changes and close the workbook.

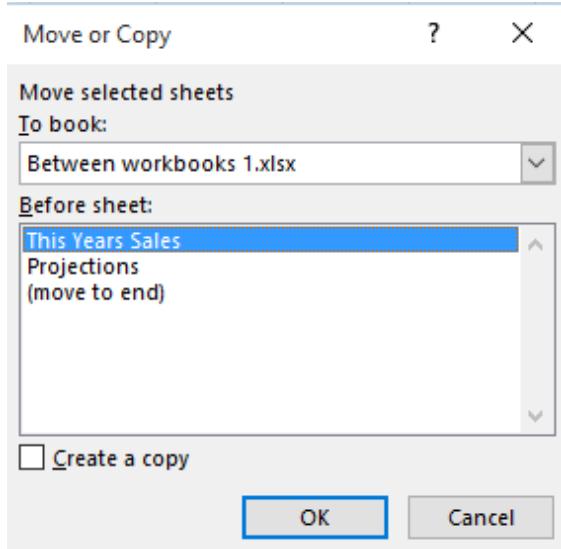
### Copying or moving worksheets between workbooks

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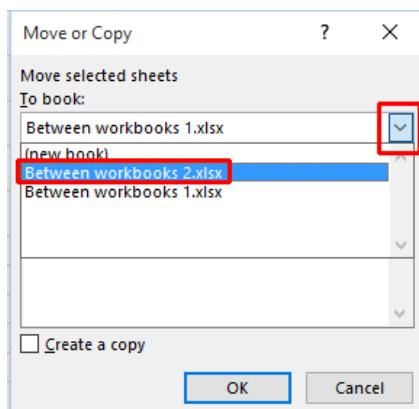
- Open a workbook called **Between workbooks 2**. Leave this workbook open.
- Open a workbook called **Between workbooks 1**.
- Within the workbook called **Between workbooks 1** click on the worksheet tab for **This Year's Sales**.
- Right click on the **This Year's Sales** tab and from the popup menu displayed select the **Move or Copy** command.



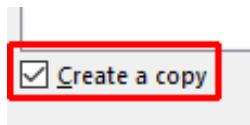
- The **Move or Copy** dialog box is displayed.



- Click on the **down arrow** in the **To book:** section of the dialog box. From the drop down list, select the workbook called **Between workbooks 2**, as illustrated below.

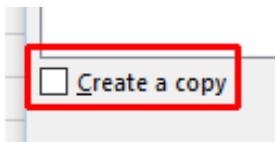


- Use the **Before sheet** section of the dialog box to determine where in the second workbook the worksheet will be copied to.
- Click on the **Create a copy** check box.



- Click on the **OK** button.
  - Switch to the second workbook and you should see a copy of the worksheet inserted into the workbook.
-

**TIP:** Experiment with moving a worksheet between workbooks using the same method, but this time do not click on the **Create a copy** check box.

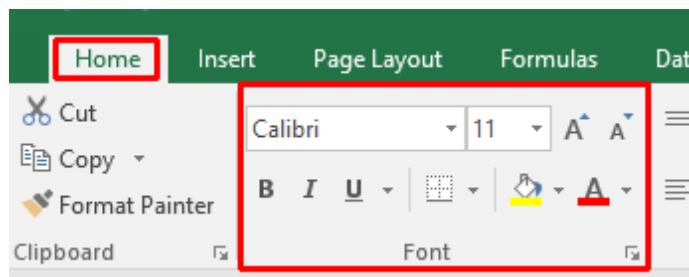


- When you have finished experimenting save the changes in both your workbooks and close all open files.

# Font formatting within Excel 2016

## Font formatting options

- The font formatting options are located on the **Home** tab within the **Font** group.

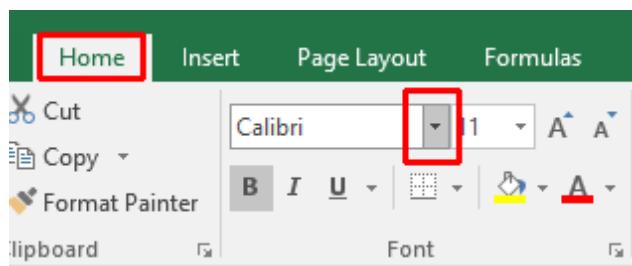


## Font type

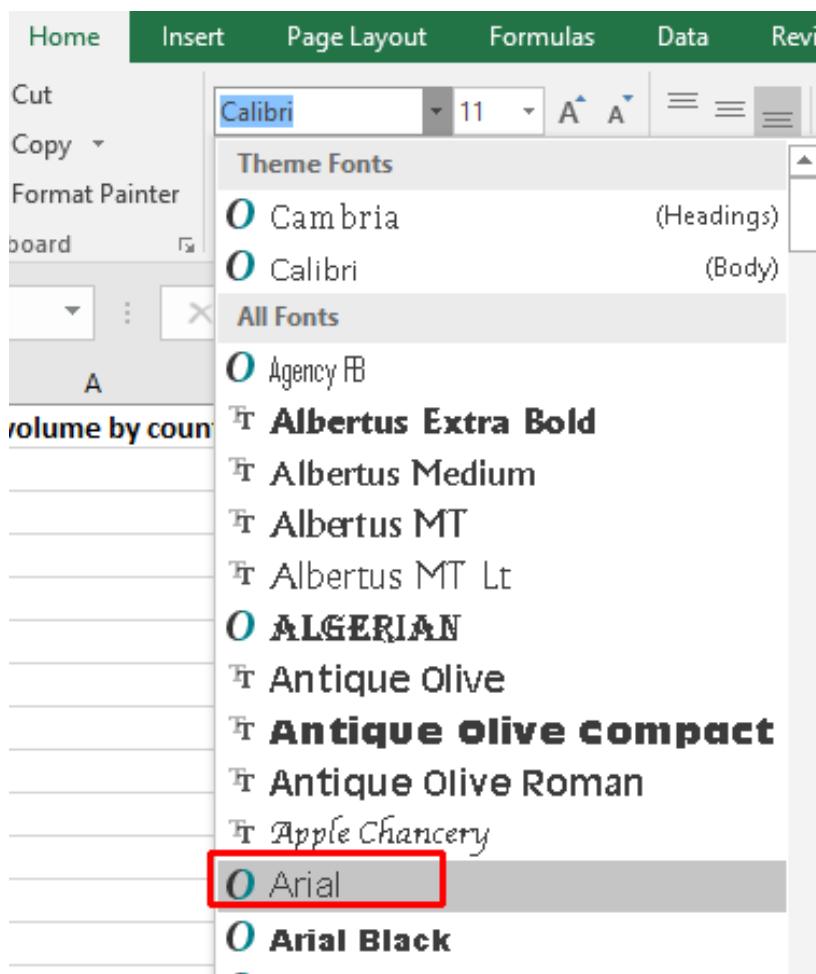
- Open a workbook called **Font formatting**. Select the range **C3:G3**.

A	B	C	D	E	F	G
Sales volume by country		Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
	Country	India	102	129	189	193
		Canada	98	120	121	132
		USA	109	110	109	102
		United Kingdom	92	99	98	95
		Australia	92	95	96	92
		New Zealand	32	43	54	74
		China	67	79	83	88
		Pakistan	24	34	43	54
		Mexico	12	24	20	23

- Under the **Home** tab, click on the **down arrow** next to the **Font** section.



- From the drop down list displayed, select a different font type, such as **Arial**.



- Experiment with applying different fonts to your data.

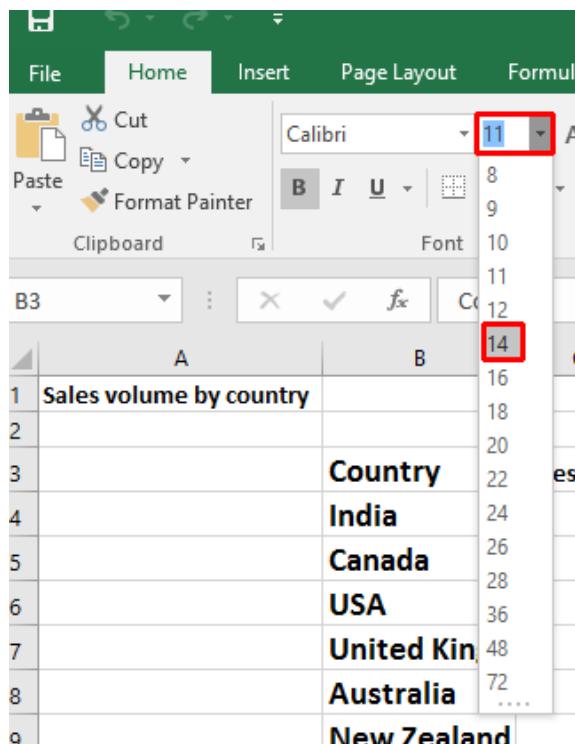
### Font size

---

- Select the range B3:B12.

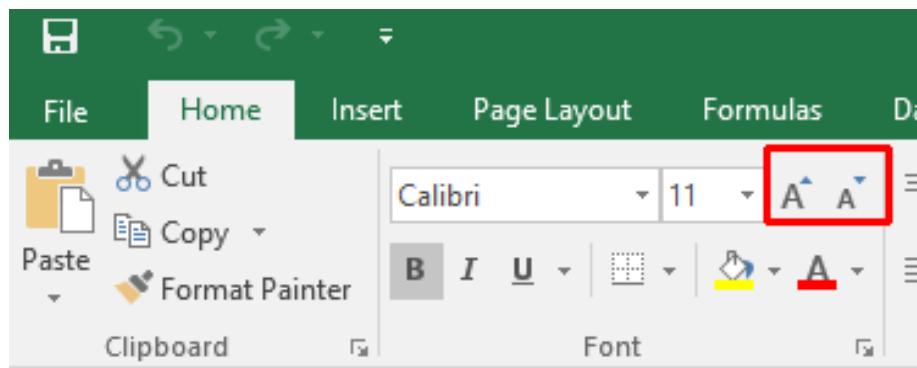
B3		X	✓	f <sub>x</sub>	Country
A	B	C	D	E	
1	Sales volume by country				
2					
3		Country	Sales 2009	Sales 2010	Sales 2011
4		India	102	129	1
5		Canada	98	120	1
6		USA	109	110	1
7		United Kingdom	92	99	
8		Australia	92	95	
9		New Zealand	32	43	
10		China	67	79	
11		Pakistan	24	34	
12		Mexico	12	24	

- Click on the **down arrow** within the **Font Size** section and select a different font size.



The screenshot shows the Microsoft Excel ribbon with the "Home" tab selected. In the "Font" section of the ribbon, the font "Calibri" is chosen, and the font size dropdown menu is open, showing a list of sizes from 8 to 72. The number "11" is highlighted in blue, indicating it is the current selection. A red box highlights the number "14", which is the second item in the list. Below the ribbon, a portion of an Excel spreadsheet is visible. The first row contains the title "Sales volume by country". The second row is blank. The third row contains the header "Country". The fourth row contains the value "India". The fifth row contains "Canada". The sixth row contains "USA". The seventh row contains "United Kin". The eighth row contains "Australia". The ninth row contains "New Zealand". The font size of the text in the spreadsheet is currently set to 11, matching the selected font size in the ribbon.

**TIP:** You can also select a range and use the **Increase Font Size** and **Decrease Font Size** icons.



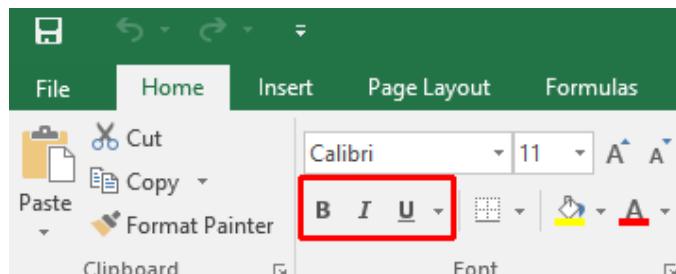
**NOTE:** If you applied a larger font size, you may have to widen the column widths.

### Bold, italic, underline formatting

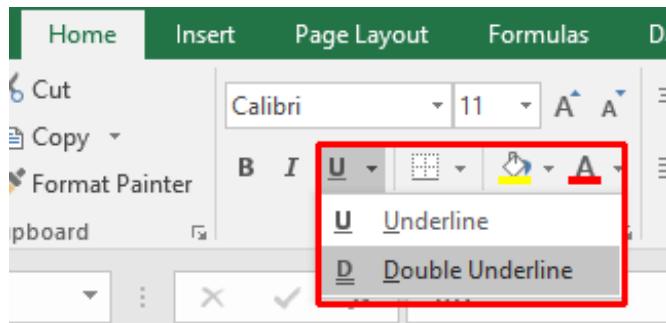
- Select the range C4:G12.

A	B	C	D	E	F	G
1	Sales volume by country					
2						
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India	102	129	189	193	201
5	Canada	98	120	121	132	143
6	USA	109	110	109	102	94
7	United Kingdom	92	99	98	95	85
8	Australia	92	95	96	92	93
9	New Zealand	32	43	54	74	84
10	China	67	79	83	88	93
11	Pakistan	24	34	43	54	73
12	Mexico	12	24	20	23	32

- Experiment with applying **bold**, **italic** and **underline** formatting using the icons illustrated below.



**TIP:** You can easily apply double underline formatting. To do this click on the **down arrow** next to the **Underline** icon. Select the **Double Underline** command.

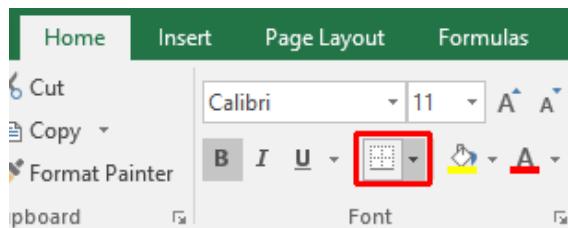


## Cell border formatting

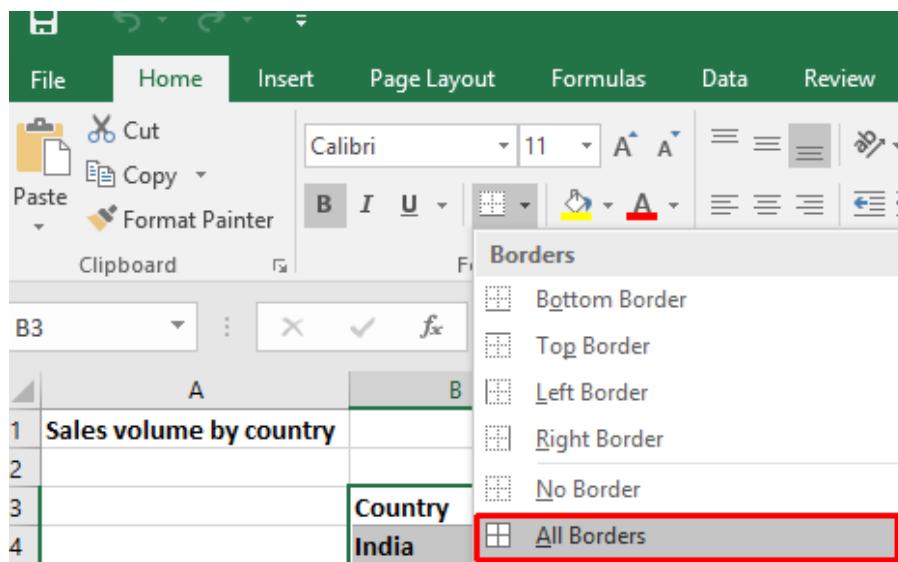
- Select the range B3:G12.

A	B	C	D	E	F	G
1 Sales volume by country						
2						
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India	102	129	189	193	201
5	Canada	98	120	121	132	143
6	USA	109	110	109	102	94
7	United Kingdom	92	99	98	95	85
8	Australia	92	95	96	92	93
9	New Zealand	32	43	54	74	84
10	China	67	79	83	88	93
11	Pakistan	24	34	43	54	73
12	Mexico	12	24	20	23	32

- Click on the down arrow next to the Border icon.



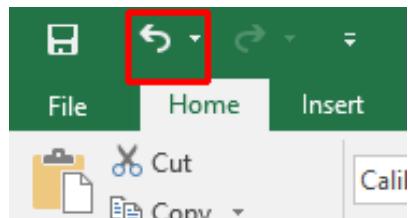
- A drop down list is displayed from which you can select the required border. Select All Borders.



- Your data will now look like this.

A	B	C	D	E	F	G
1 Sales volume by country						
2						
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India	102	129	189	193	201
5	Canada	98	120	121	132	143
6	USA	109	110	109	102	94
7	United Kingdom	92	99	98	95	85
8	Australia	92	95	96	92	93
9	New Zealand	32	43	54	74	84
10	China	67	79	83	88	93
11	Pakistan	24	34	43	54	73
12	Mexico	12	24	20	23	32

- Click on the **Undo** icon (top-left of your screen) to undo this formatting.



- Spend a little time experimenting with applying different types of borders. Remember that you can use the **Undo** icon to undo any formatting that you apply.

**TIP:** Experiment with applying border formatting effects, such a thick or double edged border effects.

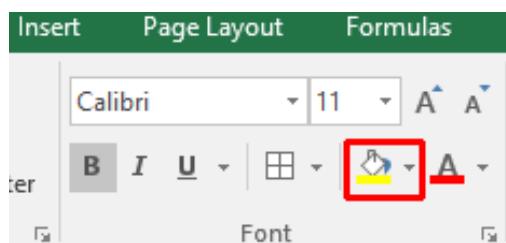
## Formatting the background color

---

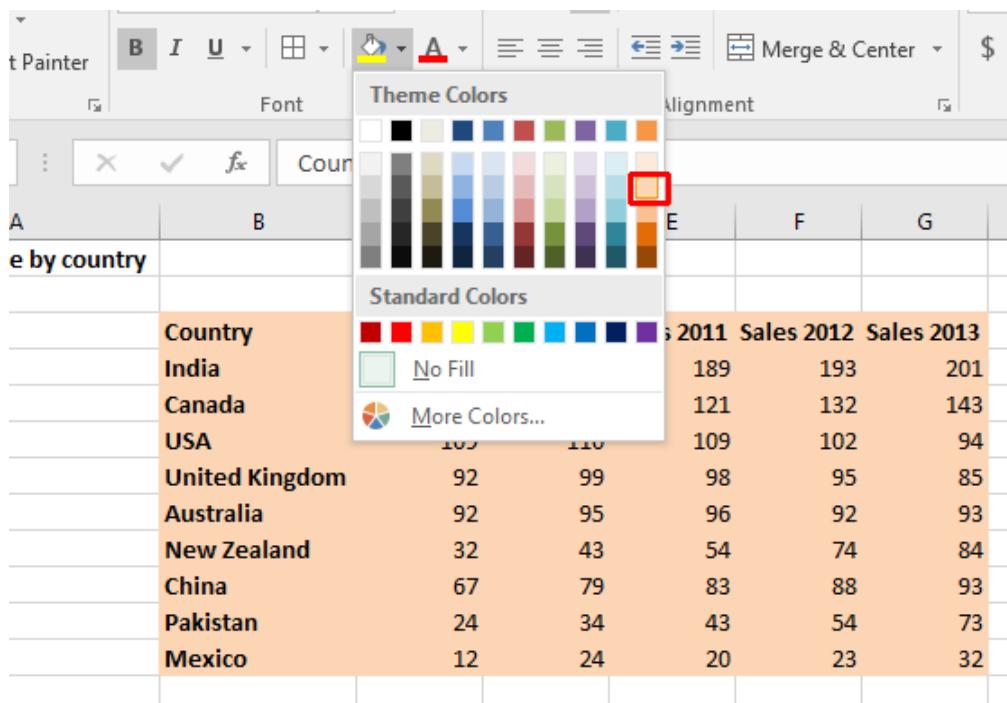
- Select the range B3:G3.

A	B	C	D	E	F	G
1	Sales volume by country					
2						
3	Country	Sales 2009	Sales 2010	Sales 2011	Sales 2012	Sales 2013
4	India	102	129	189	193	201
5	Canada	98	120	121	132	143
6	USA	109	110	109	102	94
7	United Kingdom	92	99	98	95	85
8	Australia	92	95	96	92	93
9	New Zealand	32	43	54	74	84
10	China	67	79	83	88	93
11	Pakistan	24	34	43	54	73
12	Mexico	12	24	20	23	32

- Click on the down arrow next to the **Fill Color** icon.



- Move the mouse over a color and you will see the color formatting previewed within your data. Click on a color to apply it.



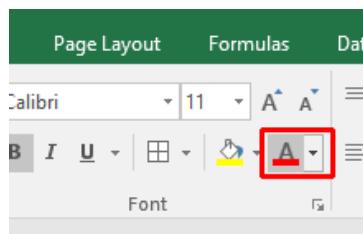
A screenshot of the Microsoft Excel ribbon interface. The 'Font' tab is selected in the ribbon. A dropdown menu for 'Font Color' is open, showing a color palette with various options. One specific color, a light orange, is highlighted with a red box. Below the palette, there are sections for 'Theme Colors' and 'Standard Colors', with the 'More Colors...' option available. In the background, a table is visible with columns for Country and Sales data from 2011 to 2013.

		2011	Sales	2012	Sales	2013
Country						
India		189		193		201
Canada		121		132		143
USA	103	110	109	102	94	
United Kingdom	92	99	98	95	85	
Australia	92	95	96	92	93	
New Zealand	32	43	54	74	84	
China	67	79	83	88	93	
Pakistan	24	34	43	54	73	
Mexico	12	24	20	23	32	

**TIP:** Be careful when applying background fill colors as it may make any text within the range difficult to see. Avoid using similar text colors and background fill colors.

## Formatting the font color

- Select the range B3:B12.
- Click on the **down arrow** next to the **Font Color** icon.



A screenshot of the Microsoft Excel ribbon interface, specifically the 'Font' tab. The 'Font Color' icon, which is a small letter 'A' with a color swatch, is highlighted with a red box. This indicates it is the active tool for applying color.

- This will display a drop down from which you can select the required color. Experiment with applying different font colors.

The screenshot shows the Microsoft Excel ribbon with the 'Font' tab selected. A color palette dropdown is open, showing 'Theme Colors' and 'Standard Colors'. The 'Standard Colors' section displays a grid of 14 colors. The 11th color in the grid (blue) is highlighted with a red border.

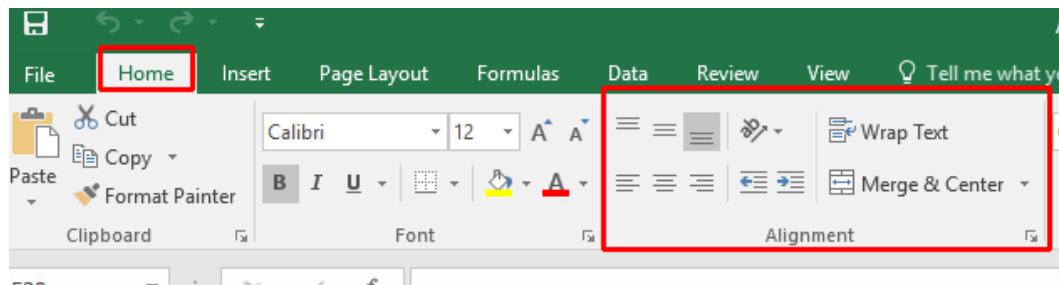
	Sales 2012	Sales 2013
India	193	201
Canada	132	143
USA	102	94
United Kingdom	92	99
Australia	92	95
New Zealand	32	43
China	67	79
Pakistan	24	43
Mexico	12	20
	23	32

- Save your changes and close the workbook.

# Alignment formatting within Excel 2016

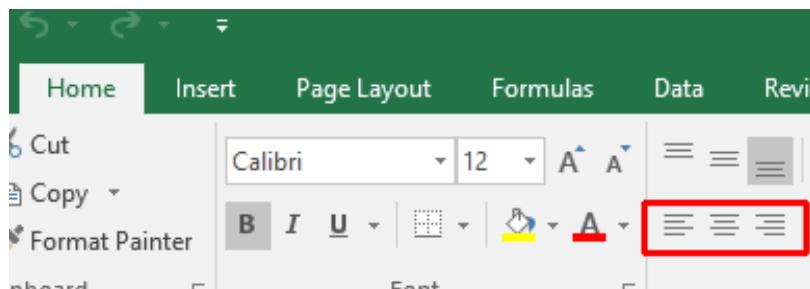
## Alignment options

- The alignment options are contained within the **Alignment** group on the **Home** tab.



## Horizontally aligning contents in a cell range

- Open a workbook called **Alignment**.
- Select the range **C3:G12**.
- Click on the **Center** icon to center the cell contents in this range. Try applying **left** and then **right** alignment formatting. Use the alignment icons illustrated below.



## Centering a title over a cell range

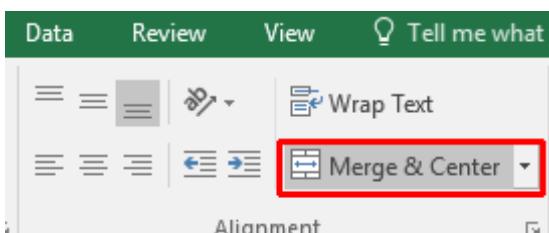
- Click on cell **C2** and type in the word '**Sales**'.

	A	B	C	D	E	F	G
1			Sales				
2		Country	2009	2010	2011	2012	2013
3	India		102	129	189	193	201
4	Canada		98	120	121	132	143
5	USA		109	110	109	102	94
6	United Kingdom		92	99	98	95	85
7	Australia		92	95	96	92	93
8	New Zealand		32	43	54	74	84
9	China		67	79	83	88	93
10	Pakistan		24	34	43	54	73
11	Mexico		12	24	20	23	32
12							

- We want to center this within the range C2:G2. To do this, select the range C2:G2.

	A	B	C	D	E	F	G	H
1								
2			Sales					
3	Country		2009	2010	2011	2012	2013	
4	India		102	129	189	193	201	
5	Canada		98	120	121	132	143	

- Click on the **Merge and Center** icon.



- Your screen will now look like this.

	A	B	C	D	E	F	G
1							
2			<b>Sales</b>				
3	<b>Country</b>		<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
4	India		102	129	189	193	201
5	Canada		98	120	121	132	143
6	USA		109	110	109	102	94
7	United Kingdom		92	99	98	95	85
8	Australia		92	95	96	92	93
9	New Zealand		32	43	54	74	84
10	China		67	79	83	88	93
11	Pakistan		24	34	43	54	73
12	Mexico		12	24	20	23	32

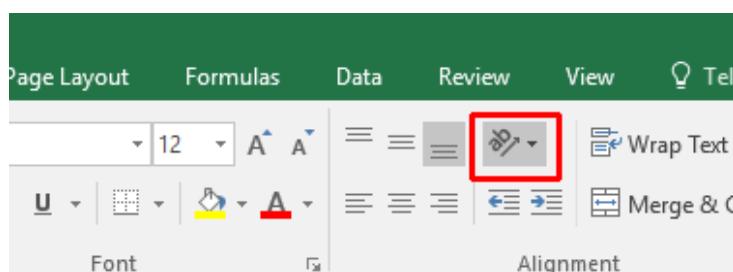
## Cell orientation

---

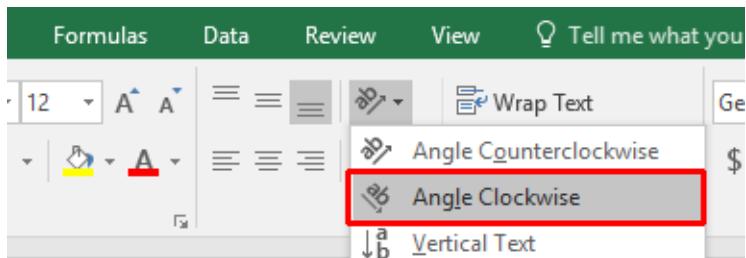
- Select the range C3:G3.

	A	B	C	D	E	F	G
1							
2			<b>Sales</b>				
3		<b>Country</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
4		India	102	129	189	193	201
5		Canada	98	120	121	132	143

- Click on the Orientation icon.



- You will see a drop down menu allowing you to format the cell orientation.



- Select the **Angle Clockwise** command. Your data will now look like this.

A	B	C	D	E	F	G
1		Sales				
2	Country	2009	2010	2011	2012	2013
3	India	102	129	189	193	201
4	Canada	98	120	121	132	143
5	USA	109	110	109	102	94
6	United Kingdom	92	99	98	95	85
7	Australia	92	95	96	92	93
8	New Zealand	32	43	54	74	84
9	China	67	79	83	88	93
10	Pakistan	24	34	43	54	73
11	Mexico	12	24	20	23	32
12						

- Experiment with applying some of the other orientation effects.

### Text wrapping within a cell

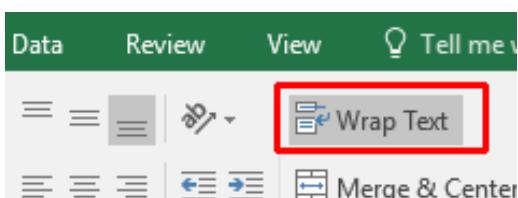
- Click on cell **B14**. Type the following text into cell **B14**.

**All revenues are pre-tax profits.**

- When you press the **Enter** key you will see that the text does not 'fit' into the cell.

	A	B	C	D	E	F	G
1							
2							
<b>Sales</b>							
3	Country	2009	2010	2011	2012	2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	67	79	83	88	93	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	
13	All revenues are pre-tax profits						
14							
15							

- Select cell B14 and click on the Wrap Text button.



- The cell will now look like this.

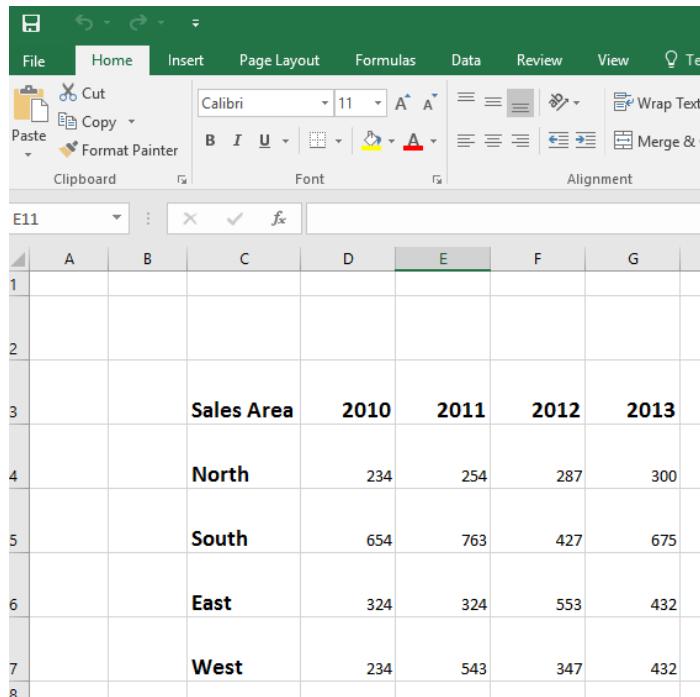
	A	B	C	D	E	F	G
1							
2							
<b>Sales</b>							
3	Country	2009	2010	2011	2012	2013	
4	India	102	129	189	193	201	
5	Canada	98	120	121	132	143	
6	USA	109	110	109	102	94	
7	United Kingdom	92	99	98	95	85	
8	Australia	92	95	96	92	93	
9	New Zealand	32	43	54	74	84	
10	China	67	79	83	88	93	
11	Pakistan	24	34	43	54	73	
12	Mexico	12	24	20	23	32	
13	All revenues are pre-tax profits						
14							
15							

- Save your changes and close the workbook.

## Aligning cell contents vertically

---

- Open a workbook called **Vertical alignment**. As you can see the cell contents are aligned to the bottom of the cell.



A screenshot of Microsoft Excel showing a data table. The table has columns labeled A through G and rows labeled 1 through 8. The data is as follows:

	A	B	C	D	E	F	G
1							
2							
3	Sales Area	2010	2011	2012	2013		
4	North	234	254	287	300		
5	South	654	763	427	675		
6	East	324	324	553	432		
7	West	234	543	347	432		
8							

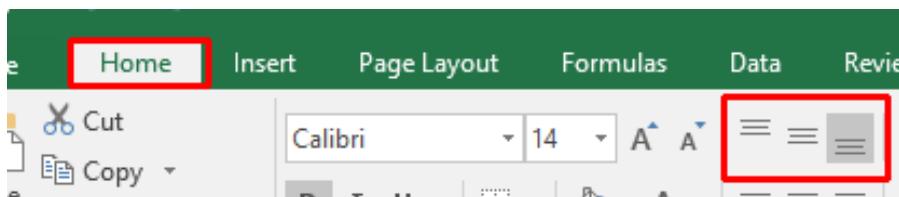
- Select the data area as illustrated.



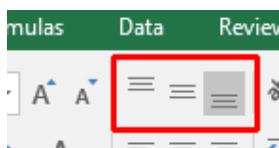
A screenshot of Microsoft Excel showing the same data table as above, but with the entire range A3:G7 selected. The selection is highlighted with a thick green border. The data is identical to the first screenshot.

	A	B	C	D	E	F	G
1							
2							
3	Sales Area	2010	2011	2012	2013		
4	North	234	254	287	300		
5	South	654	763	427	675		
6	East	324	324	553	432		
7	West	234	543	347	432		
8							

- Click on the **Home** tab and from within the **Alignment** group select the required vertical alignment option.



- Experiment with applying each of the three vertical alignment options.



**Top Alignment**

**Middle Alignment**

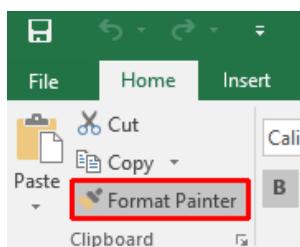
**Bottom Alignment**

- After you have finished experimenting, set the alignment to **Middle Alignment**.
- Save your changes and close the workbook.

## Format Painter

---

- Open a workbook called **Format painter**.
- Click within the upper table.
- Click on the **Format Painter** icon. This icon is contained within the **Clipboard** group under the **Home** tab.



- Once you click on the **Format Painter** icon, you will notice that the shape of the mouse pointer changes to the shape of a paintbrush. You can now apply the formatting within the cell that you clicked on, to another range within the worksheet.
- Click on cell **B14**, and while keeping the mouse button pressed, move the mouse pointer to cell **G23**. Release the mouse button and the formatting will be copied to the second range within your worksheet, as illustrated.

	A	B	C	D	E	F	G
1							
2	<i>Country</i>	<i>Sales 2009</i>	<i>Sales 2010</i>	<i>Sales 2011</i>	<i>Sales 2012</i>	<i>Sales 2013</i>	
3	India	102	129	189	193	201	
4	Canada	98	120	121	132	143	
5	USA	109	110	109	102	94	
6	United Kingdom	92	99	98	95	85	
7	Australia	92	95	96	92	93	
8	New Zealand	32	43	54	74	84	
9	China	67	79	83	88	93	
10	Pakistan	24	34	43	54	73	
11	Mexico	12	24	20	23	32	
12							
13							
14	<i>Country</i>	<i>Sales 2009</i>	<i>Sales 2010</i>	<i>Sales 2011</i>	<i>Sales 2012</i>	<i>Sales 2013</i>	
15	India	102	129	189	193	201	
16	Canada	98	120	121	132	143	
17	USA	109	110	109	102	94	
18	United Kingdom	92	99	98	95	85	
19	Australia	92	95	96	92	93	
20	New Zealand	32	43	54	74	84	
21	China	67	79	83	88	93	
22	Pakistan	24	34	43	54	73	
23	Mexico	12	24	20	23	32	
24							

- Save your changes and close the workbook.

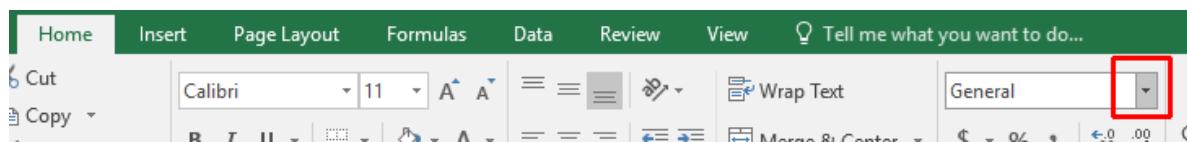
# Number formatting within Excel 2016

## Number formatting

- Open a workbook called **Number formatting**. Click on cell **C2**.

A	B	C
1		
2	Format this cell to use number formatting conventions	194593.1235
3		
4	Format this number to display no decimal places.	194593.1235
5	Format this number to display 1 decimal place	194594.1235
6	Format this number to display 2 decimal place	194595.1235
7		

- Click on the **down arrow** next to the **Number Format** control.



- You will see a drop down menu from which you can select the format. In this case select **Number**.

The screenshot shows the Microsoft Excel ribbon with the 'Home' tab selected. The formula bar shows 'C2'. The main area displays a table with data in columns A, B, and C. The cell C2 contains the value '194593.1235'. A dropdown menu is open from the 'Number Format' button, listing several options: 'General' (selected), 'Number', 'Currency', 'Accounting', and 'Short Date'. The 'Number' option is highlighted with a red box. The rest of the ribbon tabs are visible at the top.

- This tells Excel that the data contained within this cell should always now be treated as a number, rather than say text or a date.

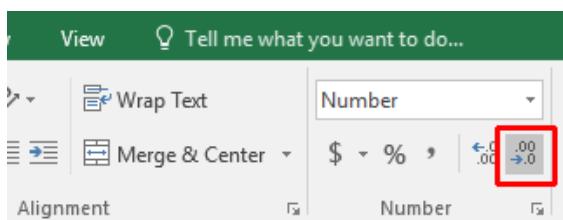
## Decimal point display

- Click on cell **C4**.

File		Home	Insert	Page Layout	Formulas	Data	Review	View
Cut	Copy	Calibri 11	A A	Font	W			
Paste	Format Painter	B I U	Font	Font	M			
Clipboard		Font	Font	Font	Font			
C4		X ✓ fx	194593.12345					

A	B	C
1		
2	Format this cell to use number formatting conventions	194593.1235
3		
4	Format this number to display no decimal places.	194593.1235
5	Format this number to display 1 decimal place	194594.1235
6	Format this number to display 2 decimal place	194595.1235
7		

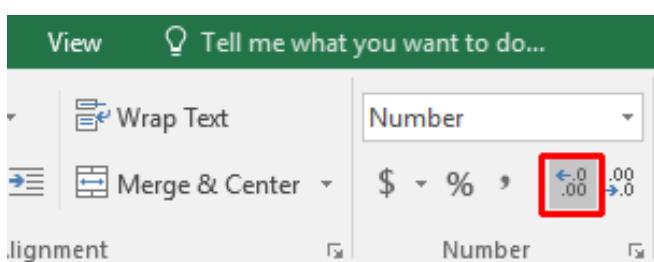
- Click on the **Decrease Decimal** icon a few times, so that no decimal places are displayed.



- The cell contents should now look like this.

A	B	C
1		
2	Format this cell to use number formatting conventions	194593.1235
3		
4	Format this number to display no decimal places.	194593
5	Format this number to display 1 decimal place	194594.1235

- Set the contents of cell **C5** to display 1 decimal point, by clicking once on the **Increase Decimal** button.



- The contents of the cell will now look like this,

	A	B	C
1			
2		Format this cell to use number formatting conventions	194593.1235
3			
4		Format this number to display no decimal places.	194593
5		Format this number to display 1 decimal place	194594.1
6		Format this number to display 2 decimal place	194595.1235
7			

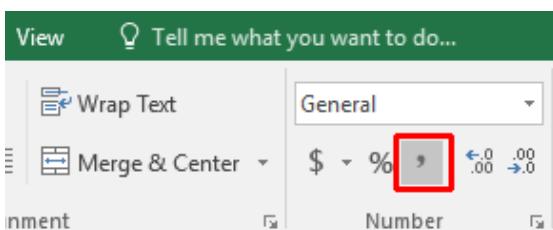
- Set the contents of cell **C6** to display **2** decimal points.

## Applying and removing comma style formatting (to indicate thousands)

- Click on cell **C8**.

	A	B	C
1			
2		Format this cell to use number formatting conventions	194593.1235
3			
4		Format this number to display no decimal places.	194593
5		Format this number to display 1 decimal place	194594.1
6		Format this number to display 2 decimal place	194595.12
7			
8		Format this number to display commas	1945968573
9			
10		Format this number to display a UK pound sign	234.98
11		Format this number to display a dollar sign	234.98
12		Format this number to display a euro sign	234.98

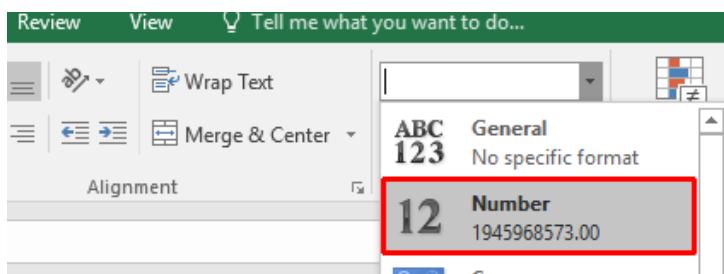
- Click on the **Comma Style** icon (within the **Number** group under the **Home** tab) to format the number using commas.



- Your number should now look like this.

	A	B	C
1			
2		Format this cell to use number formatting conventions	194593.1235
3			
4		Format this number to display no decimal places.	194593
5		Format this number to display 1 decimal place	194594.1
6		Format this number to display 2 decimal place	194595.12
7			
8		Format this number to display commas	1,945,968,573.00
9			
10		Format this number to display a UK pound sign	234.98
11		Format this number to display a dollar sign	234.98
12		Format this number to display a euro sign	234.98

**NOTE:** To remove comma style formatting, click on the down arrow next to the **Number format** icon (within the **Number** section of the **Home** tab). Select the **General** or **Number** format option, as illustrated.



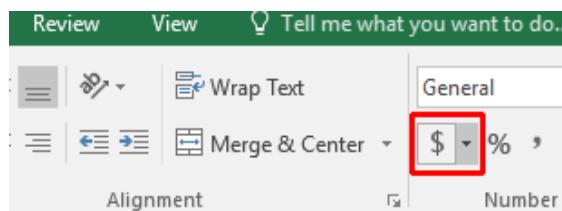
- The cell contents will now be displayed without comma style formatting.

## Currency symbol

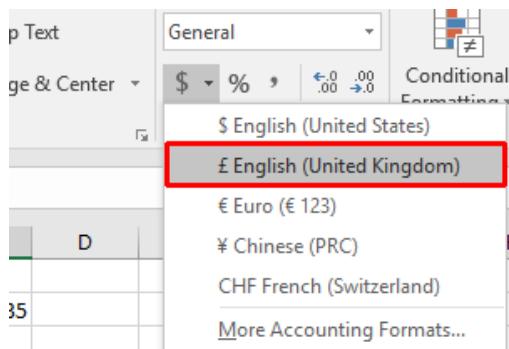
- Select cell C10.

	A	B	C
1			
2		Format this cell to use number formatting conventions	194593.1235
3			
4		Format this number to display no decimal places.	194593
5		Format this number to display 1 decimal place	194594.1
6		Format this number to display 2 decimal place	194595.12
7			
8		Format this number to display commas	1,945,968,573.00
9			
10		Format this number to display a UK pound sign	234.98
11		Format this number to display a dollar sign	234.98
12		Format this number to display a euro sign	234.98
13			
14			
15		Format this number to display a percentage sign	17

- Format it to display the **British Pound** symbol. To do this click on the **down arrow** next to the **Currency** icon.



- From the list displayed, select the £ option.



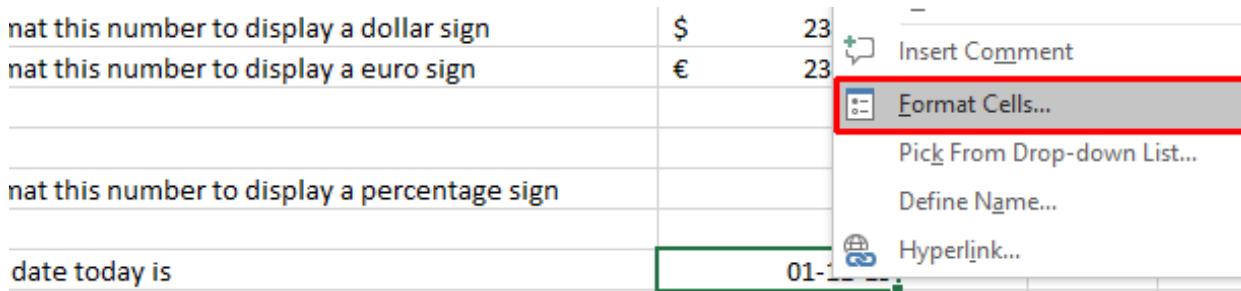
- Select cell C11 and format it to display the **Dollar** symbol.
- Select cell C12 and format it to display the **Euro** symbol. Your data will now look like this.

A	B	C
1		
2	Format this cell to use number formatting conventions	194593.1235
3		
4	Format this number to display no decimal places.	194593
5	Format this number to display 1 decimal place	194594.1
6	Format this number to display 2 decimal place	194595.12
7		
8	Format this number to display commas	1,945,968,573.00
9		
10	Format this number to display a UK pound sign	£ 234.98
11	Format this number to display a dollar sign	\$ 234.98
12	Format this number to display a euro sign	€ 234.98
13		
14		
15	Format this number to display a percentage sign	17

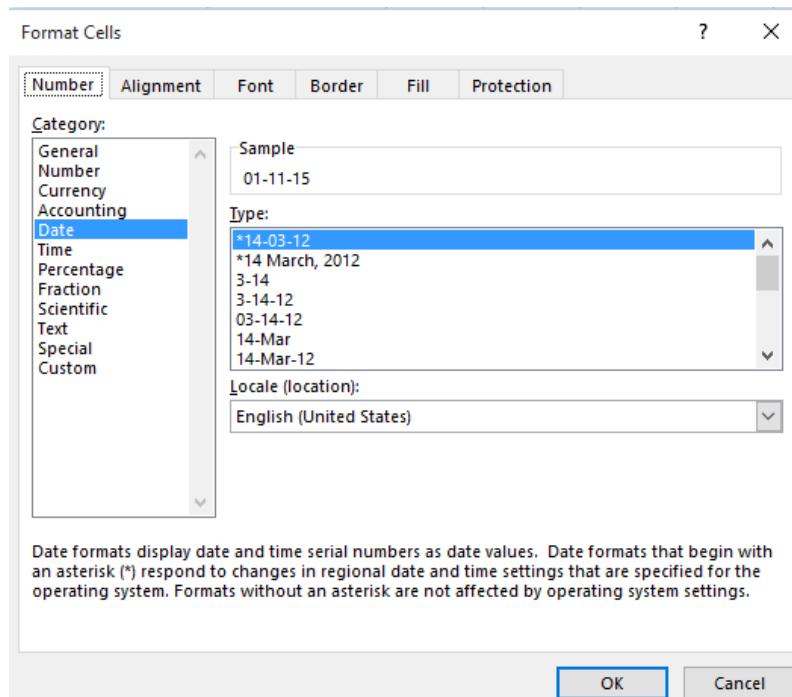
## Date styles

- Click on cell B17 and type in the text 'The date today is'.

- Click on cell **C17** and type in today's date. When you press the **Enter** key you may find that the style of the date changes automatically.
- Right click over cell **C17** and from the popup menu displayed select the **Format Cells** command.



- This will display the **Format Cells** dialog box.



- Select the required format from the **Type** section of the dialog box.



- Click on the **OK** button to apply the date format. Experiment with applying different types of date format to the cell.

## Percentages

- Click on the cell **C15**.

	A	B	C
1			
2		Format this cell to use number formatting conventions	194593.1235
3			
4		Format this number to display no decimal places.	194593
5		Format this number to display 1 decimal place	194594.1
6		Format this number to display 2 decimal place	194595.12
7			
8		Format this number to display commas	1,945,968,573.00
9			
10		Format this number to display a UK pound sign	£ 234.98
11		Format this number to display a dollar sign	\$ 234.98
12		Format this number to display a euro sign	€ 234.98
13			
14			
15		Format this number to display a percentage sign	17
16			

- To change this number from **17** to **17%**, type in **17%** and press the **Enter** key. You will then see the contents displayed as illustrated below.

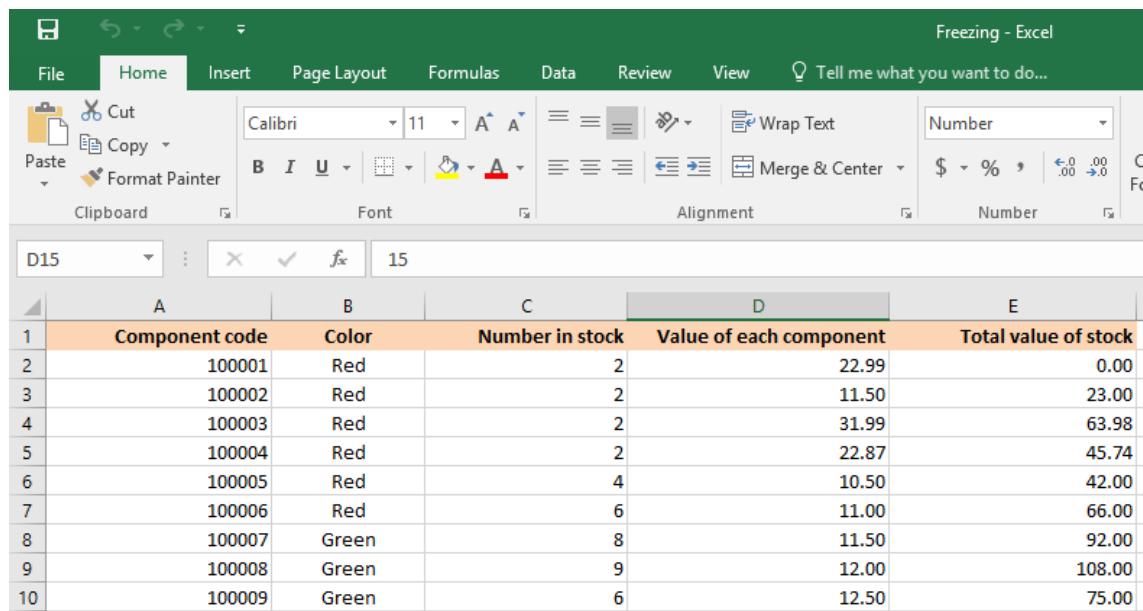


- Save your changes and close the workbook.

# Freezing row and column titles within Excel 2016

## Freezing row and column titles

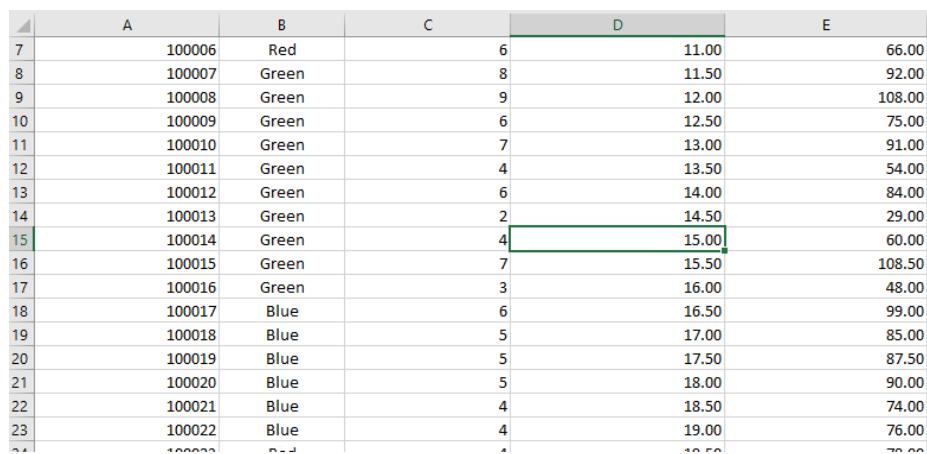
- Open a workbook called **Freezing**.



The screenshot shows the Microsoft Excel ribbon with the "Home" tab selected. The formula bar displays "D15" and "15". The main area contains a table with the following data:

	A	B	C	D	E
1	Component code	Color	Number in stock	Value of each component	Total value of stock
2	100001	Red		22.99	0.00
3	100002	Red	2	11.50	23.00
4	100003	Red	2	31.99	63.98
5	100004	Red	2	22.87	45.74
6	100005	Red	4	10.50	42.00
7	100006	Red	6	11.00	66.00
8	100007	Green	8	11.50	92.00
9	100008	Green	9	12.00	108.00
10	100009	Green	6	12.50	75.00

- Scroll down through the data and you will see that the title row, which contains a description of each columns contents, scroll out of sight. This makes it difficult to remember what the data in each column represents, if you cannot see the column title row.



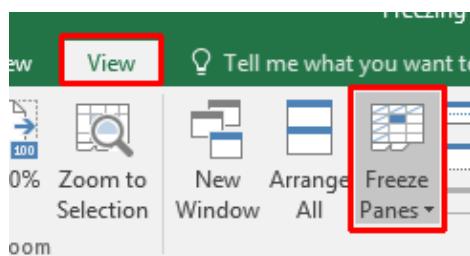
The screenshot shows the same Excel window after scrolling down. The title row (row 1) is now visible again at the top of the table. The data rows (rows 2-10) are now partially visible below the title row.

	A	B	C	D	E
1	Component code	Color	Number in stock	Value of each component	Total value of stock
2	100006	Red	6	11.00	66.00
3	100007	Green	8	11.50	92.00
4	100008	Green	9	12.00	108.00
5	100009	Green	6	12.50	75.00
6	100010	Green	7	13.00	91.00
7	100011	Green	4	13.50	54.00
8	100012	Green	6	14.00	84.00
9	100013	Green	2	14.50	29.00
10	100014	Green	4	15.00	60.00
11	100015	Green	7	15.50	108.50
12	100016	Green	3	16.00	48.00
13	100017	Blue	6	16.50	99.00
14	100018	Blue	5	17.00	85.00
15	100019	Blue	5	17.50	87.50
16	100020	Blue	5	18.00	90.00
17	100021	Blue	4	18.50	74.00
18	100022	Blue	4	19.00	76.00

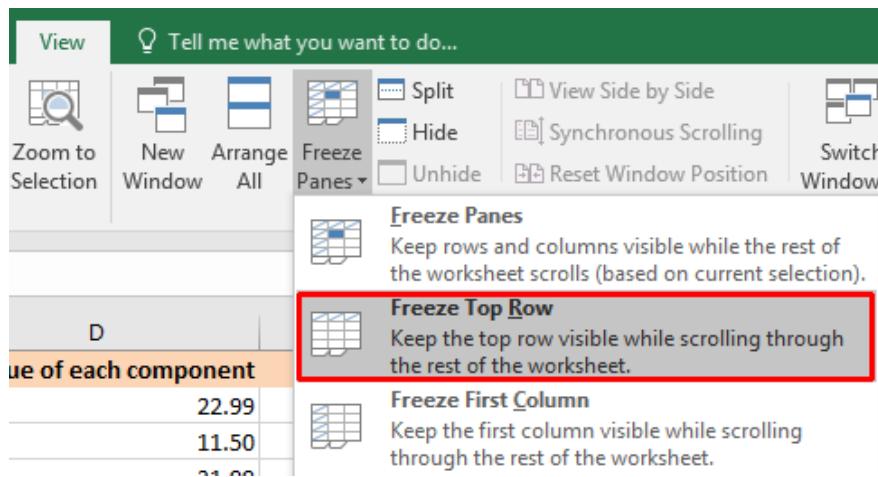
- Make sure that you can see the title row displayed, as illustrated.

Component code	Color	Number in stock	Value of each component	Total value of stock
100001	Red	2	22.99	0.00
100002	Red	?	11.50	23.00

- To freeze the top row so that it remains in sight at all times, click on the **View** tab and from within the **Window** group on the Ribbon, click on the **Freeze Panes** command.



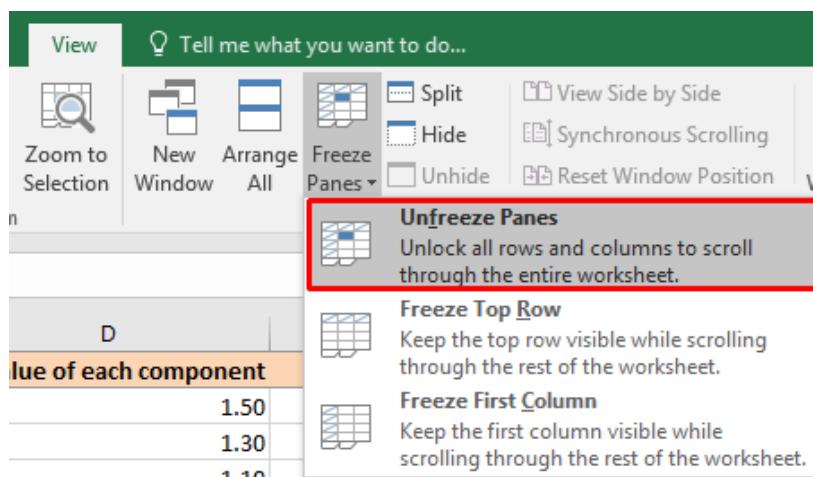
- From the drop down list displayed, click on the **Freeze Top Row** command.



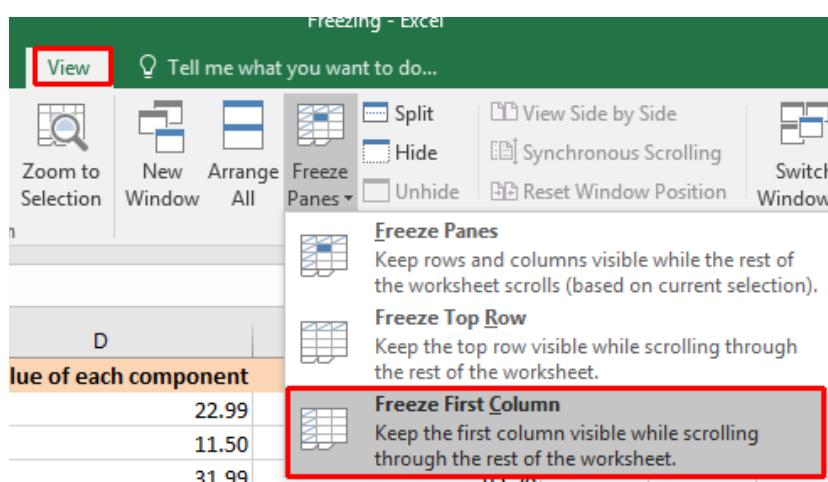
- Scroll down through the data. As you can see the top row stays visible at all times now.

	A	B	C	D	E
1	Component code	Color	Number in stock	Value of each component	Total value of stock
35	100034	Red	1	1.50	1.50
36	100035	Red	1	1.30	1.30
37	100036	Green	1	1.10	1.10
38	100037	Green	3	0.90	2.70
39	100038	Green	3	0.70	2.10
40	100039	Green	3	1.10	3.30
41	100040	Green	3	1.20	3.60
42	100041	Green	3	1.30	3.90

- To unfreeze the top row, click on the **View** tab and from within the **Window** group on the Ribbon, click on the **Unfreeze Panes** command.



**TIP:** You can use the same technique to freeze the first column, so that when you scroll to the right it is always visible. To do this you would select the **Freeze First Column** command.



- Save your changes and close the workbook.



# Excel 2016 Formulas

## Creating formulas

- Open a workbook called **Formulas**. Click on cell **E3**.

The screenshot shows a Microsoft Excel 2016 interface. The ribbon at the top has tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Tell me what you want. The Home tab is selected. The ribbon also includes sections for Clipboard, Font, Alignment, and Number. The status bar at the bottom shows 'Formulas' and 'General'. The active cell is B15. The table below contains data for components:

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	
4		100846	4	34.99	
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	
10					

In cell **E3** we need to create a formula that will calculate the value of the stock for that particular component. To do this we need to multiply the contents of cell **C3** by the content of cell **D3**.

- All formulas within Excel start with the 'equals' symbol.

Type in the following formula.

=C3\*D3

**TIP:** the \* symbol means 'times'.

Press the **Enter** key and you will see the result of the calculation in cell **E3**.

- Click on cell **E3** and you will see the formula displayed in the bar above the worksheet.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

### The easy way to create formulas

- Click on cell **E4** and type in the equals sign.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	=
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	

- Click on cell **C4** and you see this.

	A	B	C	D	E
1					
2		Component Code Number	Number in stock	Value of each item	Total value in stock
3		100847	2	22.99	45.98
4		100846	4	34.99	=C4
5		100645	9	12.95	
6		100837	1	13.59	
7		100846	0	9.25	
8		100243	2	5.24	
9		100773	5	40.5	
10					

- Type in the \* symbol, you see this.

A	B	C	D	E
1				
2	Component Code Number	Number in stock	Value of each item	Total value in stock
	100847	2	22.99	45.98
4	100846	4	34.99	=C4*
5	100645	9	12.95	
6	100837	1	13.59	
7	100846	0	9.25	
8	100243	2	5.24	
9	100773	5	40.5	
10				

- Click on cell D4 and you will see this.

A	B	C	D	E
1				
2	Component Code Number	Number in stock	Value of each item	Total value in stock
	100847	2	22.99	45.98
4	100846	4	34.99	=C4*D4
5	100645	9	12.95	
6	100837	1	13.59	
7	100846	0	9.25	
8	100243	2	5.24	
9	100773	5	40.5	
10				

- Press the **Enter** key and you see the result of the calculation.

A	B	C	D	E
1				
2	Component Code Number	Number in stock	Value of each item	Total value in stock
	100847	2	22.99	45.98
4	100846	4	34.99	139.96
5	100645	9	12.95	
6	100837	1	13.59	
7	100846	0	9.25	
8	100243	2	5.24	
9	100773	5	40.5	
10				

- This method may seem more complicated at first but when you are creating complex formulas, you will find this method is actually easier and helps to reduce errors, such as typing incorrect cell references.

## Copying formulas

- Click on cell E4.
- Move the mouse pointer to the bottom-right border of this cell and you will notice that the mouse pointer changes to the shape of a small, solid black cross. When you

see this shape change press the mouse button and while keeping the mouse button depressed, drag down to cell **E9**. Release the mouse button and you will see the formula copied down this range. If you look at the formula in each cell of the range the cell references are automatically adjusted to match each row, i.e. row 8 contains the formula **=C8\*D8**, while row 9 contains the formula **=C9\*D9**.

Your screen will now look like this.

A	B	C	D	E
1				
2	Component Code Number	Number in stock	Value of each item	Total value in stock
3	100847	2	22.99	45.98
4	100846	4	34.99	139.96
5	100645	9	12.95	116.55
6	100837	1	13.59	13.59
7	100846	0	9.25	0
8	100243	2	5.24	10.48
9	100773	5	40.5	202.5
10				

- Save your changes and close the workbook.

## Operators

- Operators sound complicated. In reality they are items such as:

+	(plus)
-	(minus)
/	(divide)
*	(multiply)

You use operators as part of your formulas. There are other operators but these are the commonly used ones.

## Using operators in formulas

- Open a workbook called **Formula operators**.
- Click on cell **C3** and enter the following which will add the number **3** and **7**:

**=3+7**

Press the **Enter** key and you will see the result displayed in the cell.

- Click on cell **C4** and enter the following which will subtract the number **4** from the number **18**:

**=18-4**

Press the **Enter** key and you will see the result displayed in the cell.

- Click on cell **C5** and enter the following which will divide the number **20** by the number **4**:

**=20/4**

Press the **Enter** key and you will see the result displayed in the cell.

- Click on cell **C6** and enter the following which will multiply the number **4** by the number **9**:

**=4\*9**

Press the **Enter** key and you will see the result displayed in the cell.

- Save your changes and close the workbook.

## Formula error messages

---

- When writing formulas, it is easy to make a mistake: listed below are some common error messages.

**#####**

The contents of the cell cannot be displayed correctly as the column is too narrow.

**#REF!**

Indicates that a cell reference is invalid. This is often displayed when you delete cells which are involved in a formula.

**#NAME?**

Excel does not recognize text contained within a formula.

**#DIV/0!**

This indicates that you have tried to divide a number by zero (0).

## Relative cell referencing within formulas

---

- Open a workbook called **Cell referencing**.
  - The first worksheet within the workbook lets us look at relative addressing.
  - Click on cell **E4**. We need to insert the formula for multiplying items in column C by the items in columns D. Type in the following formula:
-

=C4\*D4

- Press the **Enter** key and you will see the result of the calculation in cell **E4**.
- Click on cell **E4**, and move the mouse pointer to the bottom-right corner of cell **E4**, and when the pointer changes to the shape of a small black cross, press the mouse button, and keep it pressed down. Drag down the page to cell **E12** and then release the mouse button.
- If you click on cell **E5** you will see the following =C5\*D5.
- If you click on cell **E6** you will see the following =C6\*D6.
- If you click on cell **E7** you will see the following =C7\*D7.
- If you click on cell **E8** you will see the following =C8\*D8.
- If you click on cell **E9** you will see the following =C9\*D9.
- If you click on cell **E10** you will see the following =C10\*D10
- If you click on cell **E11** you will see the following =C11\*D11.
- If you click on cell **E12** you will see the following =C12\*D12.
- As you can see the referencing is completely relative. This will become clearer when you have worked through the rest of this section.

### Absolute cell referencing within formulas

---

- Click on the **Absolute** tab at the bottom of the worksheet.
- Click on cell **D4**. We need to enter a formula that will take the price and then add 5% to the price to give a total value.

The 5% figure has been entered into cell **C15**.

- Type in the following formula into cell **D4**.

=C4\*C15

If you do the sums, you will find that this formula displays the correct delivery charge price in cell **D4**.

- Click on cell **D4**, and move the mouse pointer to the bottom-right corner of cell **D4**, and when the pointer changes to the shape of a small black cross, press the mouse button, and keep it pressed down. Drag down the page to cell **D12** and then release the mouse button. The data will look something like this.

	A	B	C	D	E
1					
2					
3	Part Number	Price (excluding delivery)	Cost of delivery	Price (including delivery)	
4	100837	22.99	1.15		
5	100263	10.95	0.00		
6	100937	20.50	0.00		
7	100234	10.50	0.00		
8	100375	12.95	0.00		
9	100746	29.84	0.00		
10	100387	23.43	0.00		
11	100883	9.48	0.00		
12	100338	20.50	0.00		

As you can see something has gone very wrong, as the 5% delivery charge appears to be 0 for most of the items.

- Click on cell **D5** and you can see what the problem is. The formula contained within this cell is:

**=C5\*C16**

Part of the cell reference points to cell **C16** (which if you check is empty). The problem is that because of the relative nature of the formula, the component that should always refer to the contents of the cell in **C15** (i.e. the delivery charge percentage), in fact moves down as you drag down the screen to extend your calculations.

- Select the range **D4:D12** and press the **Del** key to delete the cell contents.
- Click on cell **D4** and we will try again. This time type in the following formula.

**=C4\*\$C\$15**

The dollar signs make the reference to cell **C15** absolute.

- Try extending the formula to fill the range down to **D12**. This time you should find that the delivery charges are calculated correctly.

	A	B	C	D
1				
2				
3		Part Number	Price (excluding delivery)	Cost of delivery
4		100837	22.99	1.15
5		100263	10.95	0.55
6		100937	20.50	1.03
7		100234	10.50	0.53
8		100375	12.95	0.65
9		100746	29.84	1.49
10		100387	23.43	1.17
11		100883	9.48	0.47
12		100338	20.50	1.03

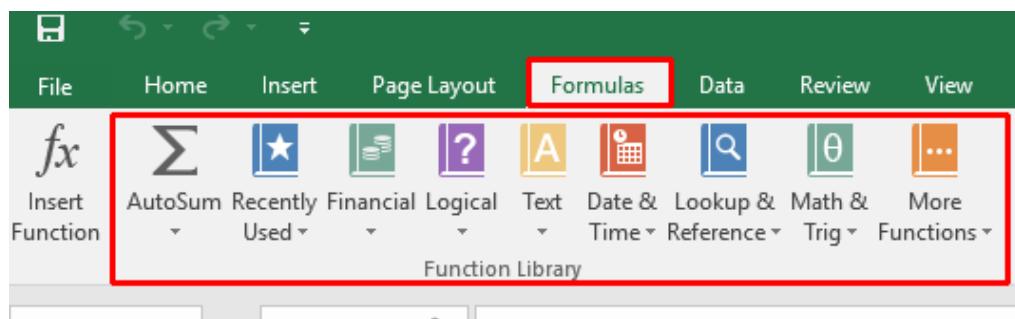
**TIP:** You have seen relative and absolute referencing. You can also have mixed references, which contain an absolute and a relative reference.

- Save your changes and close the workbook.

# Excel 2016 Functions

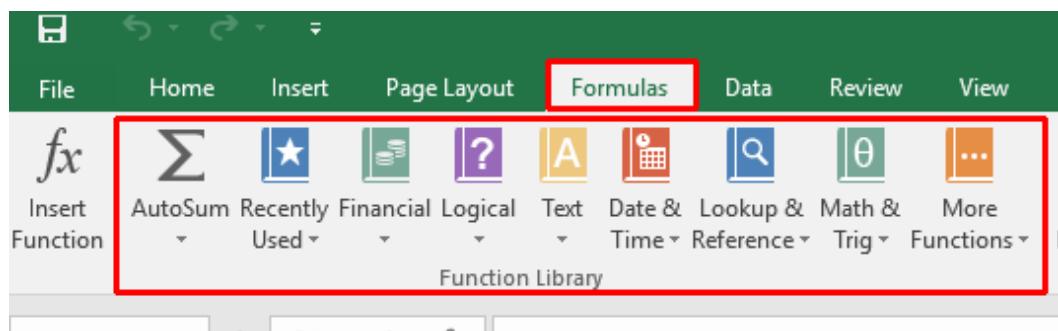
## What are functions?

- A function allows you to calculate a result such as adding numbers together, or finding the average of a range of numbers. Functions are located under the **Formulas** tab.



## Common functions

- Some commonly used functions include:



**AVERAGE:** Used to determine the average value of the selected cells contents.

**COLUMNS:** Used to return the number of columns within a reference.

**COUNT:** Used to count how many numbers are in the list.

**COUNTA:** Used to count the number of cells that are not empty and the values within the list of arguments.

**COUNTBLANK:** Used to count empty cells within a cell range.

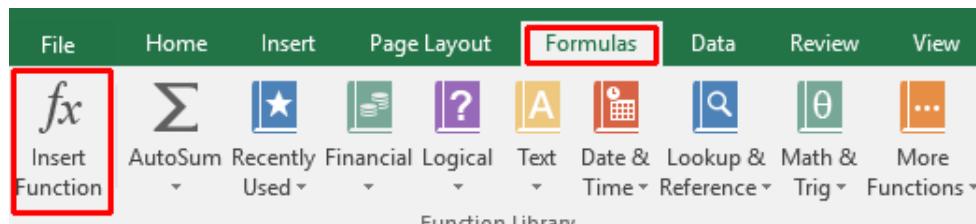
**MAX:** Used to return the maximum number from a list.

**MIN:** Used to return the minimum number from a list.

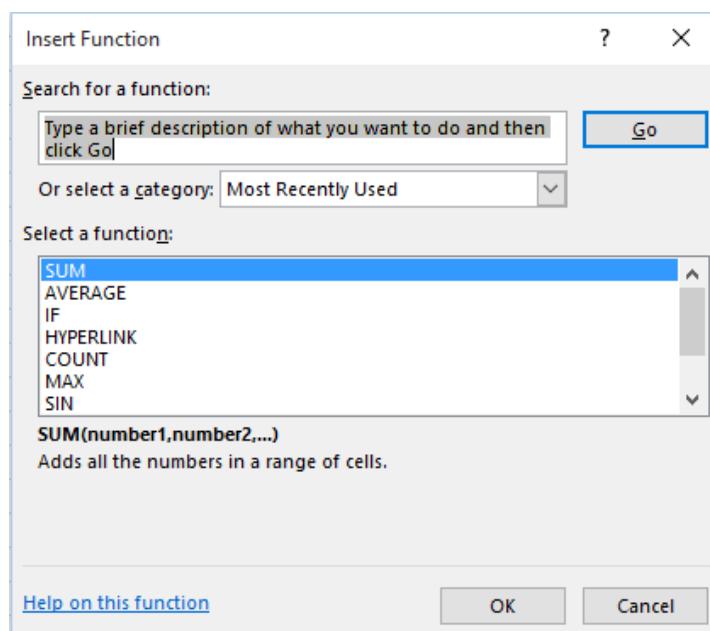
**ROUND:** Used to round off numbers to a specified number of decimal points.

**SUM:** Used to add the contents of selected cells.

To display the available functions, press **Ctrl+N** to display a blank workbook and then click on the **Formulas** tab and within the **Function Library** group click on the **Insert Function** icon.



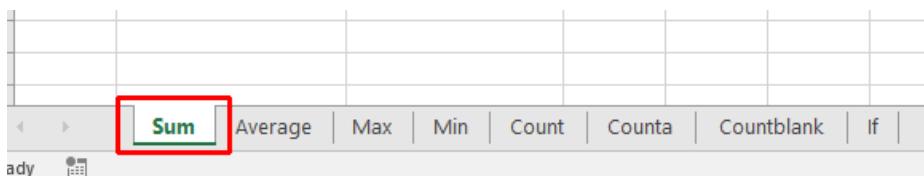
This will display the **Insert Function** dialog box.



- Scroll down the list which as you will see is extensive.

## Sum function

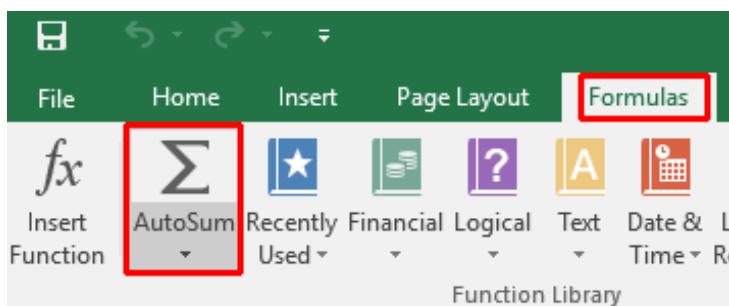
- Open a workbook called **Functions**.
- If necessary, click on the **Sum** worksheet tab.



- Click on cell C8.

	Sales Region	No of sales
4	North	34
5	South	11
6	East	84
7	West	38
8	TOTAL	

- In this cell we need to sum the values in the column above.
- Click on the **Formulas** tab and within the **Function Library** group click on the **AutoSum** icon.



**TIP:** Click on the **AutoSum** icon, not the **down arrow** under or beside the icon.

- You will see the following displayed on your screen.

A	B	C	D
1			
2			
3	<b>Sales Region</b>	<b>No of sales</b>	
4	North	34	
5	South	11	
6	East	84	
7	West	38	
8	<b>TOTAL</b>	=SUM(C4:C7)	
9		SUM(number1, [number2], ...)	

- Press the **Enter** key and you will see the AutoSum result in cell **C8**.

C9	A	B	C	D
1				
2				
3	<b>Sales Region</b>	<b>No of sales</b>		
4	North	34		
5	South	11		
6	East	84		
7	West	38		
8	<b>TOTAL</b>	167		
9				

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.

C8	A	B	C
1			
2			
3	<b>Sales Region</b>	<b>No of sales</b>	
4	North	34	
5	South	11	
6	East	84	
7	West	38	
8	<b>TOTAL</b>	167	
9			

As you can see the function is:

**=SUM(C4:C7)**

- This function tells Excel to sum the values in the range **C4:C7**.

## Average function

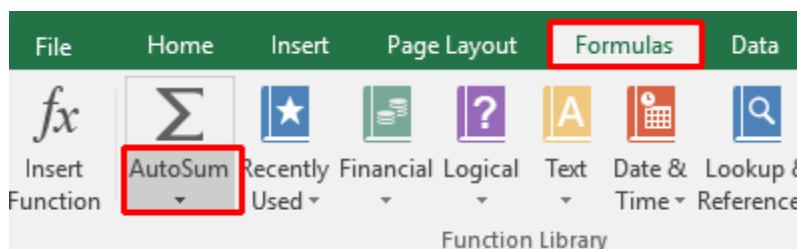
- Click on the **Average** worksheet tab.



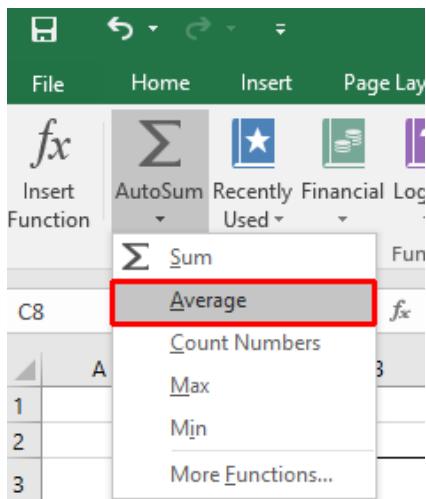
- Click on cell **C8**.

A	B	C
1		
2		
3	<b>Sales Region</b>	<b>No of sales</b>
4	North	34
5	South	11
6	East	84
7	West	38
8	<b>Average no. of sales per region</b>	
9		
10		

- In this cell we want to display the average number of sales within the regions.
- Click on the **Formulas** tab and within the **Function Library** group click on the arrow under (or next to) the **AutoSum** icon.



- You will see a drop down list displayed. Click on the **Average** command.



- You will see the following displayed on your screen.

A	B	C	D
1			
2			
3	<b>Sales Region</b>	<b>No of sales</b>	
4	North	34	
5	South	11	
6	East	84	
7	West	38	
8	<b>Average no. of sales per region</b>	=AVERAGE(C4:C7)	

- Press the **Enter** key and you will see the average value displayed in cell **C8**.

A	B	C
1		
2		
3	<b>Sales Region</b>	<b>No of sales</b>
4	North	34
5	South	11
6	East	84
7	West	38
8	<b>Average no. of sales per region</b>	<b>41.75</b>

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.

	A	B	C
1			
2			
3	<b>Sales Region</b>		<b>No of sales</b>
4	North		34
5	South		11
6	East		84
7	West		38
8	Average no. of sales per region		41.75

As you can see the function is:

**=AVERAGE(C4:C7)**

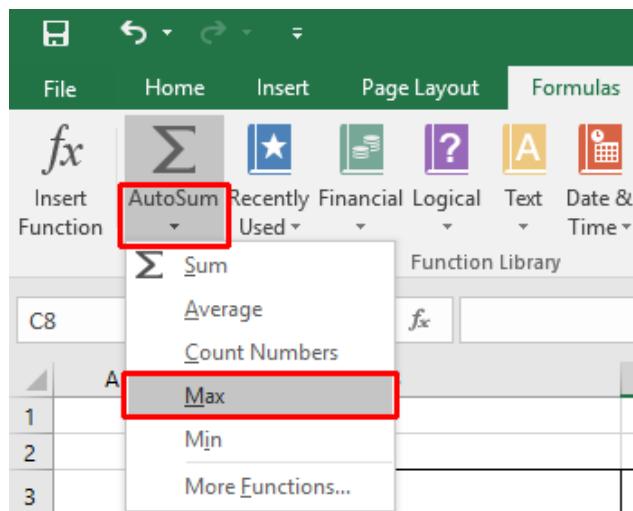
- This function tells Excel to sum the average in the range C4:C7.

## Max function

- Click on the **Max** worksheet tab.



- Click on cell C8. In this cell we want to display the highest number of sales within a region.
- Click on the **Formulas** tab and within the **Function Library** group click on the **down arrow** under (or next to) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Max** command.



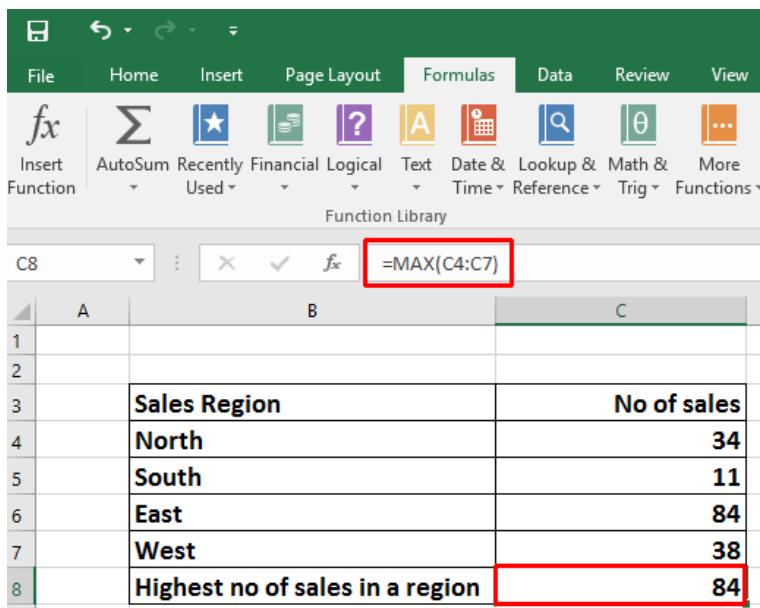
- You will see the following displayed on your screen.

SUM	A	B	C	D
	1			
	2			
	3	<b>Sales Region</b>	<b>No of sales</b>	
	4	North	34	
	5	South	11	
	6	East	84	
	7	West	38	
	8	Highest no of sales in a region	=MAX(C4:C7)	
	9		MAX(number1, [number2], ...)	
	10			

- Press the **Enter** key and you will see the maximum value displayed in cell **C8**.

C18	A	B	C
	1		
	2		
	3	<b>Sales Region</b>	<b>No of sales</b>
	4	North	34
	5	South	11
	6	East	84
	7	West	38
	8	Highest no of sales in a region	84
	9		

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.



The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C
1			
2			
3	<b>Sales Region</b>	<b>No of sales</b>	
4	North	34	
5	South	11	
6	East	84	
7	West	38	
8	<b>Highest no of sales in a region</b>	<b>84</b>	

The formula `=MAX(C4:C7)` is entered into cell C8. The cell containing the formula and its result are highlighted with a red box.

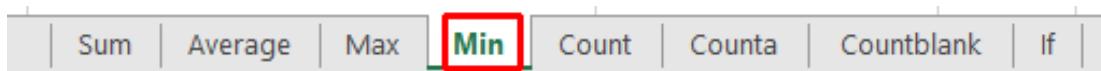
As you can see the function is:

**=MAX(C4:C7)**

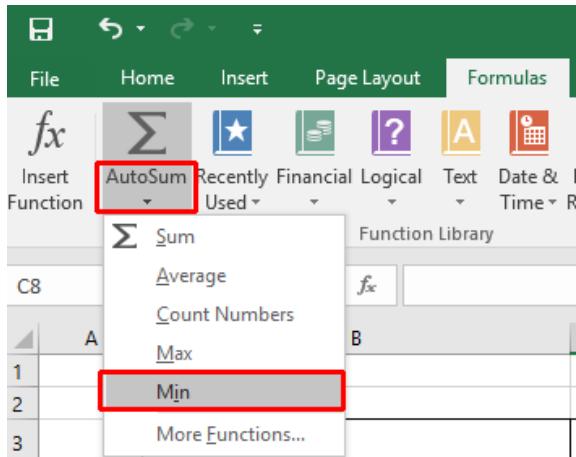
- This function tells Excel to display the maximum value within the range **C4:C7**.

## Min function

- The MIN function will display the minimum number within a range.
- Click on the **Min** worksheet tab.



- Click on cell **C8**. In this cell we want to display the lowest number of sales within a region.
- Click on the **Formulas** tab and within the **Function Library** group click on the **down arrow** under (or next to) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Min** command.



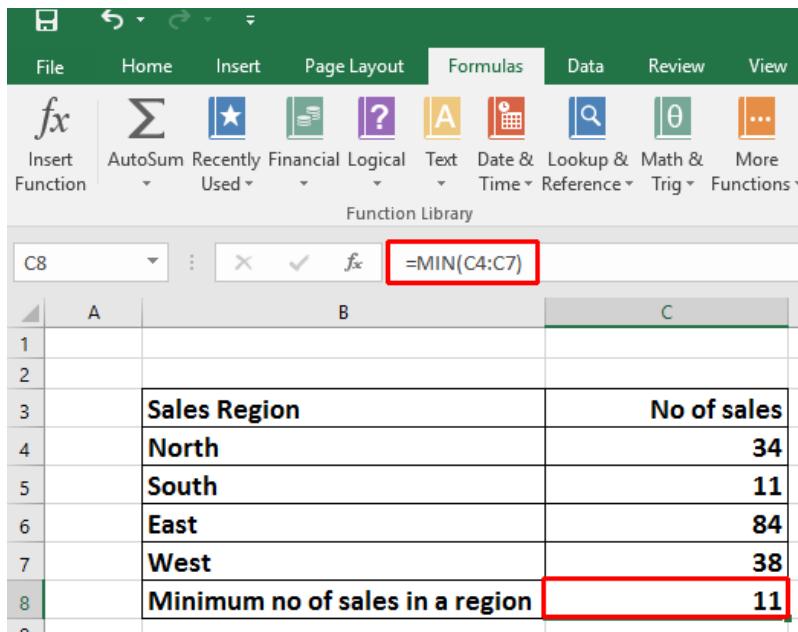
- You will see the following displayed on your screen.

Sales Region	No of sales
North	34
South	11
East	84
West	38
Minimum no of sales in a region	=MIN(C4:C7)

- Press the **Enter** key and you will see the minimum value displayed in cell **C8**.

A	B	C
1		
2		
3	<b>Sales Region</b>	<b>No of sales</b>
4	North	34
5	South	11
6	East	84
7	West	38
8	Minimum no of sales in a region	11
9		

- Click on cell **C8**, and you will see the function displayed in the bar just above your worksheet.



The screenshot shows a Microsoft Excel spreadsheet. The ribbon at the top has the 'Formulas' tab selected. In the formula bar, the cell reference 'C8' is shown, followed by the formula '=MIN(C4:C7)' which is highlighted with a red box. The main area of the spreadsheet contains a table with three columns: 'Sales Region' (A), 'No of sales' (B), and an unnamed column (C). The data rows are: North (34), South (11), East (84), West (38), and a summary row 'Minimum no of sales in a region' (11) which is also highlighted with a red box.

Sales Region	No of sales	
North	34	
South	11	
East	84	
West	38	
<b>Minimum no of sales in a region</b>	<b>11</b>	

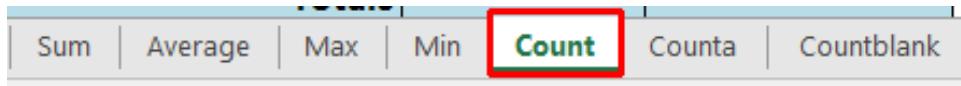
As you can see the function is:

=MIN(C4:C7)

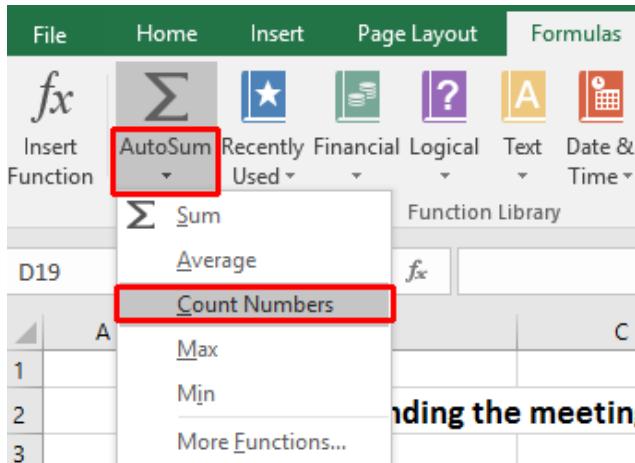
- This function tells Excel to display the minimum value within the range C4:C7.

## Count function

- The **Count** function will count up the number of cells which contain numbers.
- Click on the **Count** worksheet tab.



- Click on cell C19. In this cell we want to display the number of cells in the column above that contain a number.
- Click on the **Formulas** tab and within the **Function Library** group click on the **down arrow** under (or next to) the **AutoSum** icon. You will see a drop down list displayed. Click on the **Count Numbers** command.



- You will see the following displayed on your screen.

Delegates attending the meeting		
Delegate country	Present	Not present
Australia	1	
Brazil	1	
Canada	1	
China		1
Cyprus	1	
Greece	1	
India	1	1
Ireland	1	
New Zealand	1	
Pakistan	1	
South Africa	1	
Turkey		1
UK	1	
USA	1	
	=COUNT(C17:C18)	

- WARNING:** In all the previous examples, there was a column containing values immediately above the cell into which we inserted the function. In this case some of the cells within the column are empty and Excel, as you can see, has only applied the Count function to the range C17:C18. The reason for this is that the next cell up, i.e. cell C16 is empty.

We need to tell Excel that the range we are interested in actually extends from C5:C18.

To do this, click on cell C18 and while holding down the mouse button drag up to cell C5. Then release the mouse button. Your screen should now look like this.

C18	B	C	D
	Delegate country	Present	Not present
5	Australia	1	
6	Brazil	1	
7	Canada	1	
8	China		1
9	Cyprus	1	
10	Greece	1	
11	India	1	1
12	Ireland	1	
13	New Zealand	1	
14	Pakistan	1	
15	South Africa	1	
16	Turkey		1
17	UK	1	
18	USA	1	
19	<code>=COUNT(C5:C18)</code>		

- Press the **Enter** key and you will see the count value displayed in cell **C19**.

A	B	C	D
3			
4	Delegate country	Present	Not present
5	Australia	1	
6	Brazil	1	
7	Canada	1	
8	China		1
9	Cyprus	1	
10	Greece	1	
11	India	1	1
12	Ireland	1	
13	New Zealand	1	
14	Pakistan	1	
15	South Africa	1	
16	Turkey		1
17	UK	1	
18	USA	1	
19	Totals	12	

- Click on cell **C19**, and you will see the function displayed in the bar just above your worksheet.

	A	B	C	D
3				
4		Delegate country	Present	Not present
5		Australia	1	
6		Brazil	1	
7		Canada	1	
8		China		1
9		Cyprus	1	
10		Greece	1	
11		India	1	1
12		Ireland	1	
13		New Zealand	1	
14		Pakistan	1	
15		South Africa	1	
16		Turkey		1
17		UK	1	
18		USA	1	
19		Totals	12	

As you can see the function is:

**=COUNT(C5:C18)**

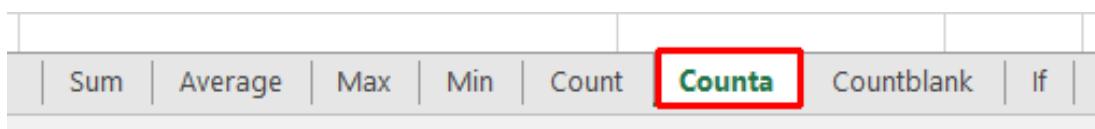
- This function tells Excel to display the number of cells containing a value within the range **C5:C18**.

**NOTE:** If you made a mistake, click on cell **C19** and press the **Del** key. Then try again.

- Use the same technique to count up the number of people who could not attend, and display the value in cell **D19**.

## The COUNTA function

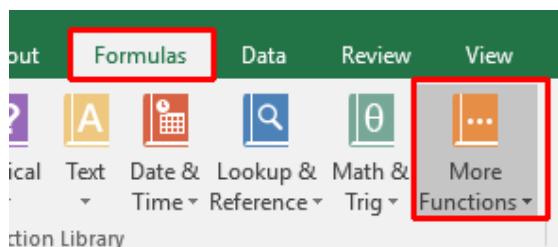
- Used to count the number of cells within a range that are not empty.
- Click on the **Counta** worksheet tab.



- You will see data that contains a mixture of numbers (1) and letters (x).

A	B	C
2	Delegates attending the meeting	
4	Delegate country	Present
5	Australia	x
6	Brazil	1
7	Canada	1
8	China	
9	Cyprus	x
10	Greece	1
11	India	1
12	Ireland	x
13	New Zealand	1
14	Pakistan	1
15	South Africa	x
16	Turkey	
17	UK	1
18	USA	1
19	Number of delegates attending:	

- The Count function would only count up the number of cells containing numbers, whereas Counta will count the number of cells containing numbers and letters.
- Click on cell C19.
- Click on the **More Functions** icon (contained within the **Function Library** section of the **Formulas** tab).

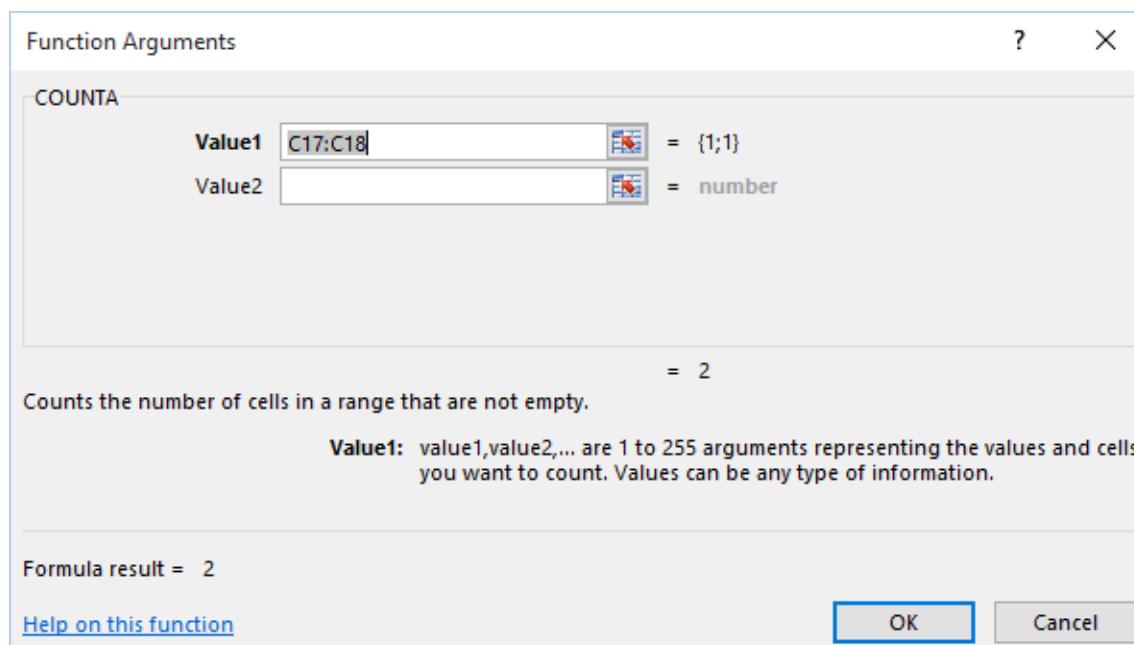


- From the drop down displayed, select **Statistical**. From the submenu select **Counta**.

Delegates attending the meeting

Delegate country	Present
Australia	x
Brazil	1
Canada	1
China	
Cyprus	x
Greece	1
India	1
Ireland	x
New Zealand	1
Pakistan	1
South Africa	x
Turkey	
UK	1
USA	1
Number of delegates attending:	

- This will display the **Function Arguments** dialog box, as illustrated.



- If necessary move the dialog box to one side and then select the cell range C5:C18, as illustrated.

The screenshot shows an Excel spreadsheet titled "Delegates attending the meeting". Column A lists countries, and column C lists their status ("Present" or "X"). Row 19 contains the formula =COUNTA(C5:C18). A callout box highlights the "Function Arguments" dialog for the COUNTA function, which is displayed over the spreadsheet. The dialog shows "Value1" set to "C5:C18" and "Value2" as "number". It also displays the formula result as 12 and the description: "Counts the number of cells in a range that are not empty." Buttons for "OK" and "Cancel" are visible at the bottom right of the dialog.

Delegates attending the meeting		
	B	C
4	Delegate country	Present
5	Australia	x
6	Brazil	1
7	Canada	1
8	China	
9	Cyprus	x
10	Greece	1
11	India	1
12	Ireland	x
13	New Zealand	1
14	Pakistan	1
15	South Africa	x
16	Turkey	
17	UK	1
18	USA	1
19	Number of delegates attending:	=COUNTA(C5:C18)

- The **Function Argument** dialog box will look like this.

The screenshot shows the "Function Arguments" dialog for the COUNTA function. The "Value1" field is highlighted with a red box and contains the value "C5:C18". The "Value2" field is set to "number". Below the dialog, the formula result is shown as 12, along with the description: "Counts the number of cells in a range that are not empty." A note below states: "Value1: value1,value2,... are 1 to 255 arguments representing the values and cells you want to count. Values can be any type of information." At the bottom, there are "OK" and "Cancel" buttons.

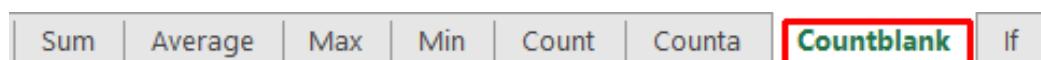
- Click on the **OK** button and you will see the following.

A	B	C
2	<b>Delegates attending the meeting</b>	
3		
4	<b>Delegate country</b>	<b>Present</b>
5	Australia	x
6	Brazil	1
7	Canada	1
8	China	
9	Cyprus	x
10	Greece	1
11	India	1
12	Ireland	x
13	New Zealand	1
14	Pakistan	1
15	South Africa	x
16	Turkey	
17	UK	1
18	USA	1
19	<b>Number of delegates attending:</b>	<b>12</b>

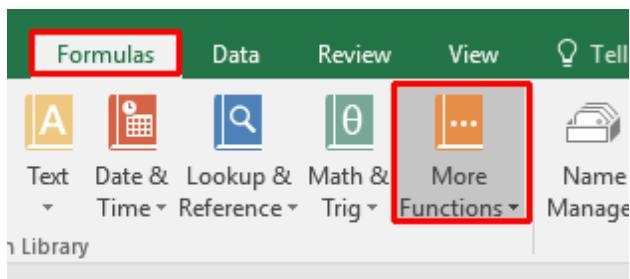
- As you can see the function has counted every instance of a number or letter within the specified cell range.

### The COUNTBLANK function

- Used to count empty cells within a cell range.
- Click on the **Countblank** worksheet tab.



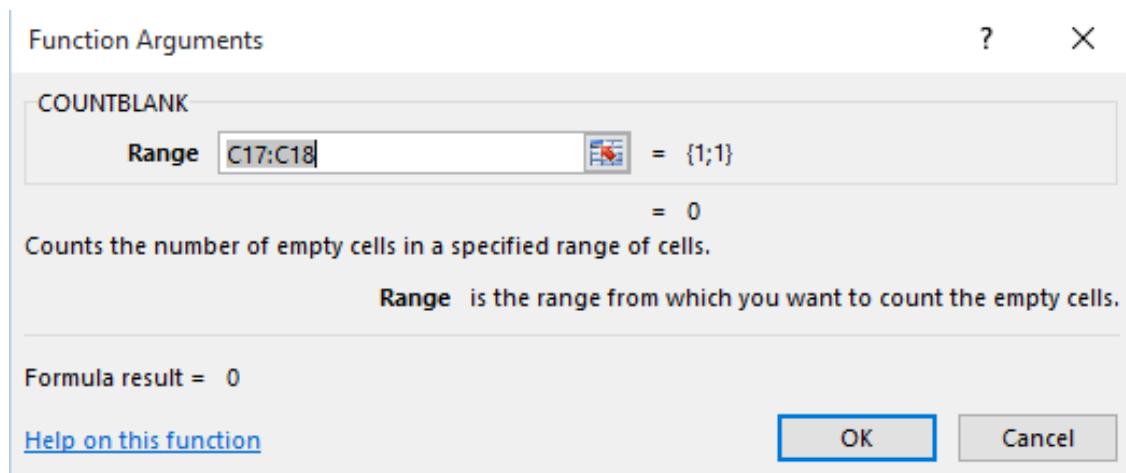
- Click on cell C19.
- Click on the **More Functions** icon (contained within the **Function Library** section of the **Formulas** tab).



- From the drop down displayed, select **Statistical**. From the submenu select **Countblank**. You may have to scroll down the list to see this function.

A screenshot of the Microsoft Excel ribbon with the 'Formulas' tab selected. The 'More Functions' button is highlighted with a red box. A dropdown menu is open, showing the 'Statistical' category expanded. The 'COUNTBLANK' function is highlighted with a red box in the list. To the left, a table titled 'Delegates attending the meeting' is visible, showing the number of delegates present from various countries.

- This will display the **Function Arguments** dialog box, as illustrated.



- If necessary move the dialog box to one side and then select the cell range C5:C18, as illustrated.

A	B	C	D	E	F	G	H	I	J	K	L	M
2	Delegates attending the meeting											
3												
4	Delegate country	Present										
5	Australia	1										
6	Brazil	1										
7	Canada	1										
8	China											
9	Cyprus	1										
10	Greece	1										
11	India	1										
12	Ireland	1										
13	New Zealand	1										
14	Pakistan	1										
15	South Africa	1										
16	Turkey											
17	UK	1										
18	USA	1										
19	Number of delegates absent		C5:C18									

Function Arguments

COUNTBLANK

Range C5:C18 = {1;1;1;0;1;1;1;1;1;1;0;1;1} = 2

Counts the number of empty cells in a specified range of cells.

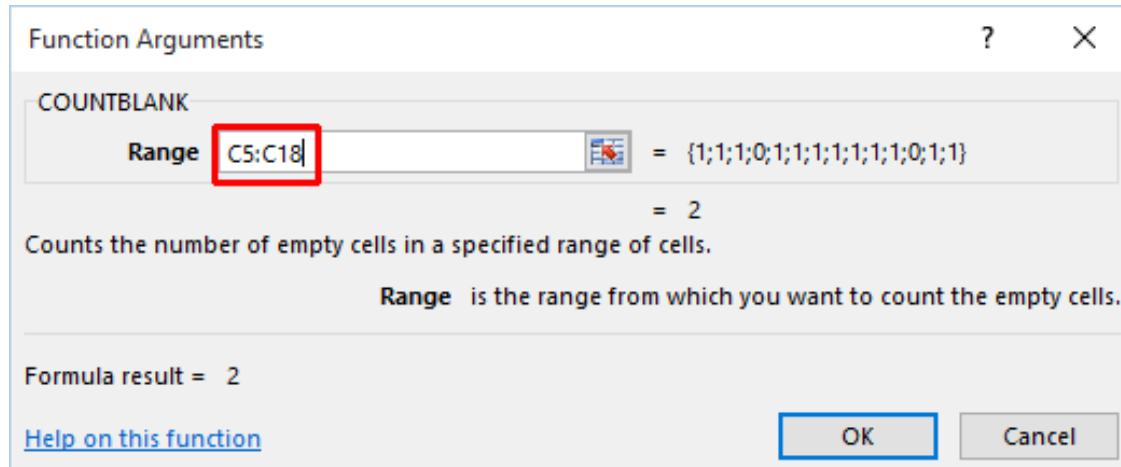
Range is the range from which you want to count the empty cells.

Formula result = 2

[Help on this function](#)

OK Cancel

- The **Function Argument** dialog box will look like this.



- Click on the **OK** button.
- Click on cell **C18** and you will see the following.

The screenshot shows an Excel spreadsheet titled 'Delegates attending the meeting'. The data is organized in columns: 'Delegate country' (A4:A18), 'Present' (B4:B18), and a summary row 'Number of delegates absent' (C19). The 'Present' column contains the value '1' for each country listed. The 'Number of delegates absent' cell (C19) contains the formula '=COUNTBLANK(C5:C18)', which is highlighted with a red box. The formula bar at the top of the spreadsheet also displays this formula. The spreadsheet has a standard header row and rows 2 through 20.

Delegates attending the meeting		
Delegate country	Present	Number of delegates absent
Australia	1	
Brazil	1	
Canada	1	
China		
Cyprus	1	
Greece	1	
India	1	
Ireland	1	
New Zealand	1	
Pakistan	1	
South Africa	1	
Turkey		
UK	1	
USA	1	
Number of delegates absent		2

- As you can see the function has counted every instance of an empty cell within the specified cell range.

## What are 'IF functions'?

- Excel has a number of functions which allow us to evaluate values and make decisions based on the result of the evaluation. The **IF( ) FUNCTION** is one of these.

### IF( ) SYNTAX

The format (Syntax) of the IF( ) function is as follows:

**IF(LOGICAL\_TEST, ACTION\_IF\_TRUE, ACTION\_IF\_FALSE)**

### LOGICAL\_TEST

The logical\_test evaluates an expression to see if it passes the test, i.e. is TRUE or does not pass the test, i.e. is FALSE

Logical operators		Values for Evaluation A=10      B=5 C=15      D=10	Result
= (Equal to)	A=B		FALSE
	A=D		TRUE
> (Greater than)	A>B		TRUE
	A>C		FALSE
< (Less than)	A<B		FALSE
	A<C		TRUE
>= (Greater than or Equal to)	A>=B		TRUE
	A>=D		TRUE
	A>=C		FALSE
<= (Less than or Equal to)	A<=B		FALSE
	A<=C		TRUE
	A<=D		TRUE

- **ACTION\_IF\_TRUE**

Action\_if\_true can be a value or an operation. Whichever, the result is placed in the cell which contains the IF( ) Function if the logical\_test is true.

### ACTION\_IF\_FALSE

Action\_if\_false can be a value or an operation. Whichever, the result is placed in the cell which contains the IF( ) Function if the logical\_test is false.

## Using the IF function

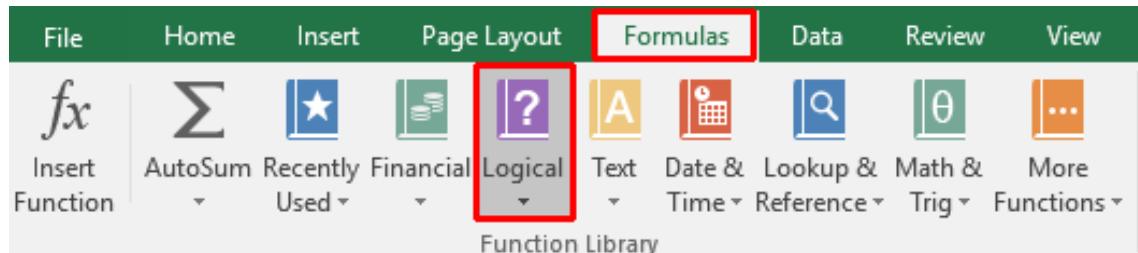
- Click on the If worksheet tab.



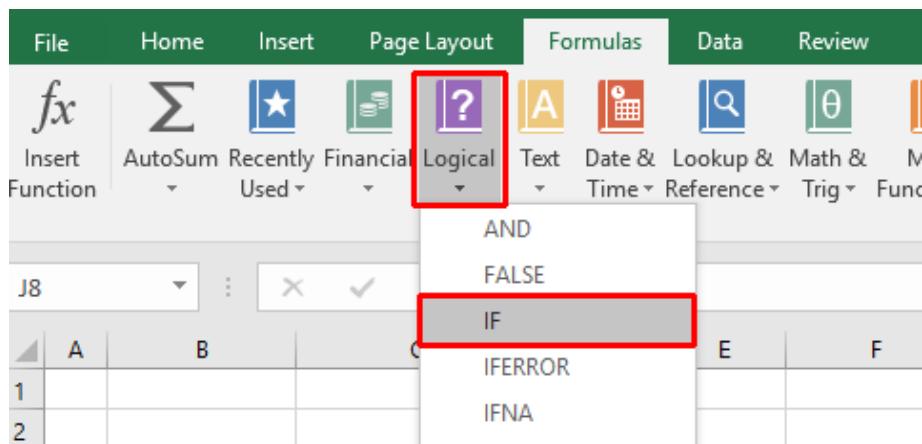
- In cells J8:J13 we need to display the word **PASS** or **FAIL**, depending on whether the average is over **70%**.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6		<b>SUBJECTS</b>								
7	STUDENTS	Mathematics	English	History	Geography					
8	Hadiya	68	78	59	59					
9	Dai	69	69	69	67					
10	Aaron	76	78	79	87					
11	Rowan	67	86	58	65					
12	Aaliyah	85	77	87	78					
13	Gabriela	59	68	78	89					
14	To pass a student needs an average grade of over 70%									
15										
16										

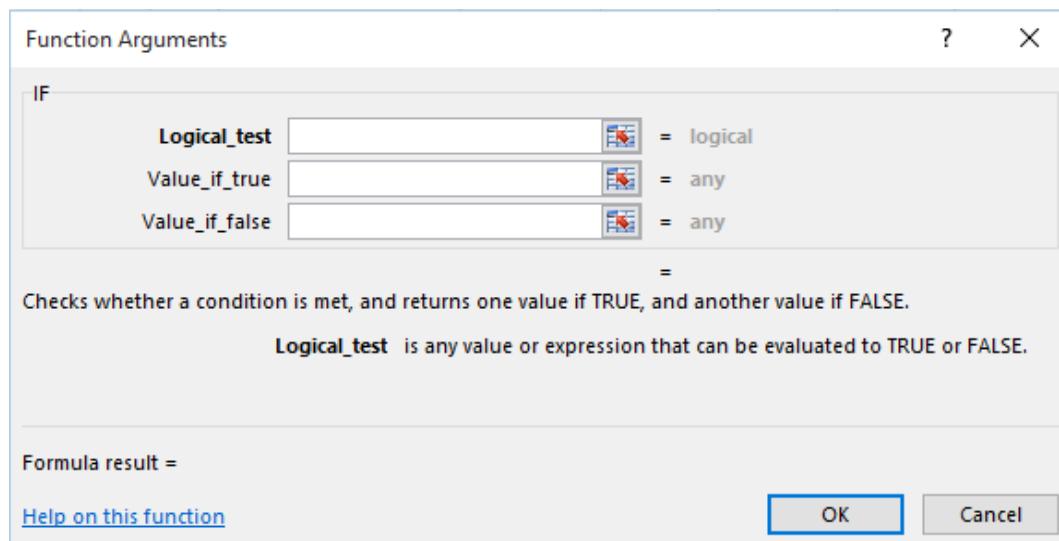
- Click on the cell J8.
- Click on the **Logical** icon within the **Function Library** group of the **Formulas** tab.



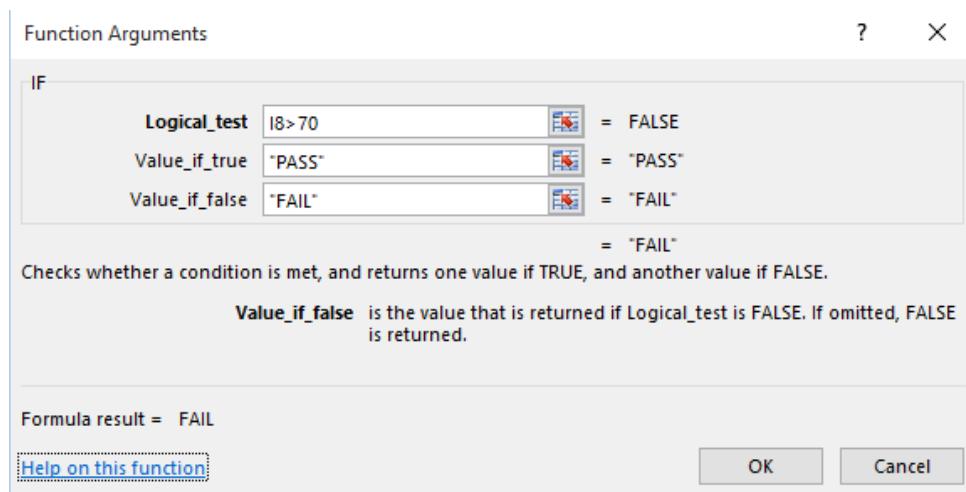
- This will display a drop down list. Select the **IF** command.



- This will display the **Function Arguments** dialog box.



- In the **LOGICAL\_TEST** section of the dialog box, we enter the logical test, i.e. **I8>70**
- In the **VALUE\_IF\_TRUE** section of the dialog box, we enter the word **PASS**.
- In the **VALUE\_IF\_FALSE** section of the dialog box, we enter the word **FAIL**.
- Your dialog box will now look like this.



- Click on the **OK** button to continue. Your screen will now look like this.

The screenshot shows an Excel spreadsheet titled "Functions - Excel". The main worksheet contains a table of student grades across four subjects: Mathematics, English, History, and Geography. The formula bar displays the formula `=IF(I8>70,"PASS","FAIL")`. To the right, there is a smaller table titled "Average grades" with two columns: "Average grades" and "Passed?". The "Passed?" column uses the same IF function to determine if the average grade is above 70. Both tables have their respective ranges highlighted with red boxes.

SUBJECTS				
STUDENTS	Mathematics	English	History	Geography
Hadiya	68	78	59	59
Dai	69	69	69	67
Aaron	76	78	79	87
Rowan	67	86	58	65
Aaliyah	85	77	87	78
Gabriela	59	68	78	89

Average grades	Passed?
66	FAIL
69	
80	
69	
82	
74	

To pass a student needs an average grade of over 70%

- Use the normal Excel drag techniques to extend this function to the cells I9:J13. Your screen will now look like this.

The screenshot shows the same Excel spreadsheet after the formula has been copied and pasted into cells I9:J13. The "Passed?" column now correctly displays "FAIL" for students Hadiya, Dai, and Rowan, and "PASS" for Aaron, Aaliyah, and Gabriela. The formula bar still shows the original formula `=IF(I8>70,"PASS","FAIL")`.

SUBJECTS				
STUDENTS	Mathematics	English	History	Geography
Hadiya	68	78	59	59
Dai	69	69	69	67
Aaron	76	78	79	87
Rowan	67	86	58	65
Aaliyah	85	77	87	78
Gabriela	59	68	78	89

Average grades	Passed?
66	FAIL
69	FAIL
80	PASS
69	FAIL
82	PASS
74	PASS

To pass a student needs an average grade of over 70%

- Save your changes and close the workbook.

# Excel 2016 Charts

## Inserting a column chart

- Open a workbook called **Chart**.

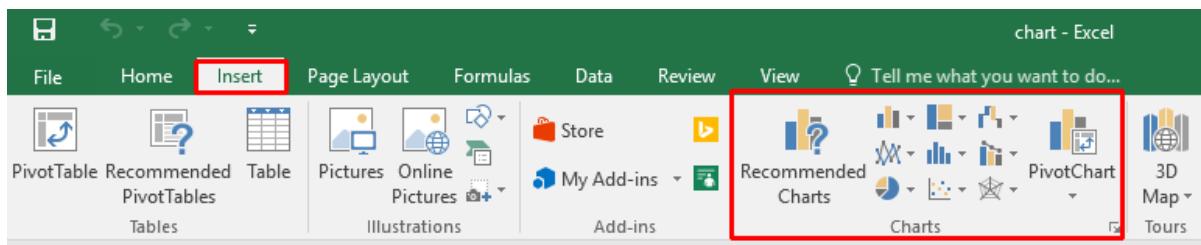
A screenshot of the Microsoft Excel 2016 ribbon interface. The ribbon tabs visible are File, Home, Insert, Page Layout, and Formulas. The Home tab is selected. The Font group on the Home tab shows 'Calibri' and '11'. The Clipboard group shows 'Cut', 'Copy', 'Format Painter', and 'Paste'. The active cell is A1. Below the ribbon is a table with the following data:

	Region	No. of sales
1	North	34
2	South	23
3	East	65
4	West	23

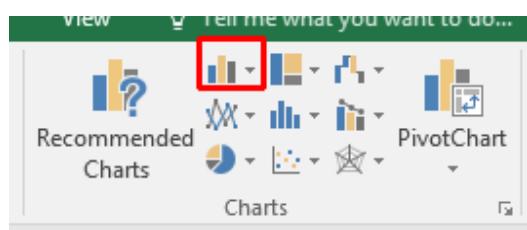
- If necessary, click on the **Column Chart** worksheet tab (at the bottom-left of your screen).



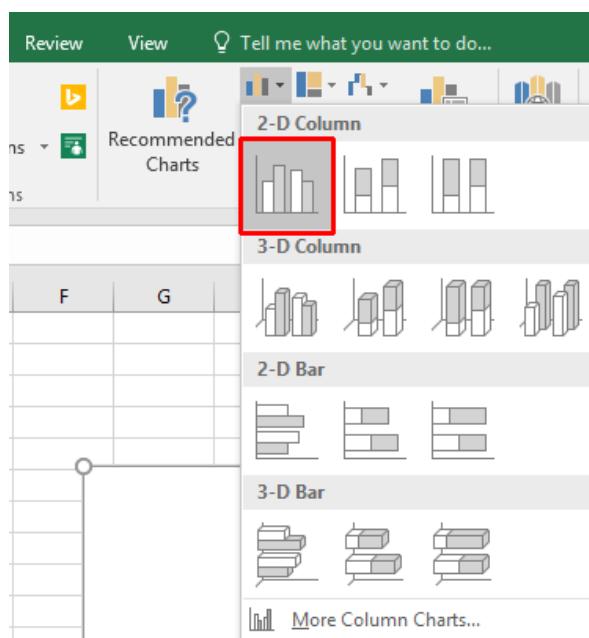
- Click within the table of data.
- Click on the **Insert** tab and you will see the **Charts** group displayed within the Ribbon.



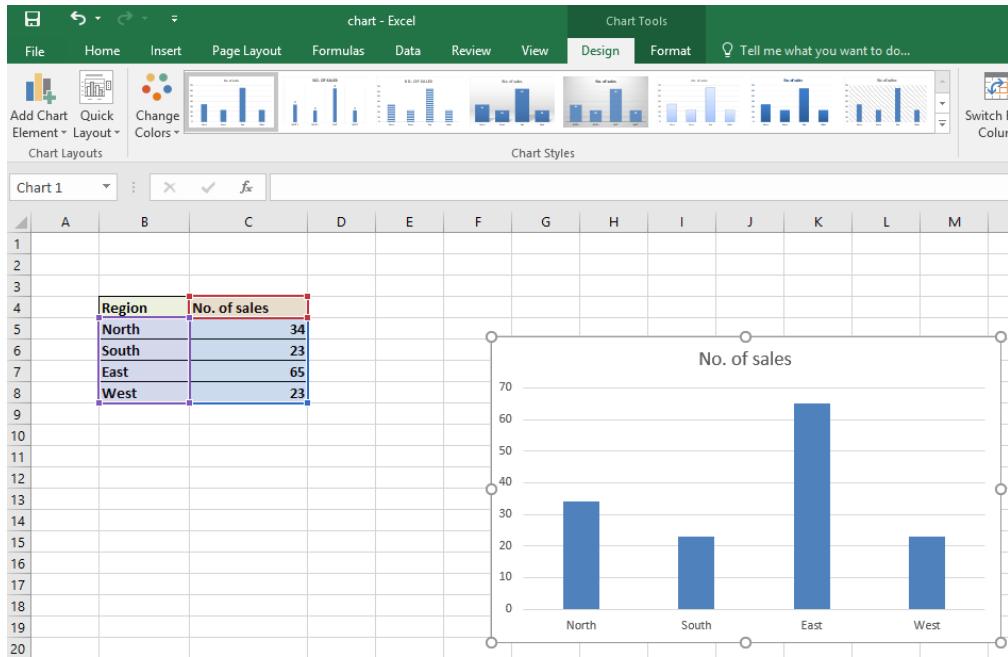
- Click on the **Column** icon



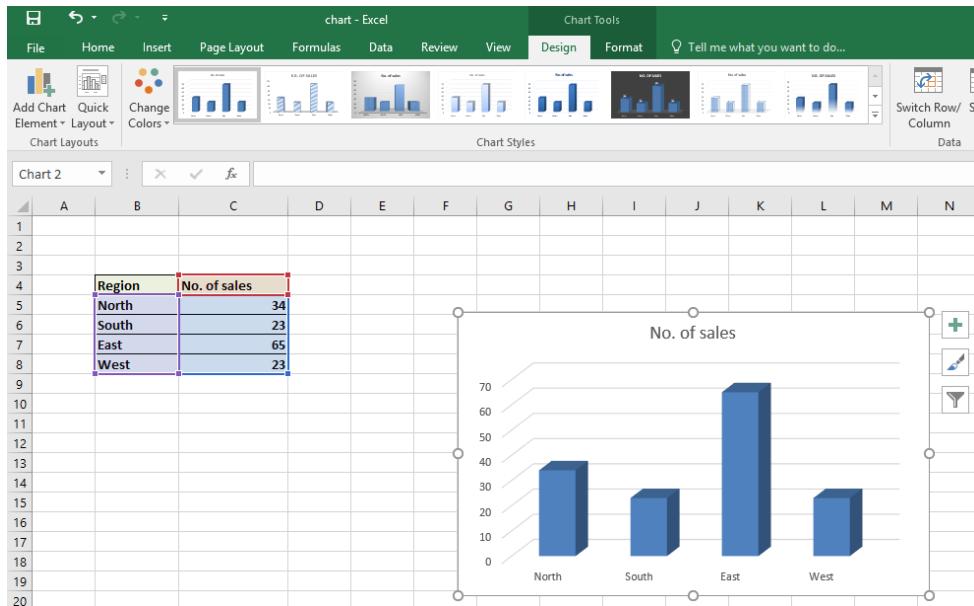
- You will see a drop down displaying a range of column chart options.



- Click on the first option, the **2-D Clustered** format, as illustrated and you will see the following chart inserted into your worksheet.



- Click on the **Undo** icon (top-left of your screen), and experiment with inserting other types of column chart such as a **3-D chart**, as illustrated below.

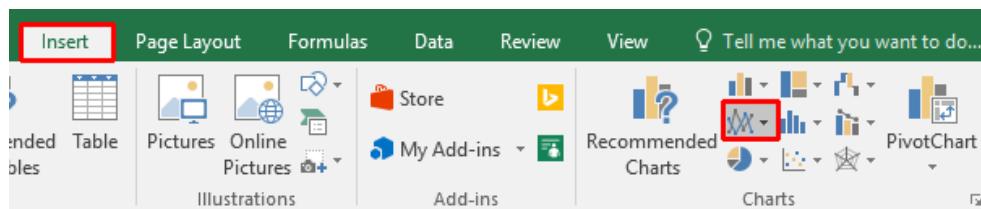


## Inserting a line chart

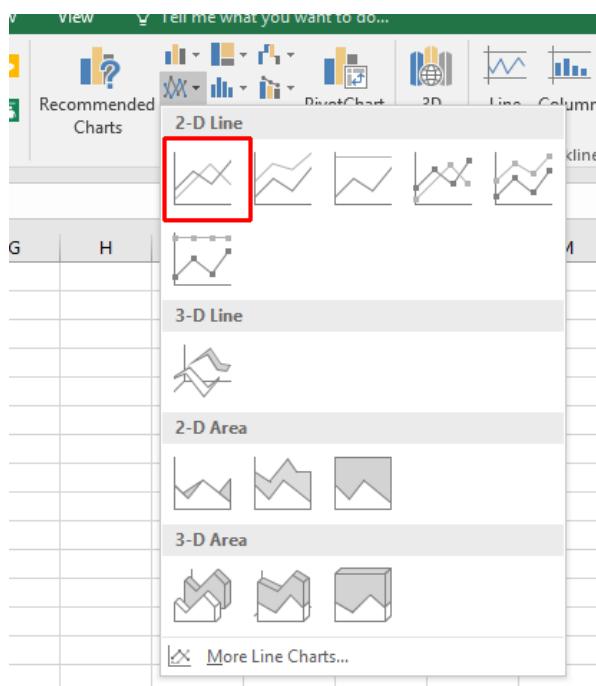
- Click on the **Line Chart** worksheet tab at the bottom of your screen.



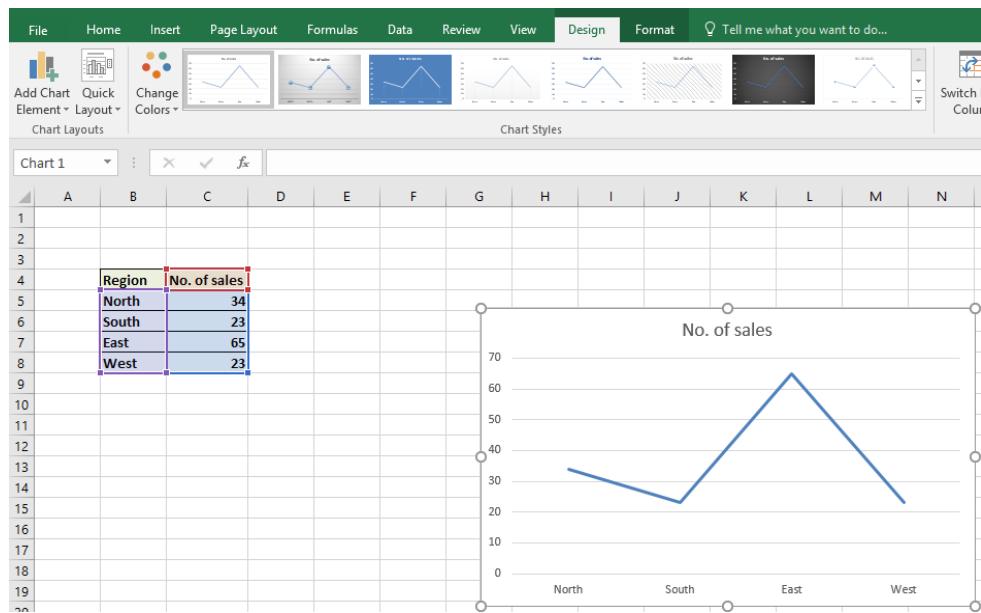
- Click within the data and then click on the **Insert** tab. Experiment with inserting different types of line chart, by clicking on the **Line** button.



- Select from the drop down displayed.



- An example is illustrated below.

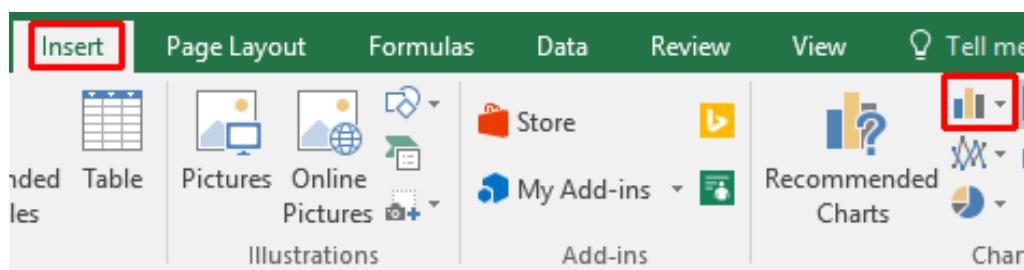


## Inserting a bar chart

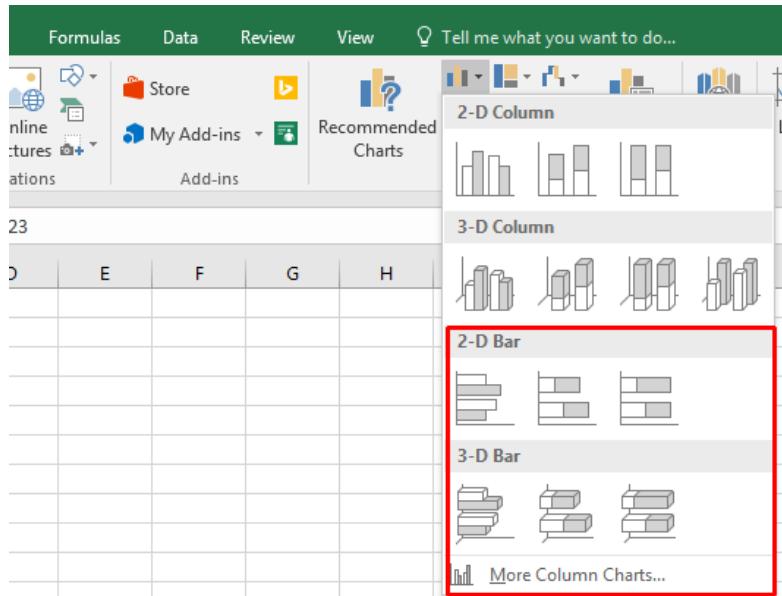
- Click on the **Bar Chart** worksheet tab at the bottom of your screen.



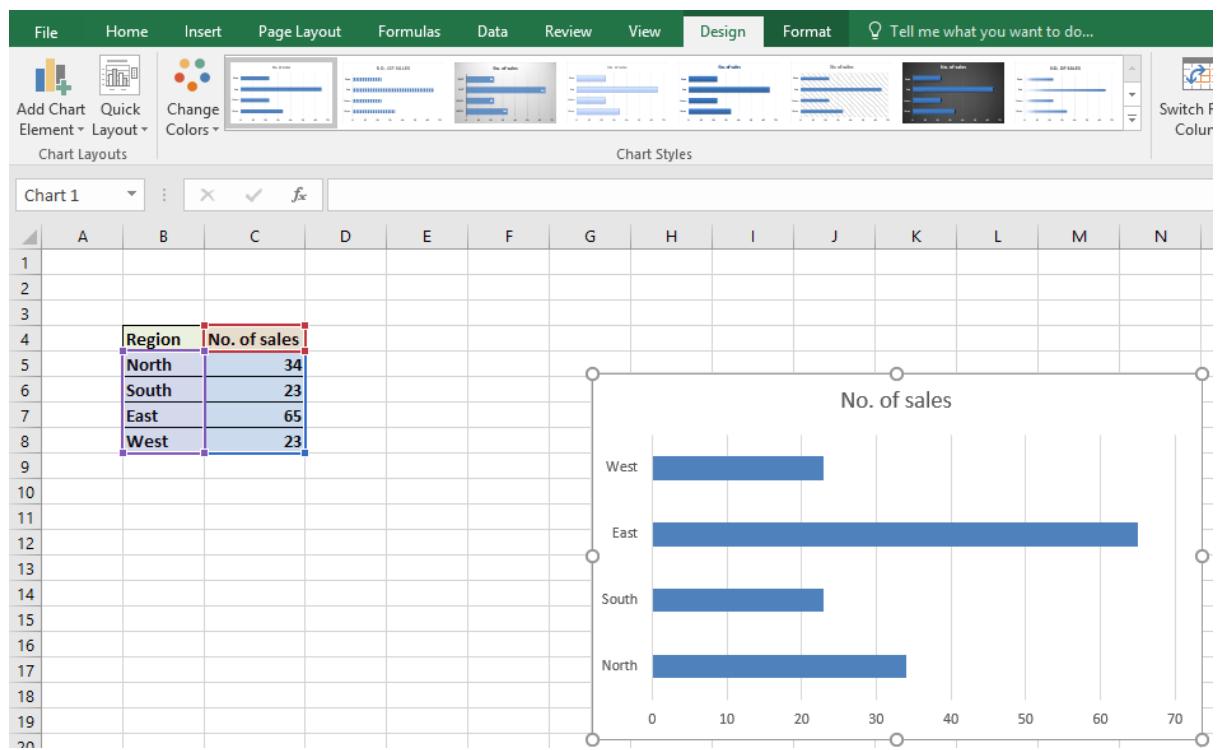
- Click within the data and experiment with inserting different types of bar chart, by clicking on the **Bar** button (under the **Insert** tab).



- Select from the drop down list displayed.

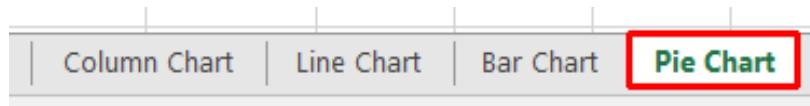


- An example is illustrated below.

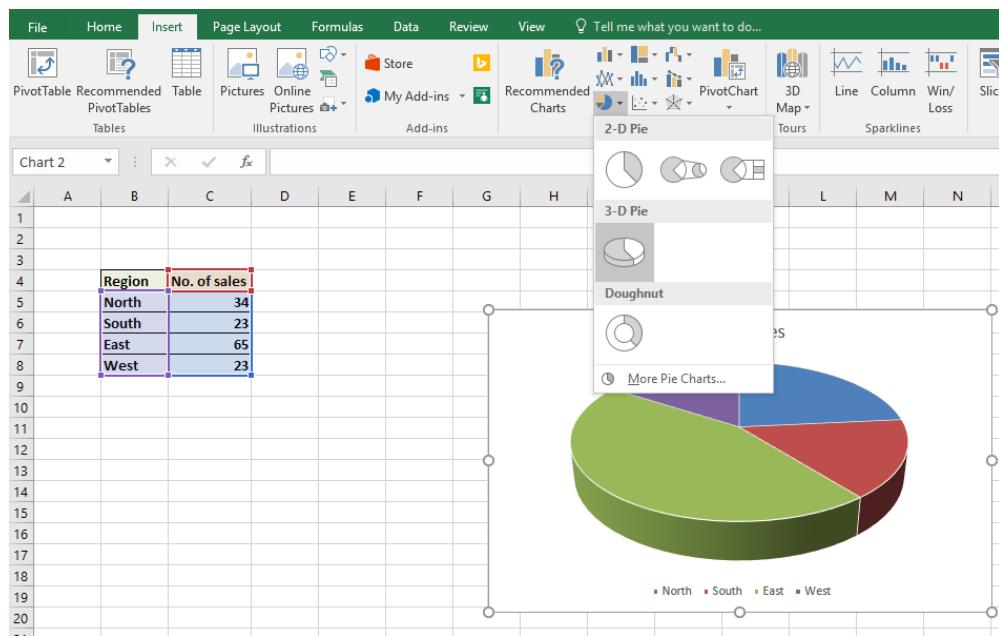


## Inserting a pie chart

- Click on the Pie Chart worksheet tab at the bottom of your screen.



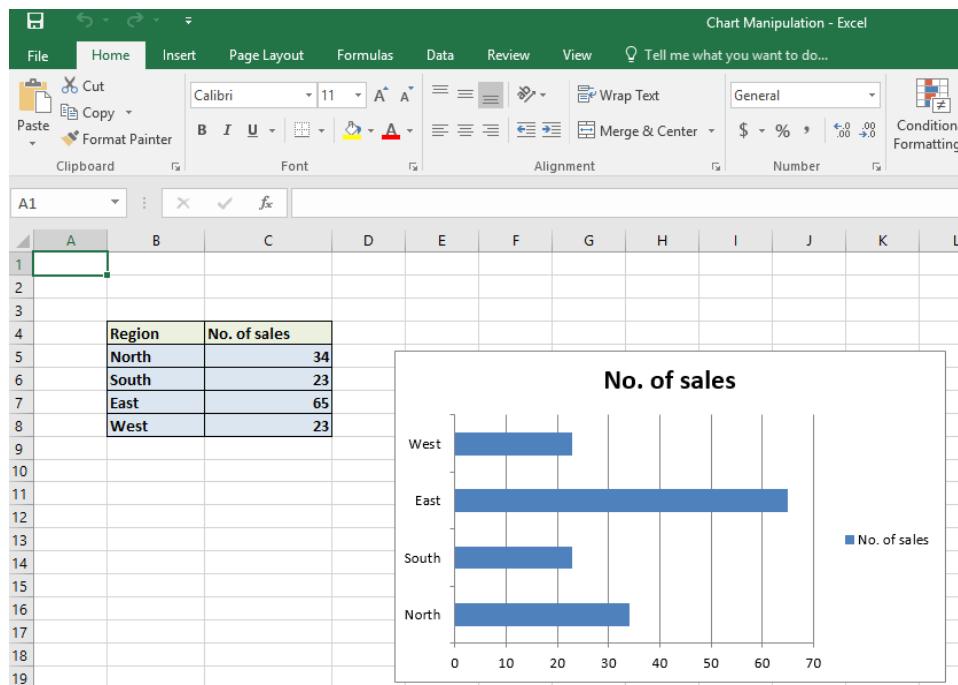
- Click within the table of data.
- Experiment with inserting different types of pie chart.



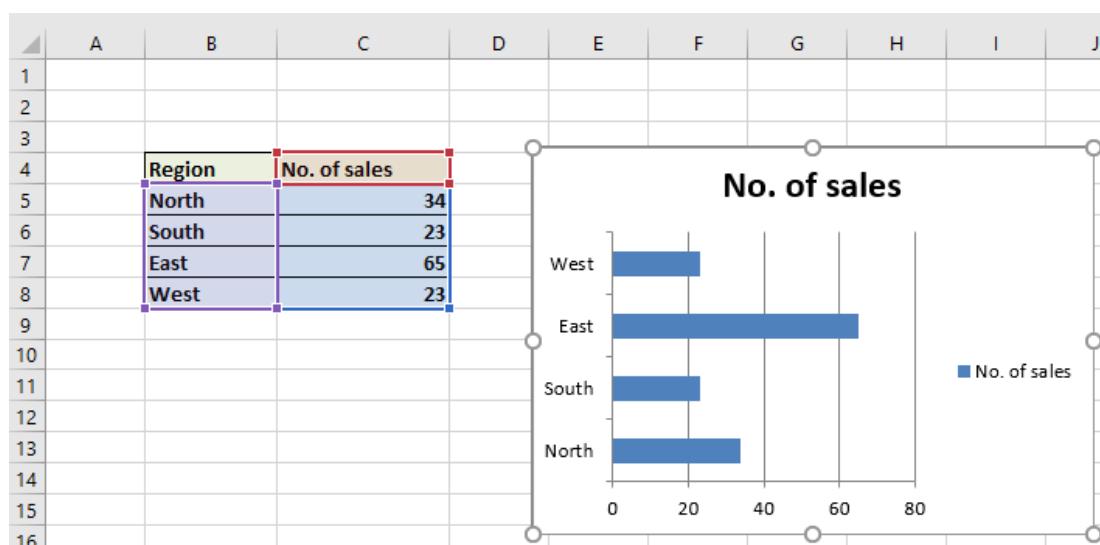
- Save your changes and close the workbook.

## Resizing a chart

- Open a workbook called **Chart Manipulation**.



- To resize a chart, click on it to select it.
- Move the mouse pointer to one of the four corners of the chart. You will notice that the mouse pointer changes to the shape of a diagonal line with an arrow at each end. When you see the mouse pointer change, press the mouse button and while keeping the button pressed move diagonally across the screen. Move away from the center of the chart to make the chart larger and toward the center of the chart to make the chart smaller. When you release the mouse button the chart will be resized.



## Deleting a chart

- Select the chart and press the **Del** key.
- Save your changes and close the workbook.

## Chart title or labels

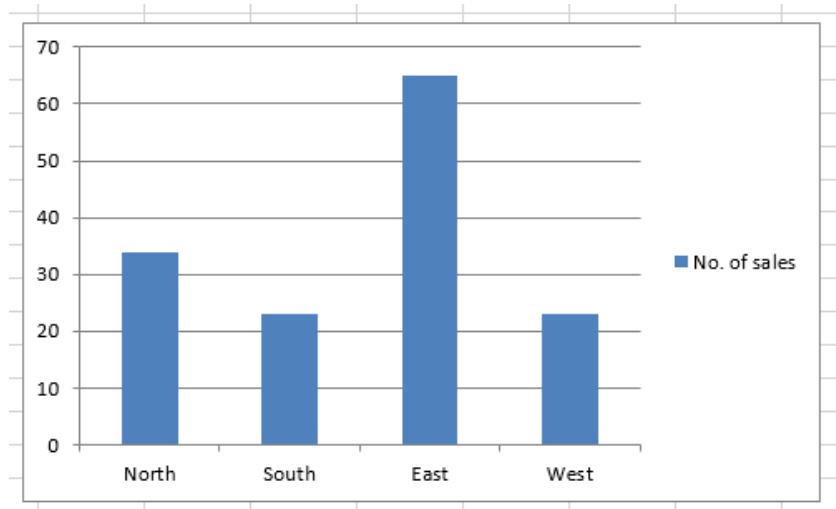
- Open a workbook called **Modifying charts**.
- If necessary, click on the **Modifying a Chart** worksheet tab (at the bottom-left of your screen).



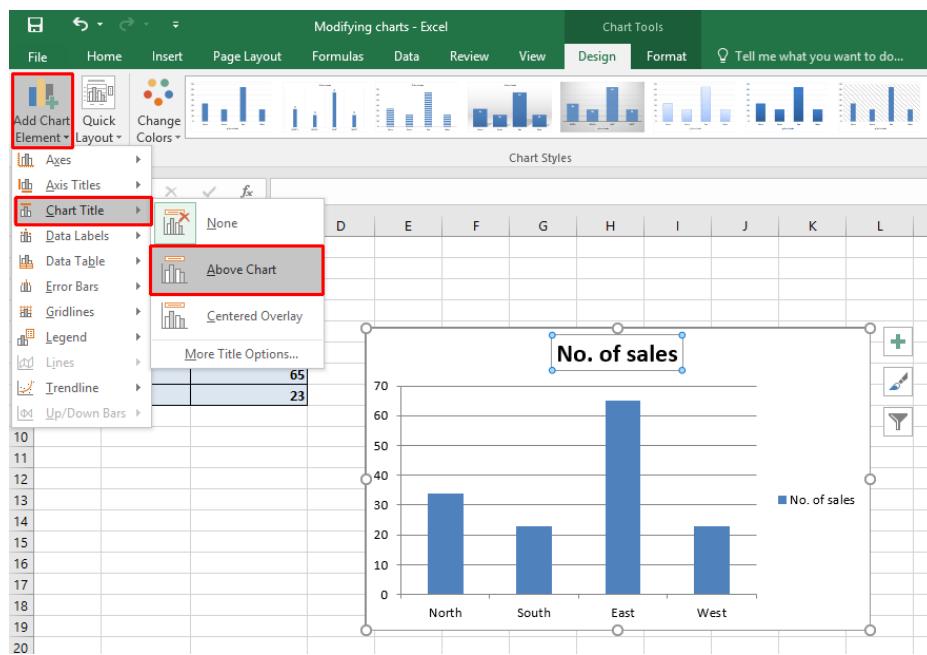
- You can see a column chart displayed within the workbook. Select the chart title, as illustrated.



- Press the **Del** key to remove the chart title. Your chart will now look like this.

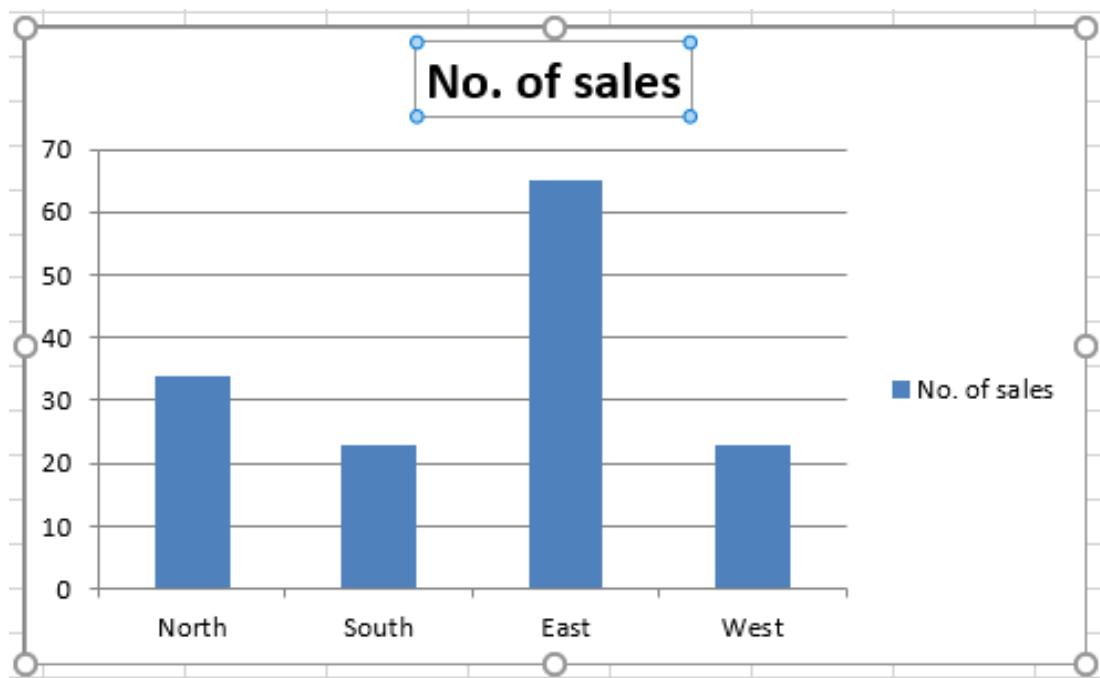


- To insert a chart title, click on chart and then click on the **Design** tab. Click on the **Add Chart Element** button. From the drop down displayed, select **Chart Type**, and from the sub-menu displayed select **Above Chart**.



- Select the required option from the drop down list displayed, such as **Above Chart**. Your chart title is once again displayed.

**TIP:** To modify the chart title text, click within the **Chart Title** and simply edit the text in the normal way. You can also apply text formatting to the Chart Title as required. An example is shown below.

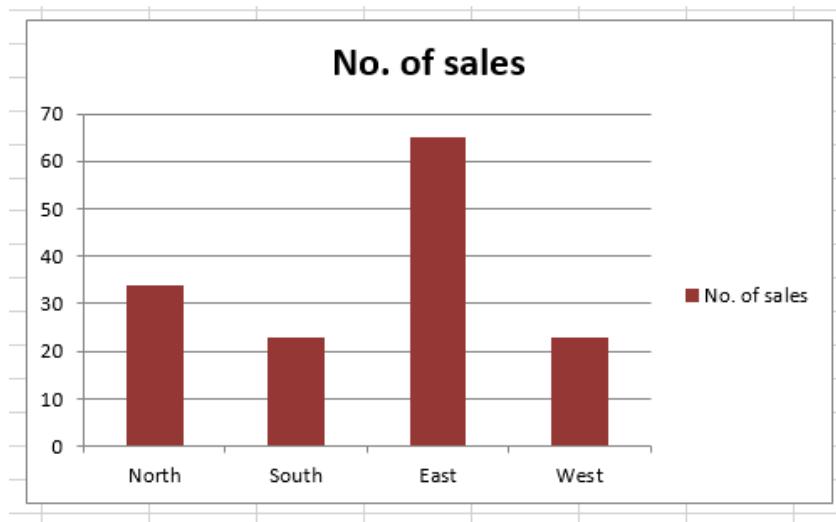


### Changing the column, bar, line or pie slice colors in a chart

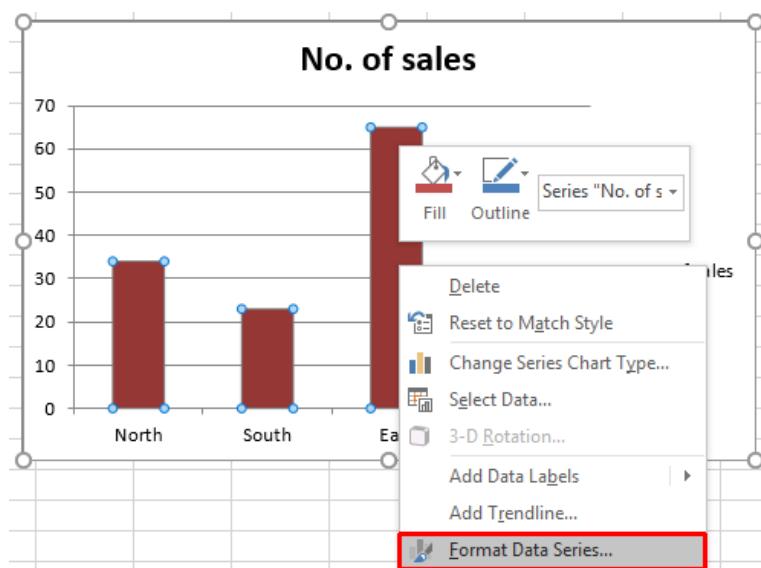
- Click on the second worksheet tab, called **Column Chart**.



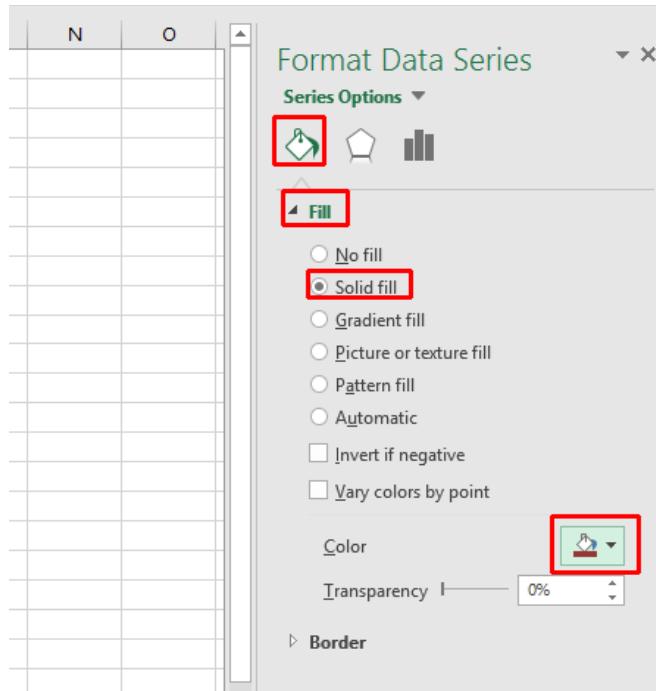
- Click on one of the columns within the chart. You should see all the columns are selected, as illustrated.



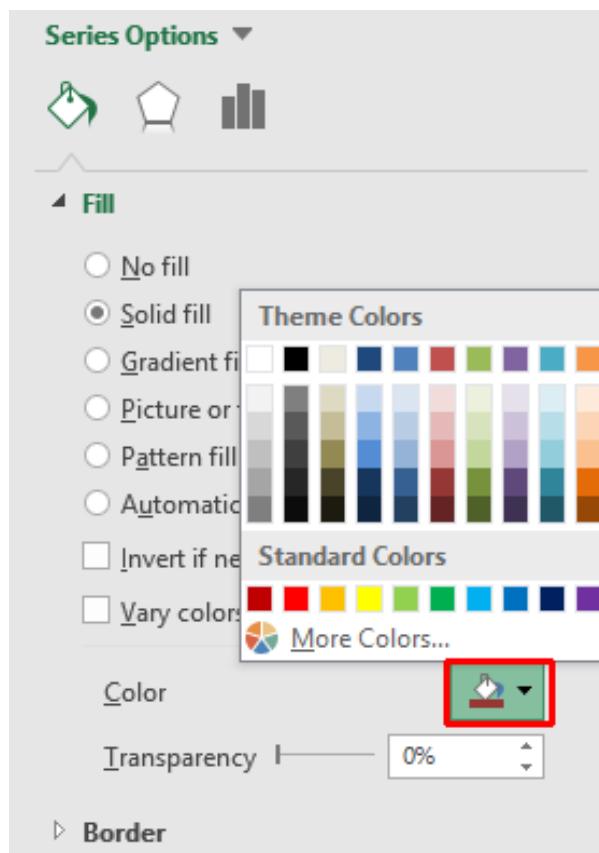
- Right click over one of the selected columns and from the popup menu displayed select the **Format Data Series** command.



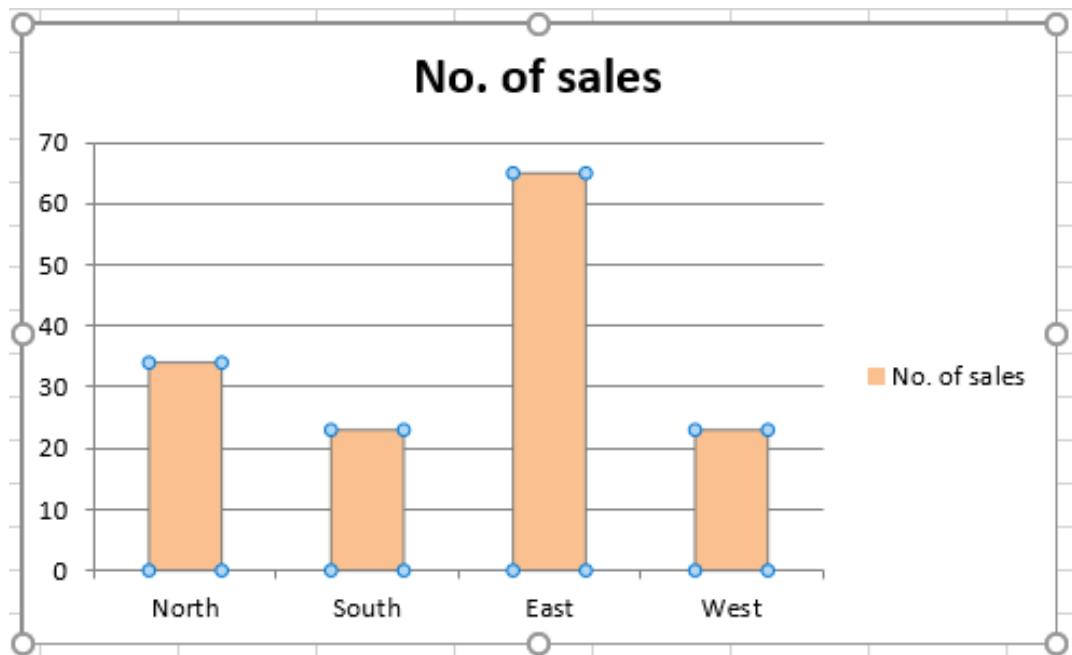
- Click on the **Fill & Line** button, click on **Fill** and make sure that **Solid Color** is selected, as illustrated.



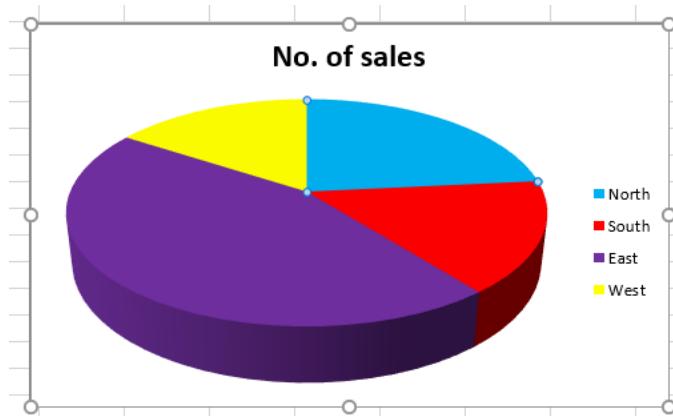
- Click on the **down arrow** in the **Color** section and select a color for your columns.



- When you click on the **Close** icon the selected color will be applied, as illustrated.



- Click on the **Line Chart** worksheet tab and change the color of the line.
- Click on the **Bar Chart** worksheet tab and change the color of the bars.
- Click on the **Pie Chart** worksheet tab to display the pie chart. The whole point of a pie chart is that each segment of the pie chart should be a different color. Bearing this in mind click once on the pie chart to select all the segments within the pie chart. Then click again on a particular segment to select just that segment. At this point you can then right click and change the color of just that segment. An example is illustrated below.



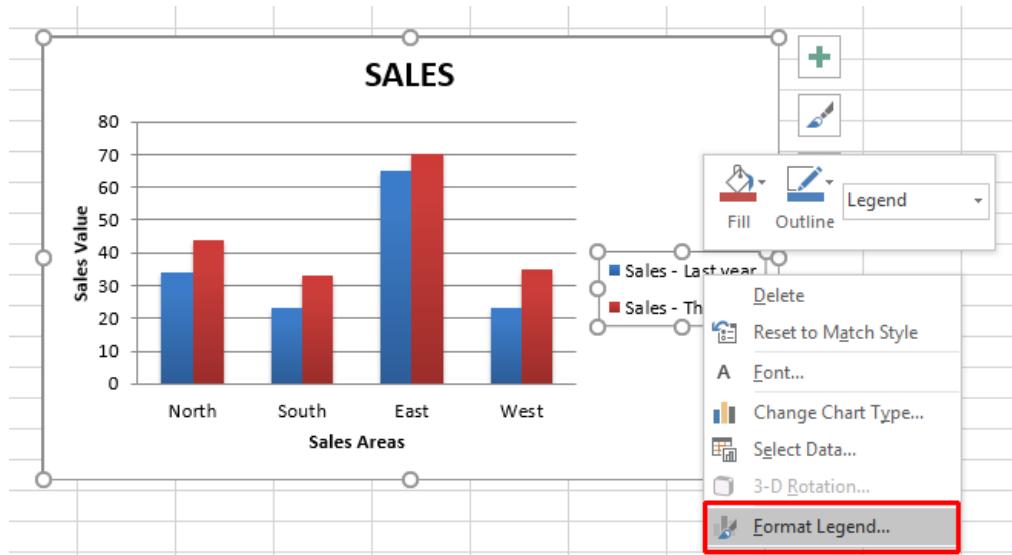
- Save your changes and close the workbook.
-

## Modifying the legend fill color

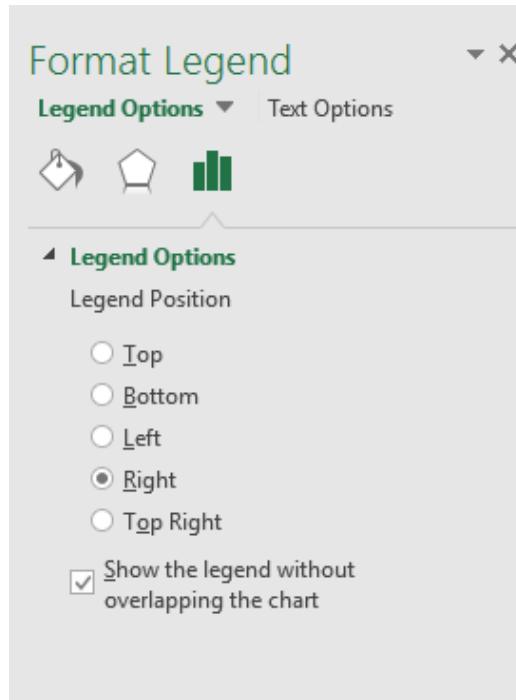
- Open a workbook called **Legend**.
- Select the legend within the chart, as illustrated.



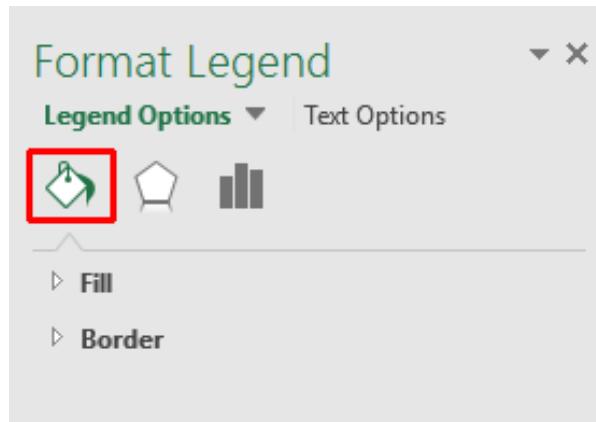
- Right click over the selected legend and from the popup menu displayed select the **Format Legend** command.



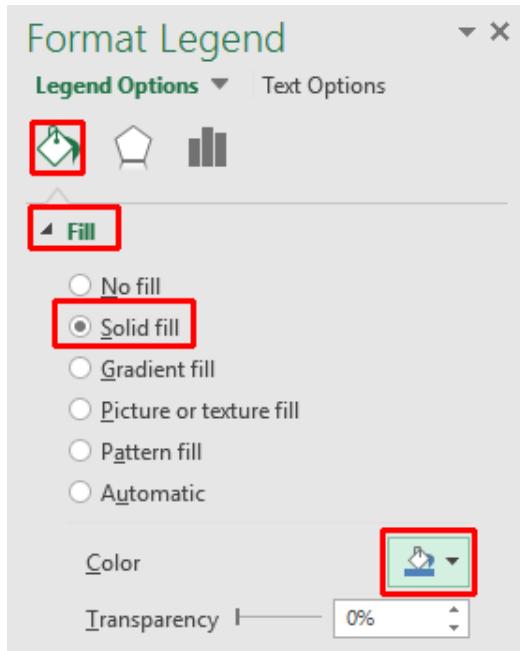
- This will display the **Format Legend** side panel, as illustrated.



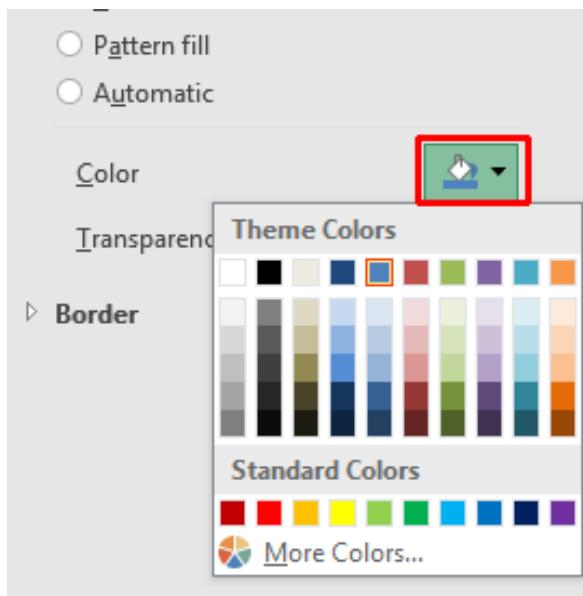
- Select the **Fill & Line** button.



- Select the **Fill** item and then click on the **Solid fill** button and you will see the following.



- Click on the **down arrow** in the **Color** control and select a color as illustrated below.



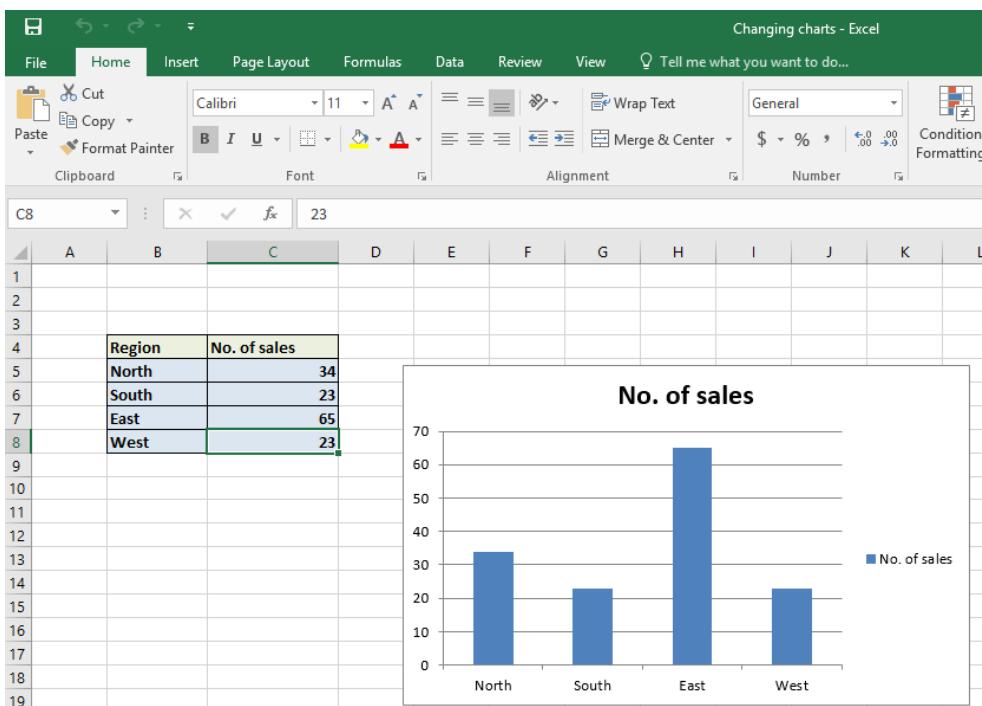
- Click on the **Close** button to apply the formatting and close the dialog box.
  - If you have time try experimenting with some of the other options within the **Fill** section of the **Format Legend** dialog box, such as **Gradient Fills** or adjusting the fill transparency.
-



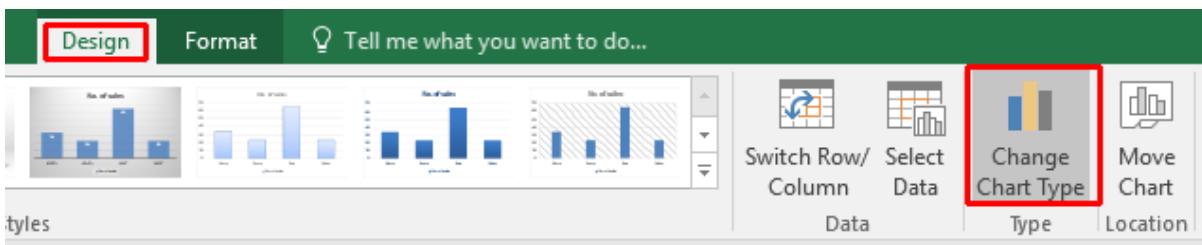
- Save your changes and close the workbook.

## Changing the chart type

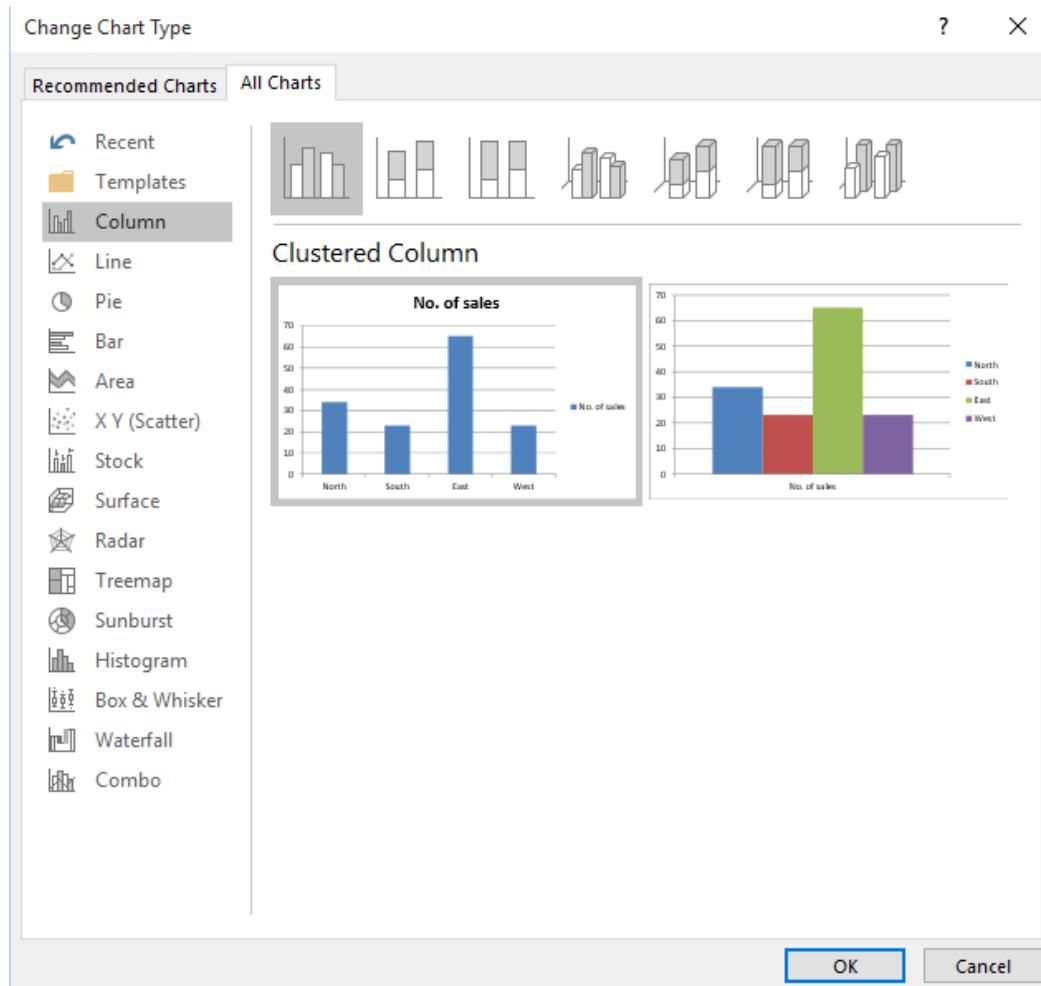
- Open a workbook called **Changing charts**.



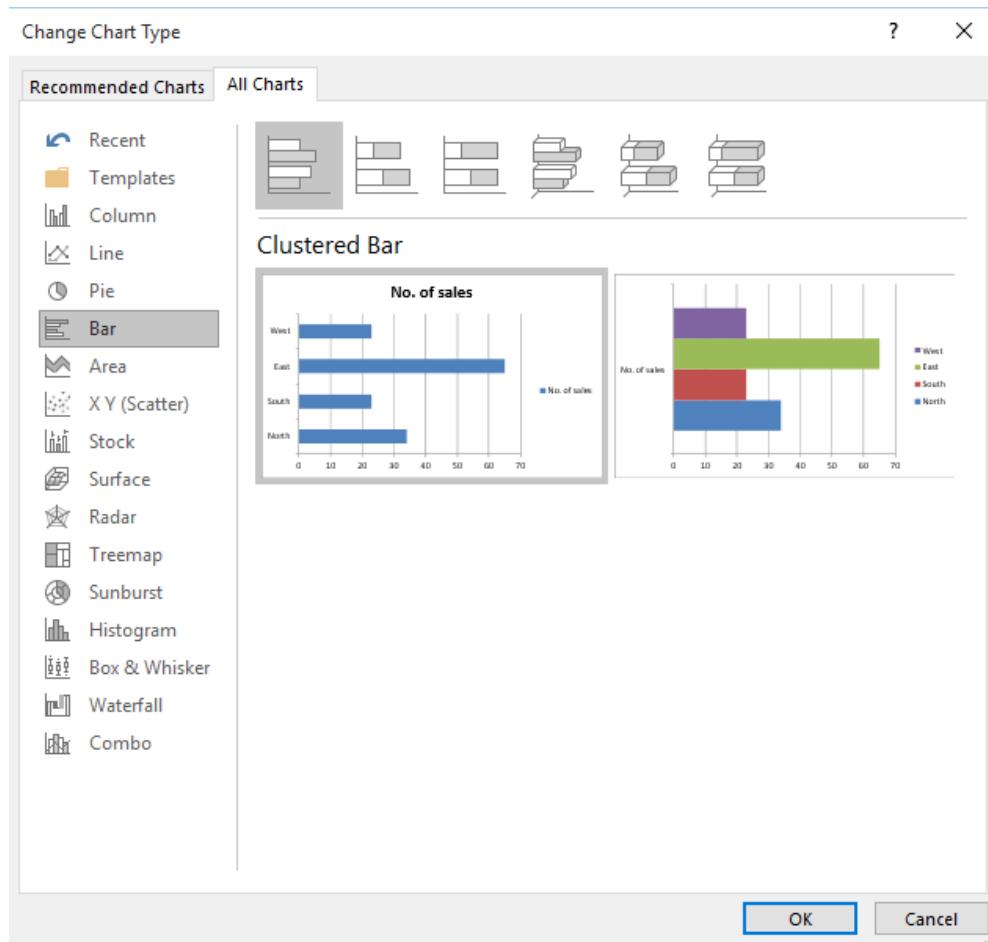
- This workbook contains a column chart. Click on the chart to select it. Click on the **Design** tab. Click on the **Change Chart Type** icon displayed within the **Type** group of the **Design** Ribbon.



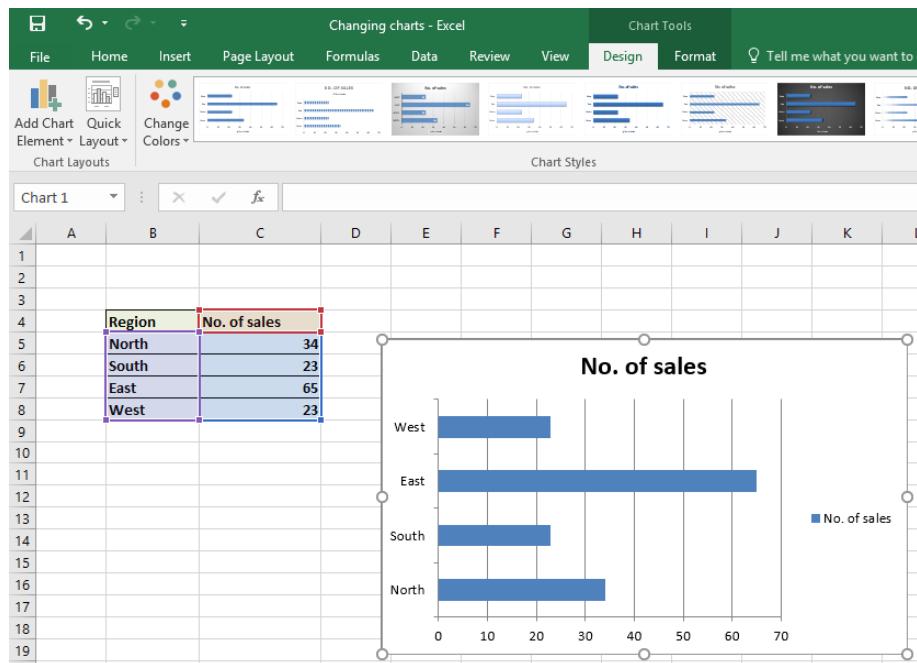
- This will display the **Change Chart Type** dialog box.



- Select a different type of chart, such as a **Bar** chart.



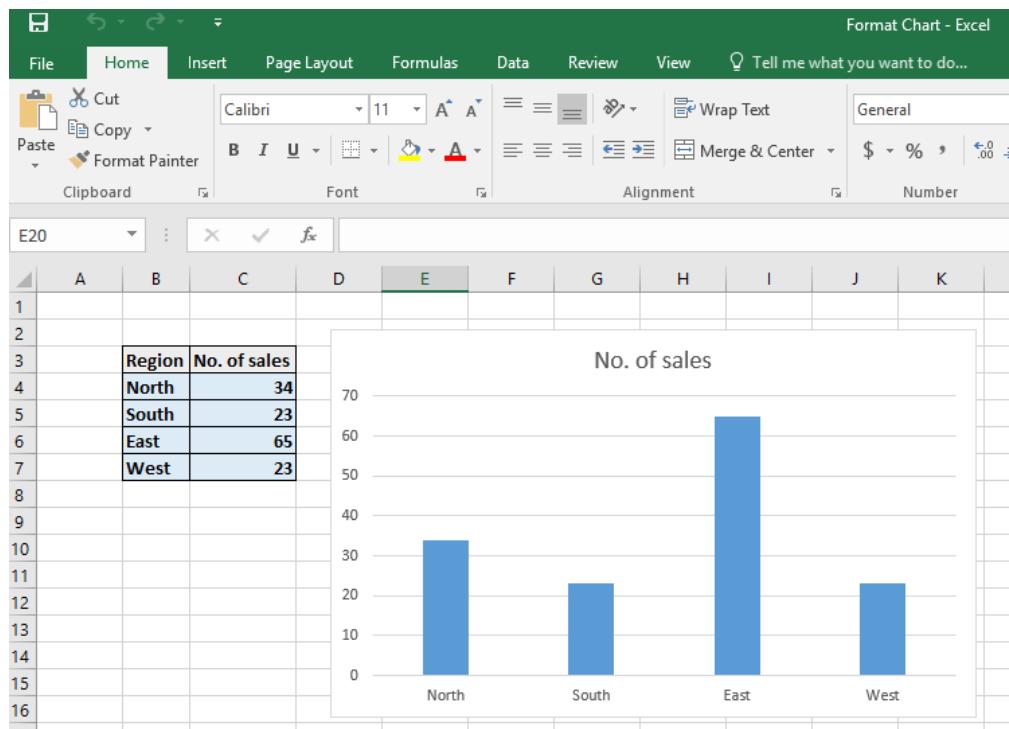
- Click on the **OK** button.



- Experiment with applying different types of chart.
- Save your changes and close the workbook.

## Modifying charts using the Design tab

- Open a workbook called **Format Chart**.

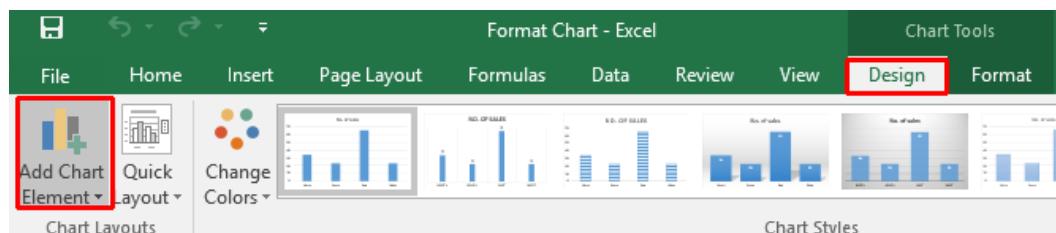


- Select the chart and then click on the **Design** tab. The **Design** tab includes many options for controlling how the various chart elements are displayed. Experiment with using the **Design** tab. .

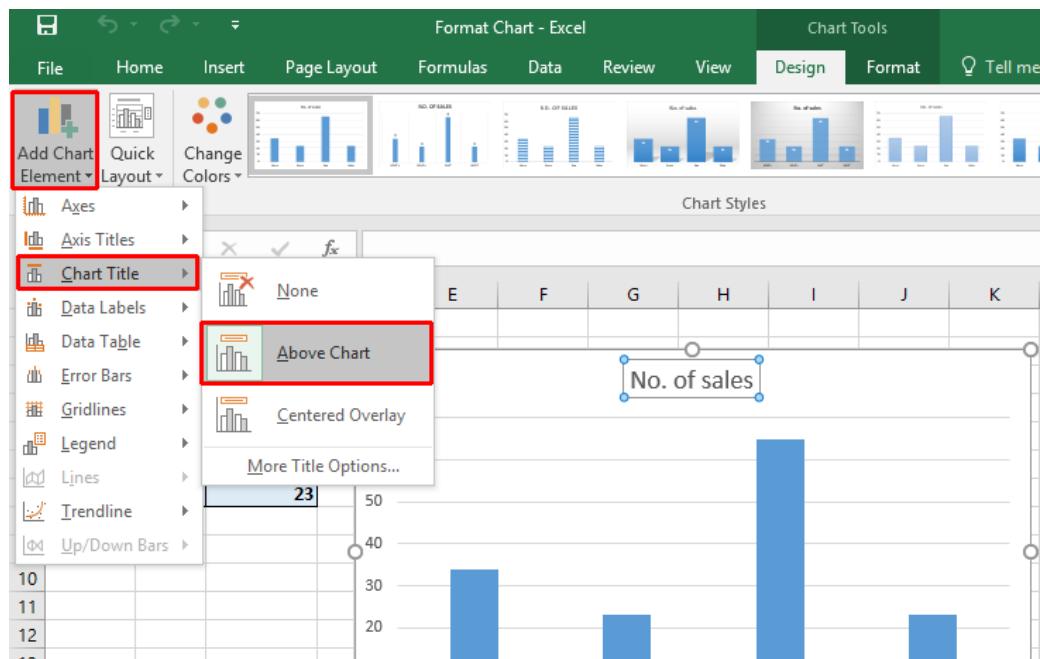


## Modifying the chart title

- Click on the **Add Chart Elements** button in the **Chart Layouts** group.

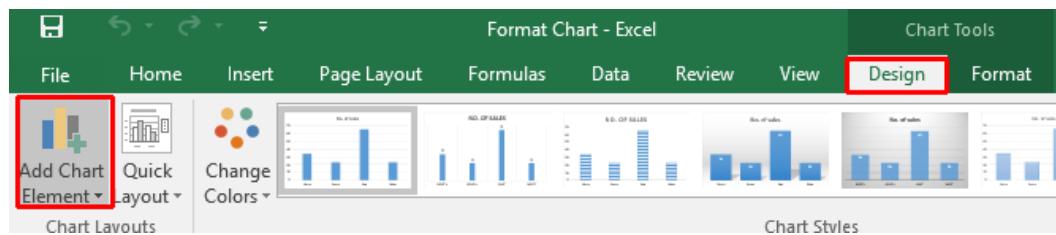


- From the drop down list displayed, click on **Chart Type**. The default is **Above Chart**, try selecting the other options and observe the effect on the chart.

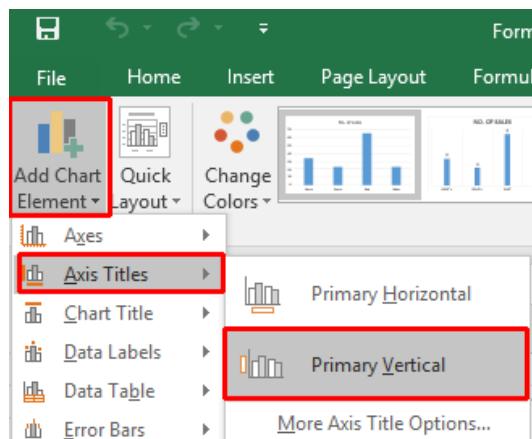


## Modifying the chart axis

- Click on the **Add Chart Elements** button in the **Chart Layouts** group.



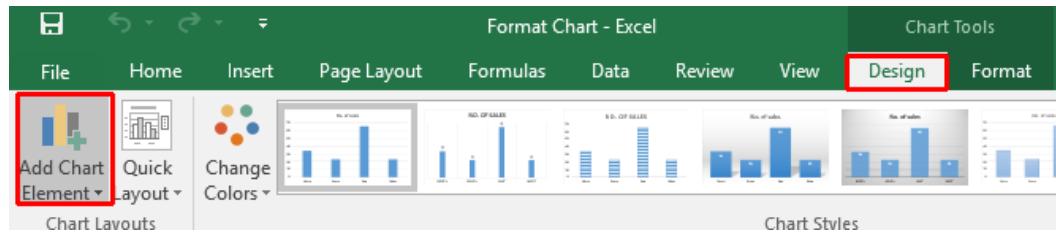
- Click on **Axis Titles**. A sub-menu will be displayed allowing you to control how the labels for each axis are displayed. Experiment with some of the available options and view their effect on the chart.



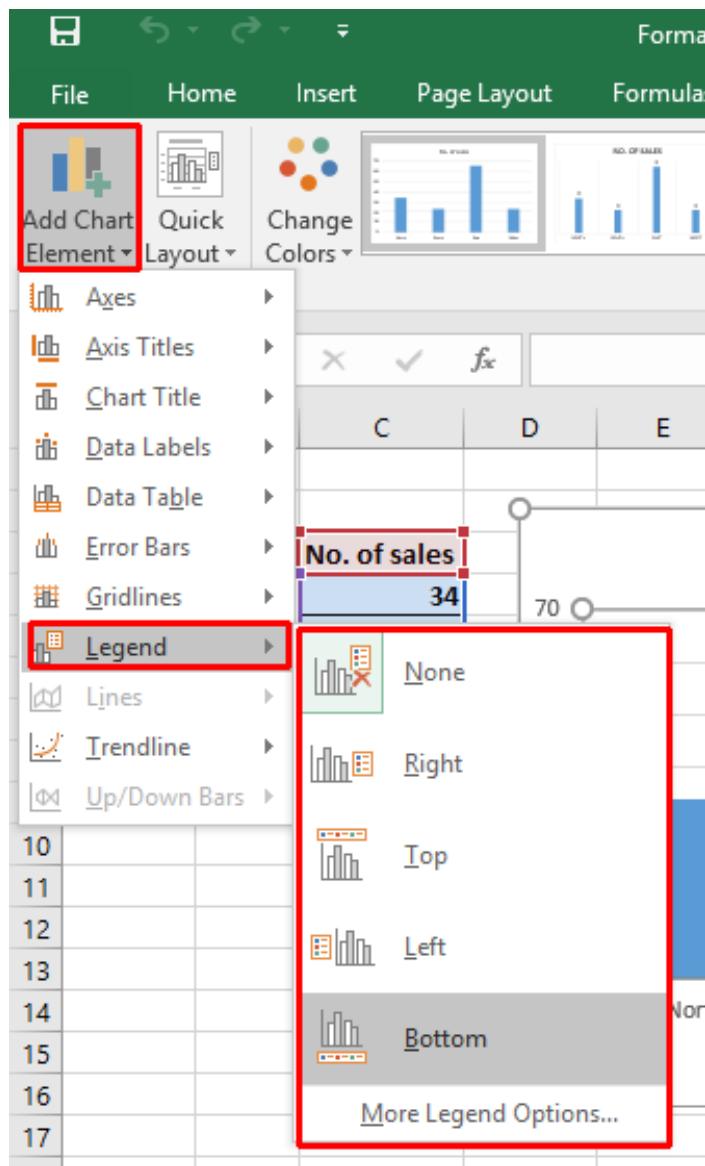
## Modifying the chart legend

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- Click on the **Add Chart Elements** button in the **Chart Layouts** group.

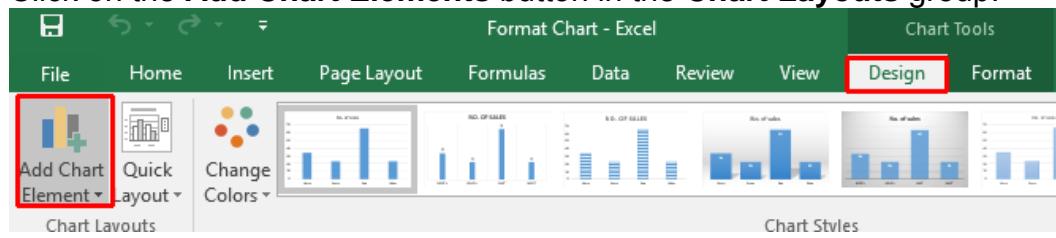


- Click on **Legend**. A sub-menu will be displayed allowing you to control where the chart legend is displayed. Experiment with some of the available options and view their effect on the chart.

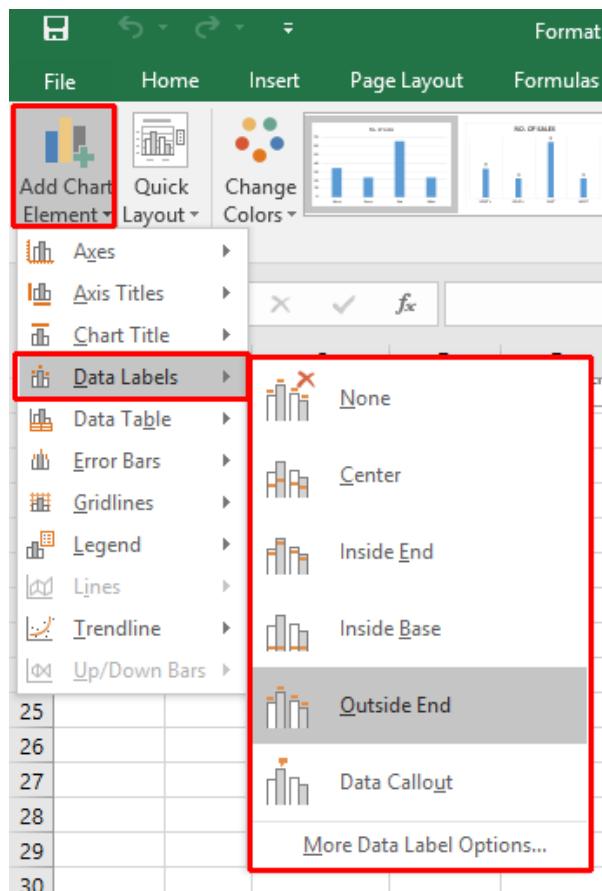


## Modifying chart data labels

- Click on the Add Chart Elements button in the Chart Layouts group.



- Click on **Data Labels**. A sub-menu will be displayed allowing you to choose where labels should be applied to data in the chart. Click on the **Outside End** option.



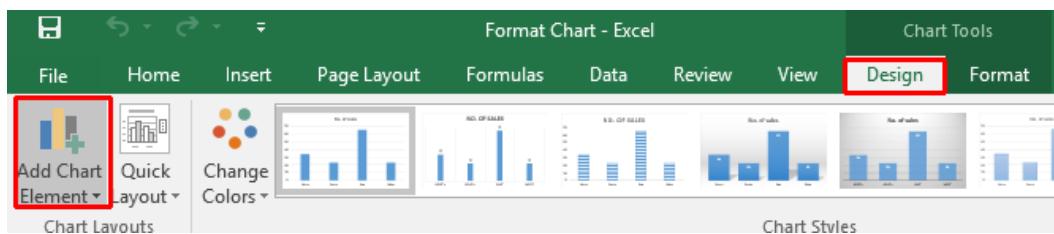
- The chart should now look something like this.



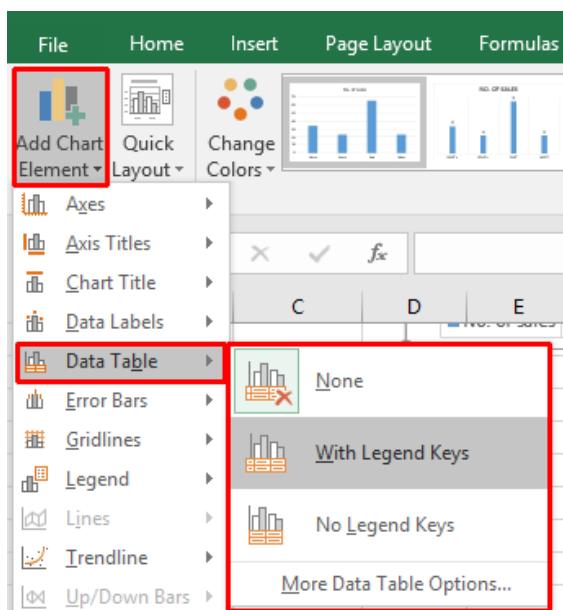
Notice that each column is now labelled with its value.

## Displaying chart data tables

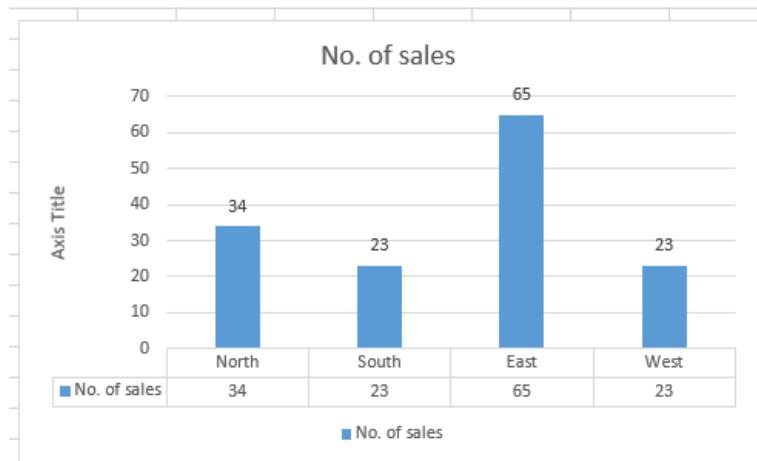
- Click on the **Add Chart Elements** button in the **Chart Layouts** group.



- Click on **Data Table**. A sub-menu will be displayed allowing you to show the data used to create the chart. Click on the **Show Data Table with Legend Keys** option.

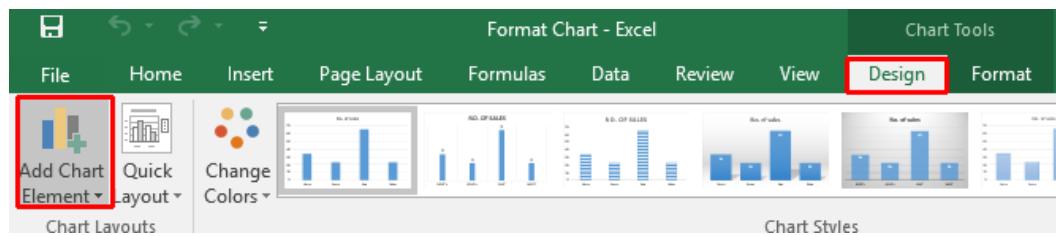


- A small table will be displayed below the chart containing the relevant data.

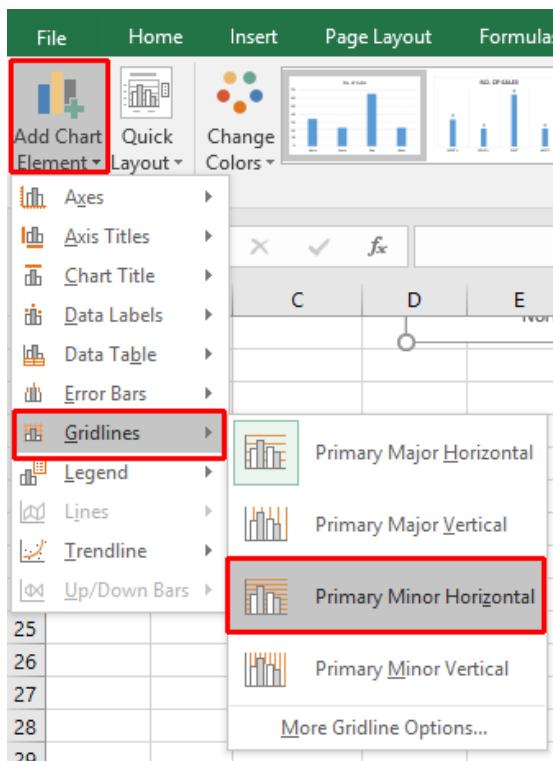


## Modifying chart gridlines

- Click on the **Add Chart Elements** button in the **Chart Layouts** group.



- Click on **Gridlines**. A sub-menu will be displayed allowing you to control how the gridlines for each axis are displayed. Experiment with some of the available options and view their effect on the chart.



- Close the workbook and save any changes you may have made.

## Copying and moving charts within a worksheet

- Open a workbook called **Copying and moving charts 1**.
- Click on the chart to select it.
- To move the chart within the worksheet, click on the chart and drag the chart to a new position in the worksheet.
- To copy the chart within the worksheet, click on the chart to select it and press **Ctrl+C** to copy the chart to the Clipboard. Deselect the chart and then press **Ctrl+V** to paste the chart from the Clipboard. You should now see two copies of the chart. You can move them so that they are not layered on top of each other.

## Copying and moving charts between worksheets

- Click on the chart to select it.
- **To copy the chart to another worksheet within the workbook**, click on the chart to select it and press **Ctrl+C** to copy the chart to the Clipboard.
- Click on the **Sheet2** tab at the bottom of the worksheet.



- Press **Ctrl+V** to paste the chart from the Clipboard. You can move the chart if required within this worksheet.
- **To move the chart to another worksheet within the workbook**, click on the **Sheet1** tab at the bottom of the worksheet. Click on the chart to select it and press **Ctrl+X** to cut (i.e. move) the chart to the Clipboard.
- Click on the **Sheet3** tab at the bottom of the worksheet.
- Press **Ctrl+V** to paste the chart from the Clipboard. You can move the chart if required within this worksheet.

### Copying and moving charts between workbooks

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- Select a chart within the workbook. Press **Ctrl+C** to copy the chart to the Clipboard. Open a second workbook called **Copying and moving charts 2**. Press **Ctrl+V** to paste the chart into the second workbook.  
  
**NOTE:** To move a chart between workbooks, use the same procedure, but **Cut** rather than **Copy** the chart, using the **Ctrl+X** keyboard shortcut for cutting a selected item to the Clipboard.
- Close all open workbooks and save any changes you have made.

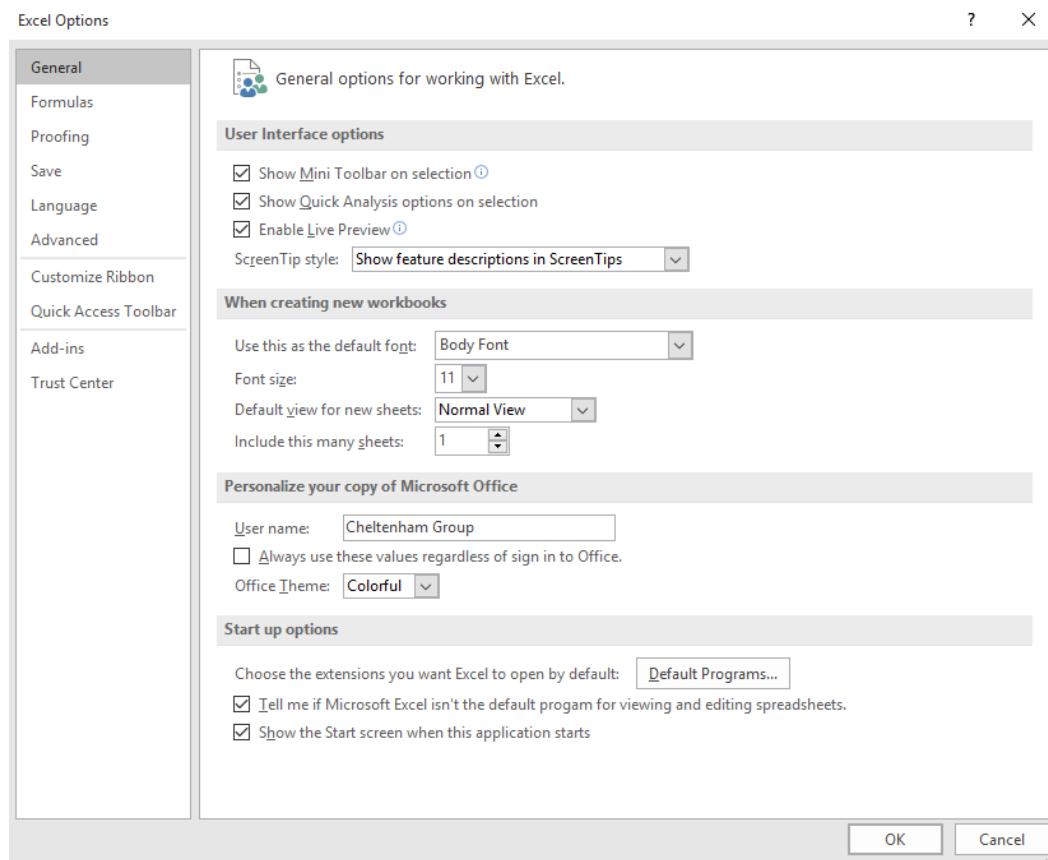
# Customizing Excel 2016

## Modifying basic Excel options

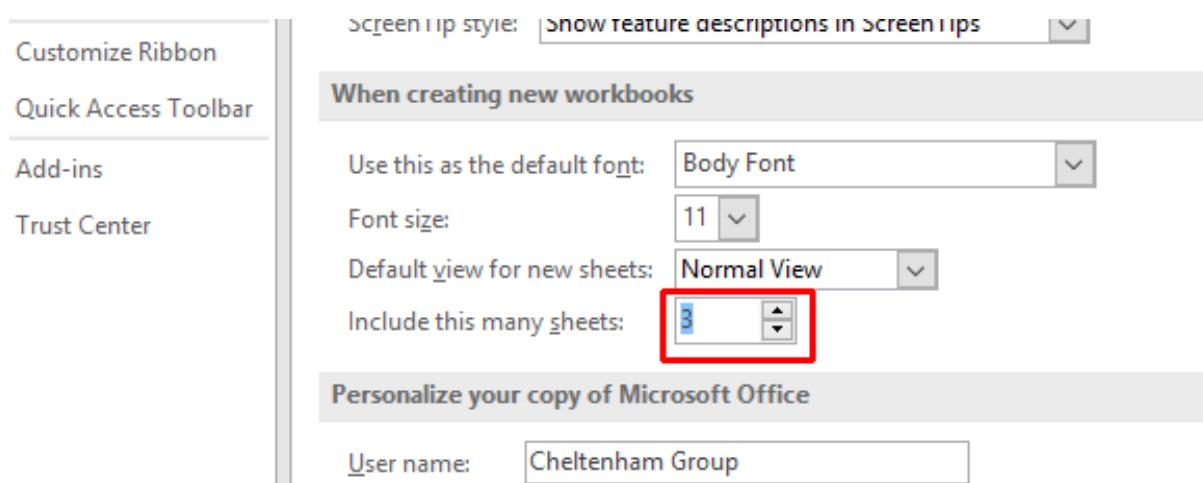
- You can customize the way Excel looks and performs. To do this click on the **File Tab** and within the drop down list displayed click on the **Options** button.



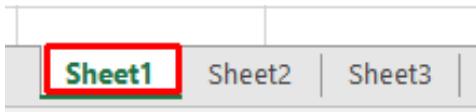
- This will display the **Excel Options** dialog box.



- You can use this to customize items such as the type of font used, the font size used and the number of worksheets displayed within a new workbook. Try altering the number of worksheets contained within a new workbook to 3 rather than 1.



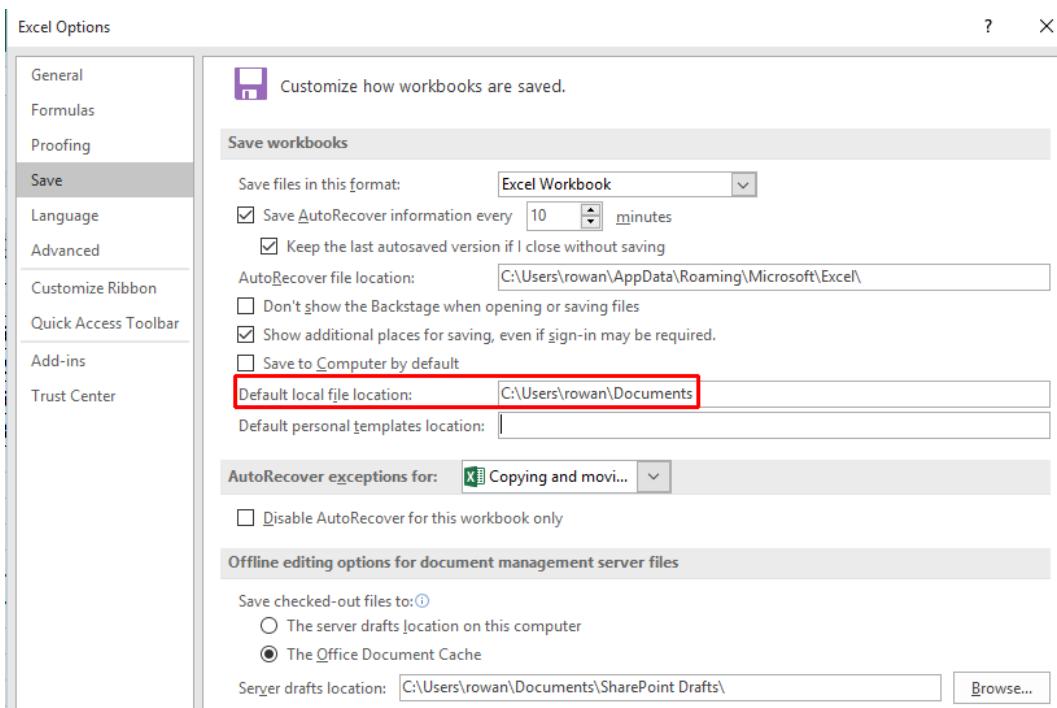
- Close the dialog box and press **Ctrl+N** to create a new workbook. You should see 3 worksheets, as illustrated.



- Close the new workbook without saving any changes you have made.
- Reset the default for new workbooks, back to 1 **worksheet per workbook**.
- Re-open the **Excel Options** dialog box and view the **General** options. Towards the bottom of the dialog box you will see a section allowing you to personalize your copy of Microsoft Office. If there is no name displayed here, insert your name. If someone else's name is displayed, replace it with your name. This '**user name**' information can be used by many application programs to automatically insert your details into a document.

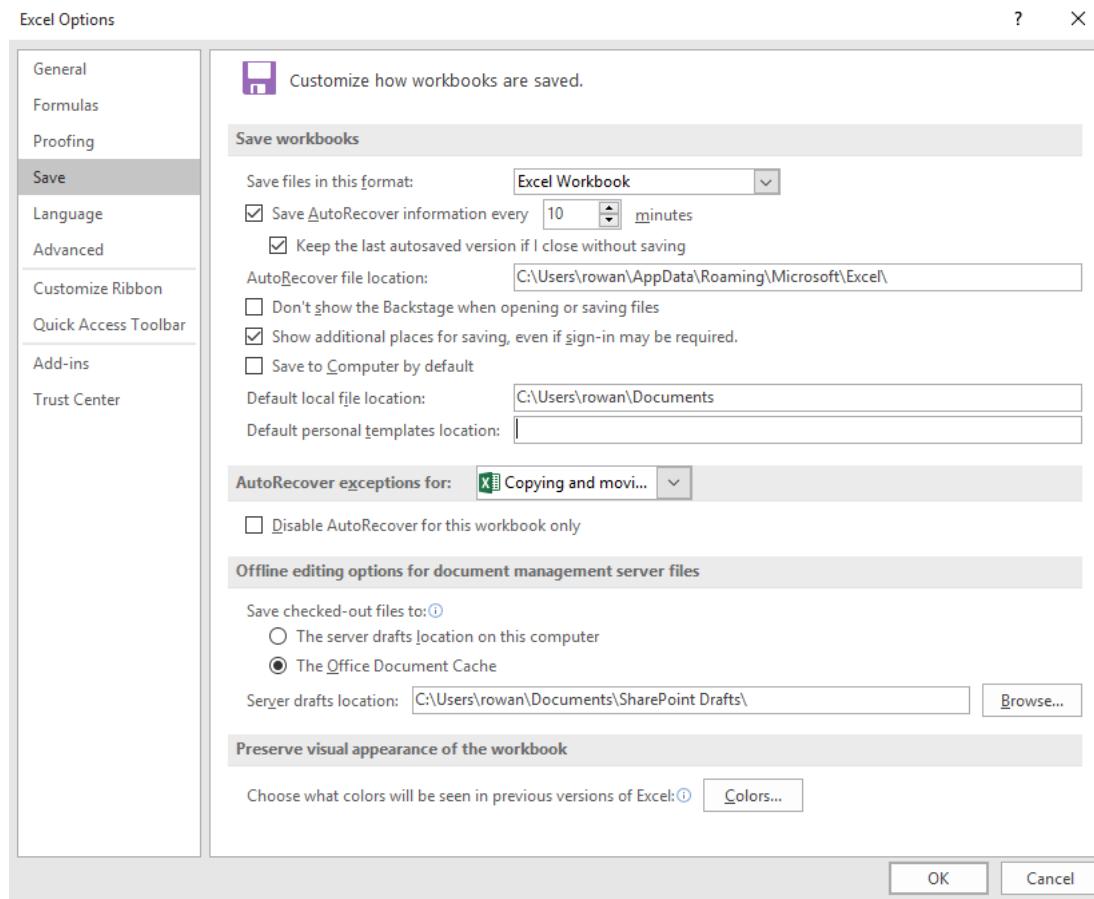


- Click on the **Save** tab (displayed down the left side of the dialog box).



You can use this page to set the default folder location to be used when saving your

workbooks.



- As you can see there are lots more useful options that you can customize to make your use of Excel easier and more productive. If you have time investigate some of the other customization options available.
- Close the dialog box before continuing.

# Web Browsing & Communication

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# Web Browsing

# The Internet

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## ***Terminology and Concepts***

### **Internet**

The Internet is a collection of thousands of individual networks and organizations, each of which is run on its own. Each network cooperates with other networks to direct Internet traffic so that information can pass among them. Together, these networks and organizations make up the world of the Internet. For networks and computers to cooperate in this way, however, a general agreement must take place about things such as Internet procedures and standards for protocols. The World Wide Web Consortium (W3C) develops standards for the evolution of the most well-known part of the Internet, the World Wide Web (find it at [www.w3.org](http://www.w3.org)). The W3C is an industry consortium run by the Laboratory for Computer Science at the Massachusetts Institute of Technology (MIT).

### **World Wide Web (WWW)**

The World Wide Web (WWW) is just a small part of the Internet as a whole. The Internet, relates to all the hardware and software involved, and in addition to the WWW, it also includes FTP (File Transfer Protocol), email, newsgroups, etc..

The WWW is basically the text and pictures that you can view using your Web Browser, such as Microsoft Internet Explorer, Mozilla Firefox etc.

### **Web sites and URLs**

A Web site is simply a group of files and folders which are stored on a WWW server and which can be freely accessed by people 'surfing the Web'. For instance Microsoft has a Web site, from which you can download information and software. The trouble is that you need to know the address of the Web site; in much the same way as if you want to phone someone you have to know his or her phone number. The address of a Web site is given by something called its URL (Uniform Resource Locator).

Due to the very large number of organizations who now have Web sites, you can also use a search engine, in which you can enter a word or phrase connected with what you wish to find and it will then display sites which match the information which you have entered. The results can be overwhelming however. A recent search using the search words "PC courseware" displayed a list of a million sites containing these words!

### **URL (Uniform Resource Locator)**

The URL (Uniform Resource Locator) is just another name for a Web address. The URL consists of the name of the protocol (usually HTTP or FTP) followed by the address of the computer you want to connect to, e.g. a URL of <http://www.Google.com> would instruct your Web Browser to use the HTTP protocol to connect to the Google Web site.

### **Hyperlinks**

A hyperlink is a piece of text (or a picture) on a Web page, which when clicked on will automatically:-

- Take you to a different part of the same page
- Take you to a different page within the Web site
- Take you to a page in a different Web site

- Enable you to download a file
- Launch an application, video or sound

Text which is underlined normally indicates a hyperlink. By default these text links are normally displayed in blue.



When you move the mouse pointer over a hyperlink, it changes to the shape of a hand.

## ISP (Internet Service Provider)

If you want to connect to the Internet, you need to subscribe via an Internet Service Provider. The ISP gives you a connection to the Internet either via your telephone line or via a special digital high speed line or cable. An example of a popular ISP is AOL (America On-Line).

## Structure of a Web Address

The Web Address (URL) has a very specific structure. Look at the following example.

### Service:

The first part of the URL is the service specifier, such as HTTP or FTP, which specifies the access method.

### Host:

The second part of the URL is the server internet address in this case:

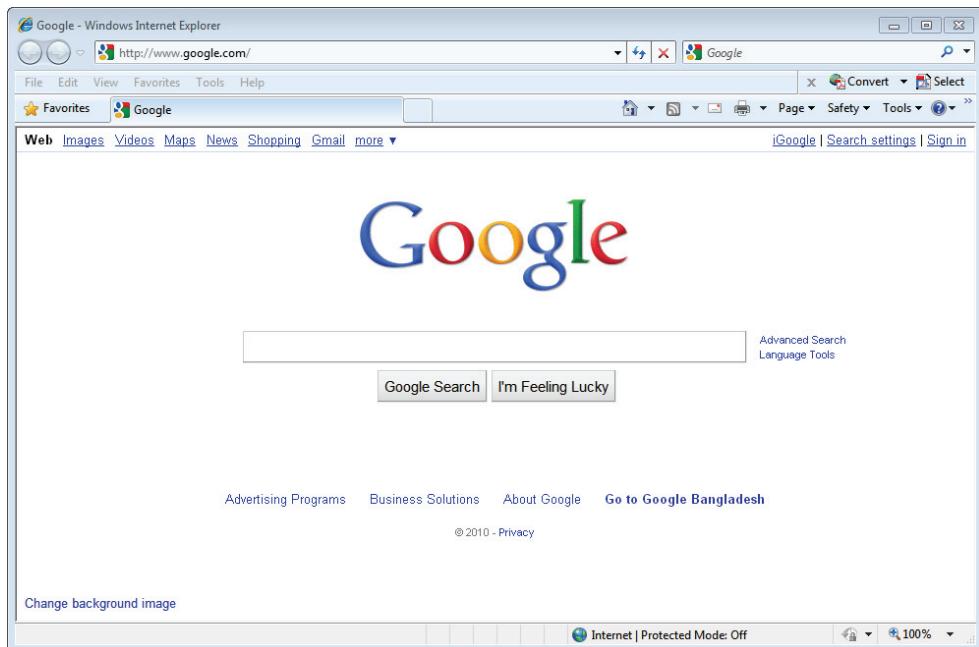
www.cheltenhamcourseware.com

### Folder and file structure:

The last part of the URL details the folder containing a particular file as well as the file itself. The starting file for a web site is often called the **Index** file.

## Web Browser

The Web Browser allows you to view Web pages. Microsoft Internet Explorer looks like the illustration below.



Web browsing applications include 'Internet Explorer' (from Microsoft), Opera and Firefox. In each case there are many different versions, you will find that the later versions offer much more versatility, as well as a better range of built-in features. Another example is the Apple Safari web browser.

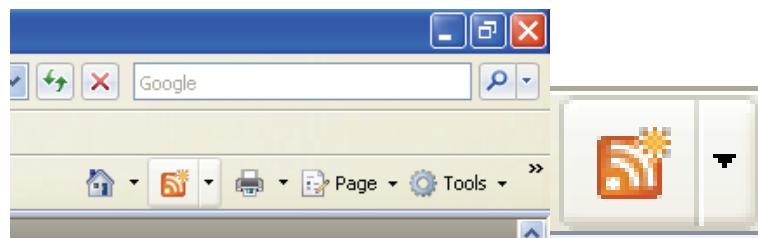
## Search Engines

A search engine holds information about pages on Web sites throughout the Internet. It only has information about Web sites which have been reported to it, or ones that it has found out about automatically. It is important to realize that a search engine does not have complete information about all Web sites on the Internet! There are a number of different search engines, run by different organizations. Within a search engine you can enter a search phrase, such as **film reviews**, and the search engine will then search through its database and after a short pause, should display a list of sites that fit your search parameters.

## Really Simple Syndication (RSS) feeds

RSS (Really Simple Syndication) is a method used to publish information that needs to be frequently updated. Such as news headlines, tickertapes or podcasts. A RSS document is called a "feed" or "channel".

You need software called an RSS reader to read and update RSS content. You can then subscribe to a feed using the RSS reader. The RSS reader regularly checks for updated content and then displays the new content. Most good news websites will have the option of an RSS feed. In most cases to subscribe, you need only click on a button within the site. Once you subscribe the content will update automatically without the need to keep pressing the refresh button.



Try visiting news web sites and see if you can subscribe to their RSS service. To help you a few news sites are listed below:

[www.bbc.co.uk/news](http://www.bbc.co.uk/news)  
[www.cnn.com](http://www.cnn.com)  
[www.abc.net.au/news](http://www.abc.net.au/news)

## Podcasts

A podcast is a way of providing content such as radio programs in a form which can be easily downloaded and listened to later on a the PC or mobile devices such as an Apple iPod.

The term "podcast" is a combination of the words "iPod" and "broadcast".

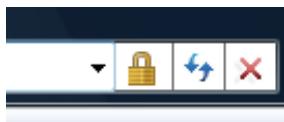
Many web sites allow you to manually download content.

The thing that makes a podcast different is that once you subscribe to a podcast it will be downloaded automatically for you. The illustration below shows a typical page allowing you to subscribe to a podcast.

# Security Considerations

## Identifying Secure Web Sites and https

If a web page uses encryption you will see a padlock displayed in the Internet Explorer toolbar. If you do not see this padlock on a page requesting your credit card details you should not enter your credit card details.



Pages that are secured for the acceptance of credit cards normally have a web address that starts with **https://** instead of **http://**, as in the example illustrated below.



### Protected sites

A protected site is a site which allows only restricted access. In many cases sites are restricted via a password. If you do not supply the correct password when you access the site, you are not allowed to view the sites contents. Many companies may use the restrictions to allow information to be widely distributed, but in a controlled manner to its employees. Other examples are sites operated by commercial companies which are selling some type of information such as stock market movements.

## Digital certificates



A digital certificate is used to encrypt information for secure transmission across the Internet. A digital certificate can be used to create a digital signature for an email, the signature guarantees the identity of sender, and it also ensures that the message cannot be tampered with in transit. A digital certificate can be purchased from a certificate authority such as [www.verisign.com](http://www.verisign.com) who will verify your identity.

Digital certificates are used by Internet based shopping Web sites to encrypt your credit card details so they cannot be intercepted as they travel the Internet. You can view the digital certificate for a secure Web site by double clicking on the padlock in the Web Browser address bar, e.g. <https://www.paypal.com>

When you are purchasing from a web site there are a range of trust logos that may be displayed and clicking on these should authenticate the site. The **VeriSign Secured** logo is illustrated below.

## Encryption

Encryption is a means of 'scrambling' a message or web page. It is used to make a transmission more secure, so that only the intended recipient of the message will be able to read the message. There are many means of enabling this encryption, both via hardware and software. A famous encryption program is called PGP.

Modern encryption programs are becoming so secure now that some governments are insisting that the manufacturers of the programs build a 'back-door' into the program which will enable the government/police/intelligence communities to easily read the messages. This is so that criminals who use the Internet do not have access to unbreakable encryption.

There are different levels of encryption, which is often described by the number of bits used within the encryption. Thus a system using 128 bit encryption would be much more secure than one using 32 bit encryption.

## Security Threats

### Viruses

Surfing the Internet can provide you with an incredible source of information. There are however dangers! If you download anything from the Web (even a document file), there is the possibility that the downloaded item may have been infected with a computer virus.

### Worms

A computer worm is a self-replicating computer program that sends copies of itself to other computers via a network. It can copy itself from computer to computer without your knowledge.

It is different from a virus because it has no need to hide itself within another program. Many worms can reduce your available bandwidth due to their copying activities, but otherwise do not actually damage your files. However there are also destructive worms that will attack or compromise your data.

### Trojans

A Trojan horse (often just called a 'Trojan') is a type of software which you normally expect to do one thing, but in fact it does something else that you did not intend.

A Trojan is not a computer virus and does not try and copy itself across your network. It is basically just a program which you need to run. The name comes from the classical story of the wooden Trojan Horse.

### Spyware

This is different from a virus. Details such as your online browsing habits can be sent, without your knowledge, to marketing companies, or even criminal organizations that will try to get information such as your credit card details or access passwords.

### Malware

The word Malware is a combination of the words "malicious" and "software". Malware is software designed to install itself and run without your consent and without your knowledge. Sometimes when you download free programs from an internet site, they come bundled with hidden programs that you did not ask for and will not want. Often these hidden programs send back marketing information to companies. Sometimes they may have more sinister purposes, such as sending your credit card details to criminals intending to steal from you.

When installing free programs you find on the net always read the licensing terms, as often the malware content is hidden away within this long document.

### Spam

Be very careful about entering your email address into forms on Web sites which you are not familiar with. You may later get unsolicited emails (called spam) from that Web site. Even worse, your email address may

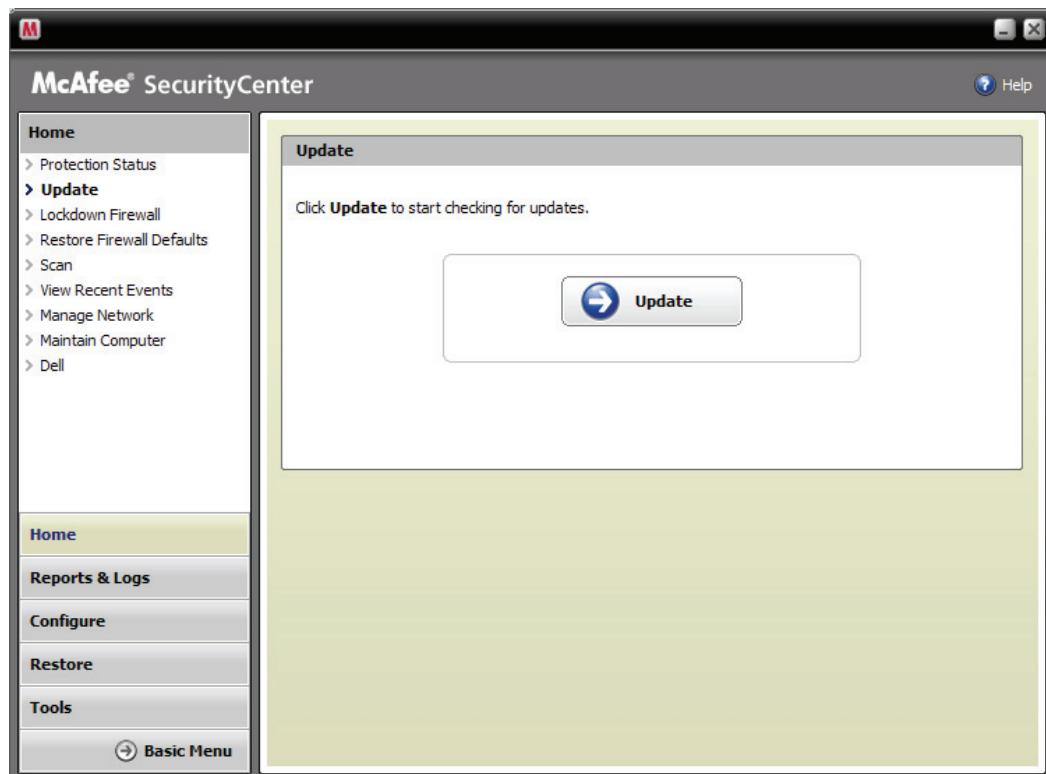
be passed on to companies which sell lists of email addresses to advertisers, after which you will receive spam on a daily basis!

### Fraud

Never give your credit card details to anyone or any company unless you know that you are dealing with a reputable organization. You may find that the items you purchase are never delivered or worse that your credit card details are used fraudulently to make other purchases.

### **Virus checkers**

To give yourself some protection against virus attack, you should have a virus checker installed (such as Norton Anti-Virus, or McAfee). If an item that you download from the Internet is infected the virus checker program will detect it immediately. The other important point to remember is to update your virus checker on a regular basis, so that it knows about more recent viruses. Many antivirus programs have an auto-update feature which allows them to update themselves automatically as required. You can also run a manual update as illustrated below for the McAfee antivirus program.

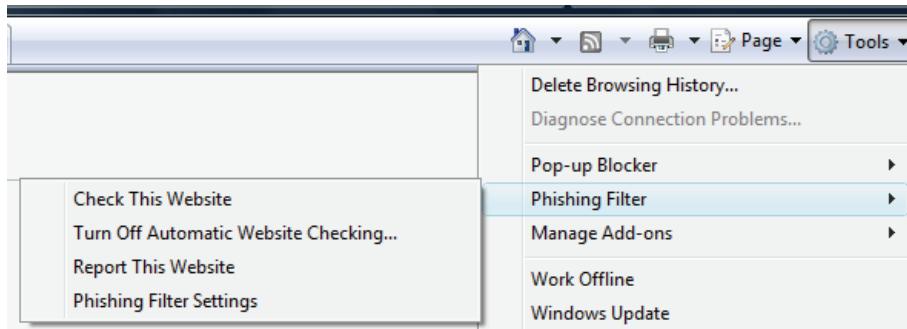


### Phishing Filter

Phishing refers to efforts to trick you into revealing your personal or financial information. This is often done by sending out millions of emails at random claiming to be from your bank or similar organizations and then requesting that you update your details, using a link provided within the email. When you click on this link you are taken to a web site that looks just like the real thing but is in fact a copy of a banks web site. When you type in your details, you have just given the information to criminals who will use that information in identity theft related crime.

**TIP:** If you get an email requesting that you update your details never respond. Bank and credit card companies never send out this type of email.

Click on the **down arrow** to the right of the **Tools** button. From the drop down menus displayed select the **Phishing Filter** command. This will display a submenu containing further commands.



### **Check This Website**

Clicking on this option will check the Web site you are visiting against a list held by Microsoft of reported phishing websites.

### **Turn Off Automatic Website Checking**

This is not a good idea and if you select this command you will see a warning dialog box displayed.

### **Report This Website**

This option allows you to report a suspect site to Microsoft.

### **Phishing Filter Settings**

Let's you customize your settings.

## **Firewall**

A firewall consists of software and hardware protection against invasion via the Internet. In most large companies any connection to the Internet automatically goes through a firewall which would have been installed and customized by the companies' technical IT team. In most cases you will be unaware of the firewalls existence.

## **Internet security & password logons**

When your Internet connection is setup for you there is normally a logon ID and a password issued to you. You should keep these details private and secure. Many PCs will remember these details for you and log you in and issue the correct password automatically. If you connect to a different network you may need to enter different details.

## **Risks associated with online activity**

As well as all the benefits there are dangers linked to online activity.

### **Unintentional disclosure of personal information:**

Many web sites ask you to register in order to access all the features of the site. Often registration can require you to provide details about yourself such as name, date of birth, address or telephone number.

Before you hand over your details consider if the web site is reputable? Do they publish a privacy policy? Can they be trusted to store your details in a secure manor, safe from hackers?

#### **Bullying or harassment:**

Bullies have started to exploit the Internet allowing them to continue harassing their victims. Often they send abusive or threatening emails, more technically able bullies will also produce web sites to circulate vicious rumours.

#### **Targeting of users by predators:**

The internet can allow everyone a certain level of anonymity, unfortunately there are people that abuse this, pretending to be someone they are not in order to gain your trust. Never reveal details about yourself in chat rooms. Never arrange to meet someone you have met through the Internet.

### **Parental control options**

Many parents are worried about what their kids get up to when on the web. Some issues to consider are:

#### **Supervision:**

Set-up the computer in a family room. This will enable you to watch and participate in your child's Internet activities.

#### **Web browsing restrictions:**

There are many software products on the market which will block access to web sites that you consider inappropriate. Type searching for "cyber patrol" or "net nanny" for details. Internet Explorer includes some basic parental control options which are covered elsewhere in this course.

#### **Computer games restrictions:**

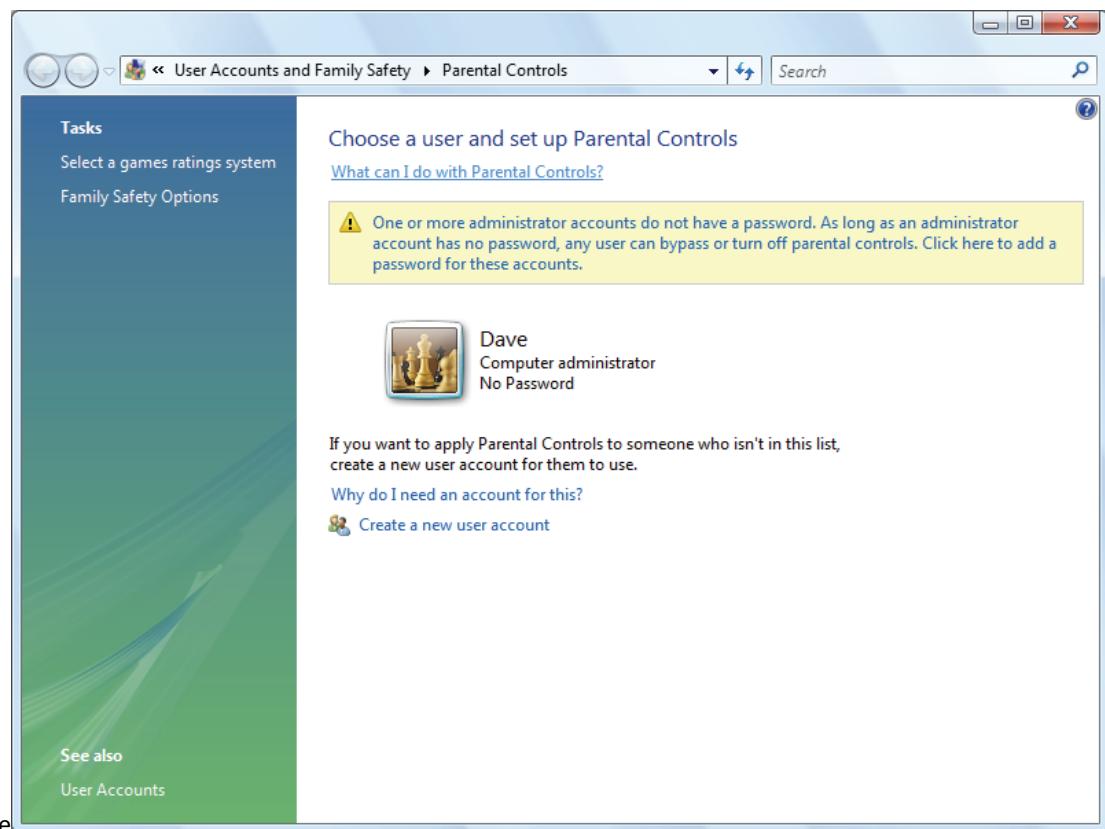
Computer games are now age rated in much the same way as films. This can help you decide if a particular game is appropriate. The latest generation of games consoles incorporate parental control options allowing you to prevent the play of games intended for an adult audience.

#### **Computer usage time limits:**

Set limits for the length of time spent using the computer. Excessive amounts of time spent online may indicate a problem.

#### **Parental Filtering**

Parental filtering lets you control how and when your children access the Internet. Setting up parental filtering requires that each child has a standard user account and you will need an Administrator user account. This may sound very complicated and it is beyond the level of this course. For now be aware that you can control Web access. If you need more information; then within the Internet Explorer, press the **F1** key and search for help using the phrase 'Parental Filtering'.



# Using the Browser

## Basic Browsing

### Opening Microsoft Internet Explorer

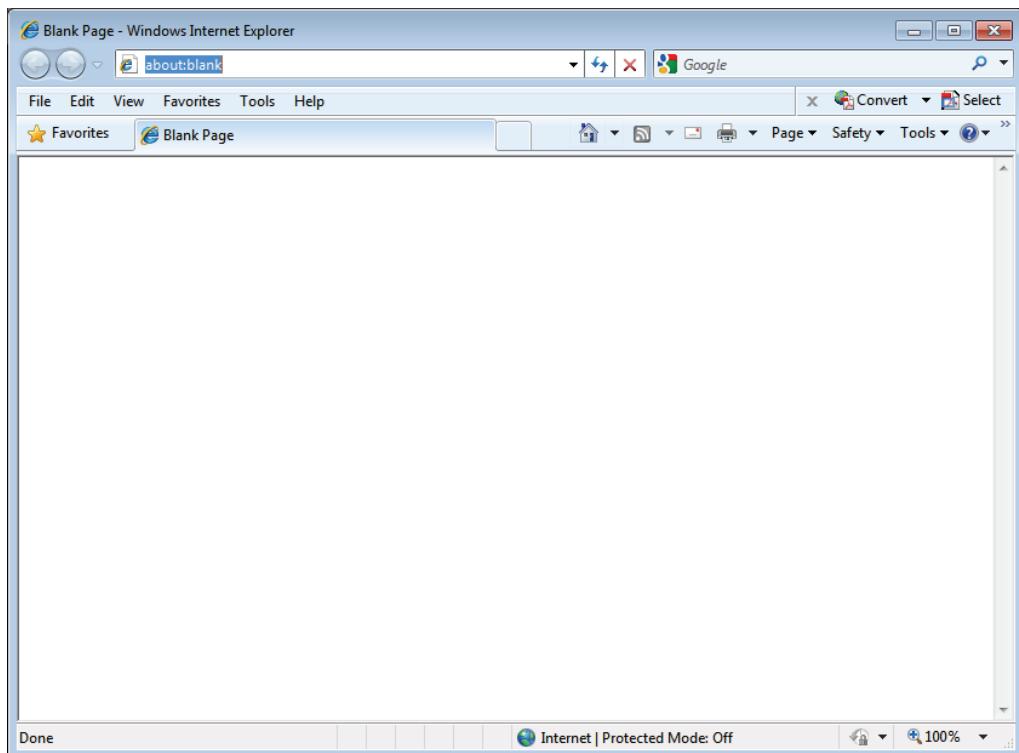
The Internet Explorer icon is usually displayed at the bottom-left of your screen.



On many computers you may also see the Internet Explorer icon displayed on your Desktop (the empty Windows screen).



*Click on the icon and you will see the Internet Explorer window displayed on your screen.*



When the Internet Explorer opens it normally displays what is called the 'Home Page'. This is the default Web page that the program is set to display. In the example shown, the computer was a Dell PC, and not surprisingly, Dell had set the Home Page to display a Web page relevant to Dell. As we will see you can easily change the Home Page of your particular copy of Internet Explorer.

If you want to close the Internet Explorer you would click on the **Close** icon at the top-right of the program window.

## Minimizing, Maximizing, Restoring and Closing

These buttons act in the same way as every other standard Windows program and are displayed at the top-right of your screen.

Clicking on the **Minimize** button will minimize the Program window down to the Windows Task Bar (the bar that runs along the bottom of your screen).



Clicking on the **Restore Down** button will run the program within a window.



Clicking on the **Maximize** button will maximize the program if you are viewing it within a window.



Clicking on the **Close** button will close the program.

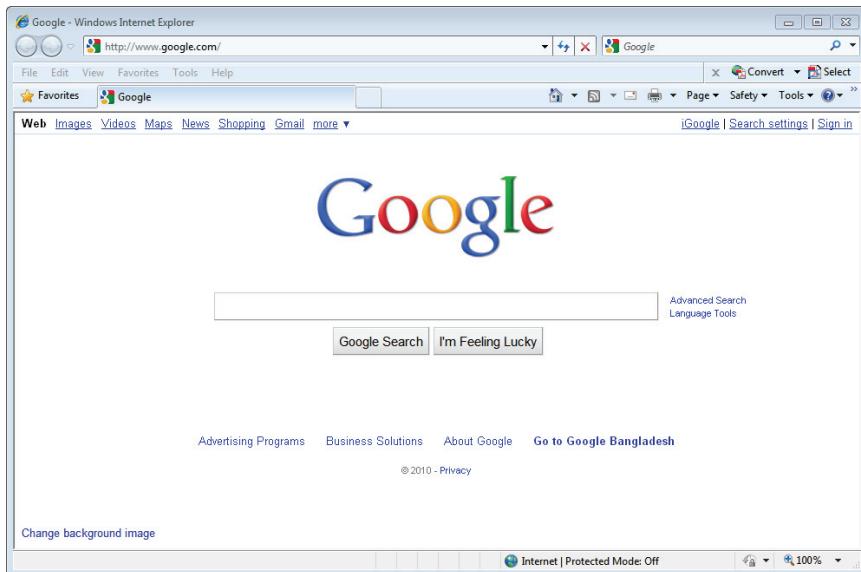


## Entering a URL into the Address Bar

There is an address bar towards the top of the screen.

*Type in the Web address (URL) for Google [www.Google.com](http://www.Google.com) and press the Enter key.*

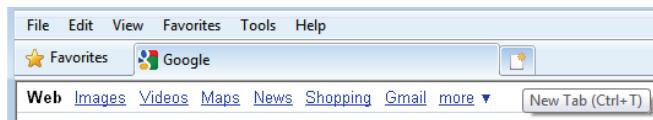
You will see the Google Web page displayed. It will look different, as Google changes the look and content of their Web site on a regular basis.



## Creating a new tab

You may want to open and browse several web sites at a time. For that you can create new tabs to open new web sites.

Click on the button on the right of the tab. A new blank tab will be displayed and you can enter web site address same way as you done before.



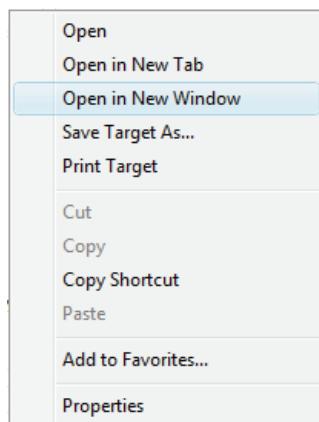
## Stop button



Sometimes you may want to stop a page from continuing to download once you have clicked on it. It may be a very slow loading page and you get fed up waiting for all the pictures within the Web page to be displayed. To stop a page from continuing to download, click on the **Stop** button.

## Forcing a Web page to display within a new window

Sometimes you may want to open the page that the hyperlink links to, within a new, separate window. To do this right click on a hyperlink and from the pop-up menu displayed, click on the **Open in New Window** command. You will now see two copies of the Internet Explorer displayed. One displays the original page while the second displays the page that you hyperlinked to.



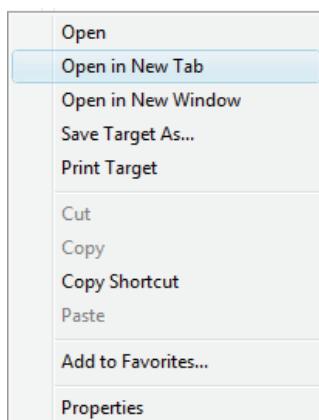
**TIP:** To open a hyperlinked Web page within a new window, hold down the **Shift** key and then click on the hyperlink.

Try this now.

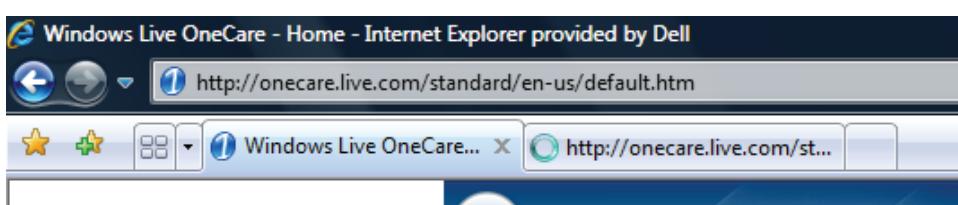
### Forcing a Web page to display within a new tab

Sometimes you may want to open the page that the hyperlink links to, within a new tab (i.e. a new tab within the existing copy of the Internet Explorer). To do this right click on a hyperlink and from the pop-up menu displayed.

*Click on the **Open in New Tab** command.*



Try this now and you will now see two tabs displayed within your Internet Explorer window.



## Refreshing Web pages

Sometimes you may want to refresh a page. This means reloading the page. For instance you may be looking at a news page and after leaving the page on your screen for an hour, you might want to refresh the page, to display the latest version of the page. To refresh a page click on the **Refresh** icon.



**TIP:** Many Web pages, such as news pages use special techniques to refresh themselves automatically.

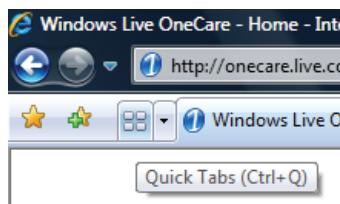
## Switching between tabs

*To switch from one tab to another simply click on the tab. Try this now.*

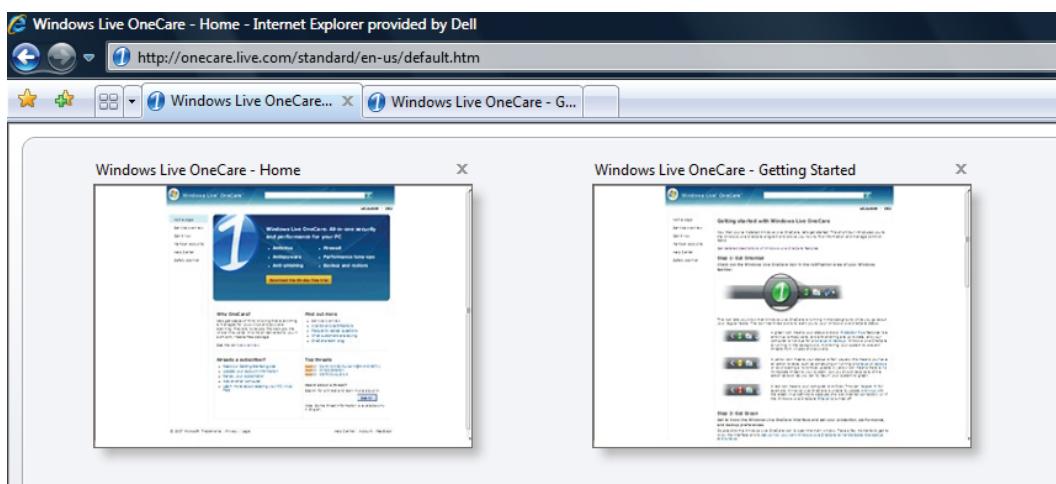
**TIP:** The tab switching keyboard shortcut is **Ctrl+Tab**.

## Quick Tabs

*Click on the **Quick Tabs** icon (top-left of the screen).*



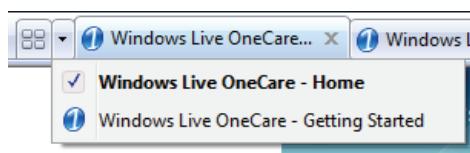
You will see the Web sites in your tabs, displayed as thumbnail previews.



*Click on the preview Web that you want to view and you will switch to that Web site.*

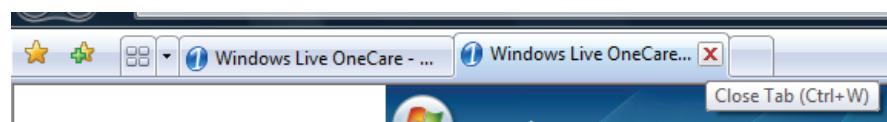
## Tab List

If you click on the **down arrow** next to the **Quick Tabs** icon you will see the **Tab List**. Clicking on an item in the list will display the selected Web page.



## Closing a tab

To close a tab within the Internet Explorer, click on the **Close** icon displayed at the top-right of each tab.



## Internet Explorer icons

Towards the top-right of the Internet Explorer window you will see a number of icons displayed.



### Home.

Clicking on this icon will display the Home Page for your copy of the Internet Explorer.



### Feeds.

We will see more about feeds later.



### Printer.

Let's you print your Web page.



### Page.

Let's you select page related options.



### Tools.

Displays a range of Internet Explorer tools.

## Available Help Functions

### Displaying Help

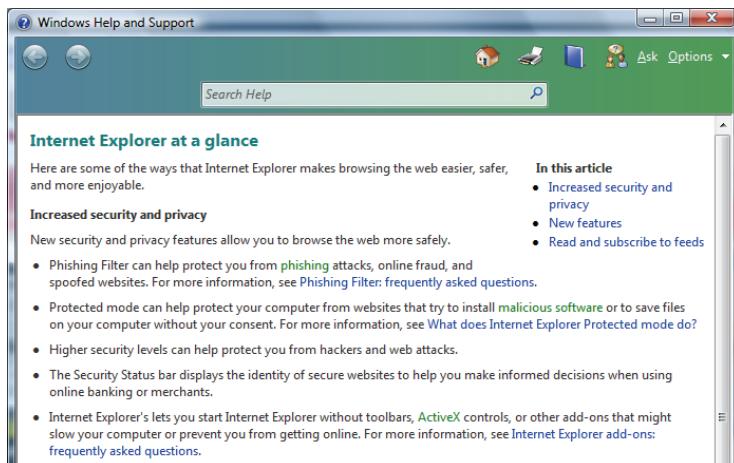
With the Internet Explorer window open, press the **F1** key. This will display the Internet Explorer help window. Within this window you can see information on topics including:

- Increased security and privacy
- New features
- Read and subscribe to feeds

Towards the bottom of the windows are further links to items such as:

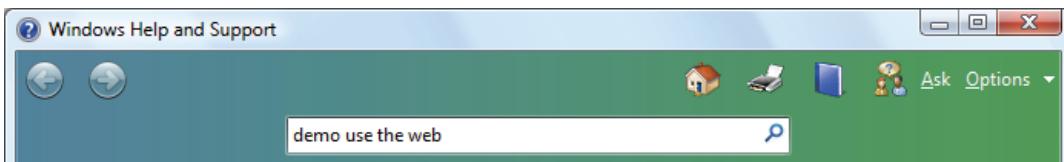
- Internet Explorer keyboard shortcuts
- Fill in website forms and passwords automatically
- How to know if an online transaction is secure
- Internet Explorer browser settings

Take a little time reading up on the new features available within this version of Internet Explorer.

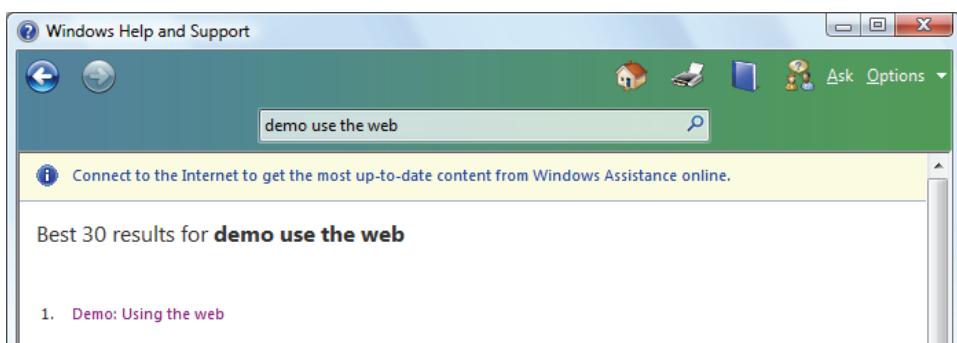


### Help Demos

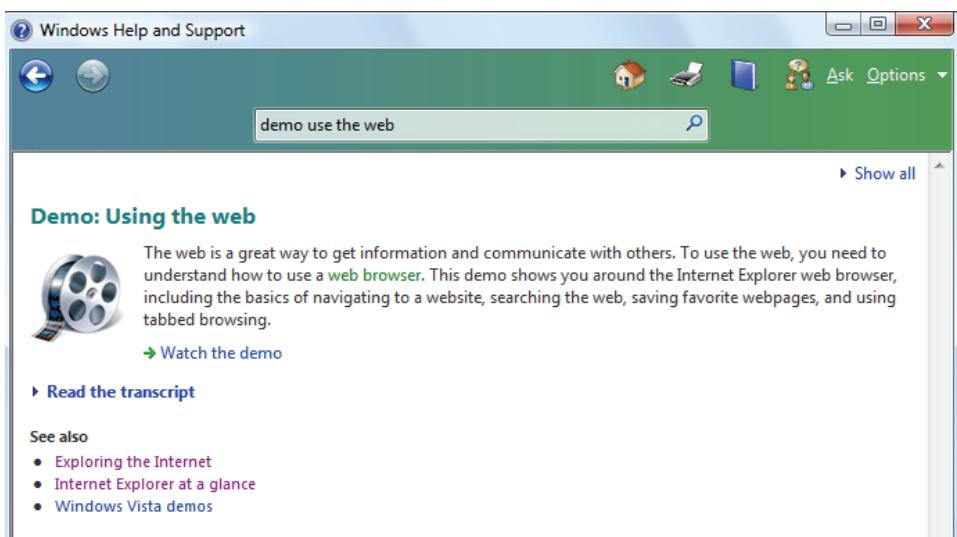
Within the Help search box, type in the words **Demo use the Web**, as illustrated below, and then press the **Enter** key.



You will see the demo link illustrated below.



Click on this link and you will see the following.



Click on the **Watch the demo** link. Note there is sound as well as pictures, so make sure that your speakers are connected up.

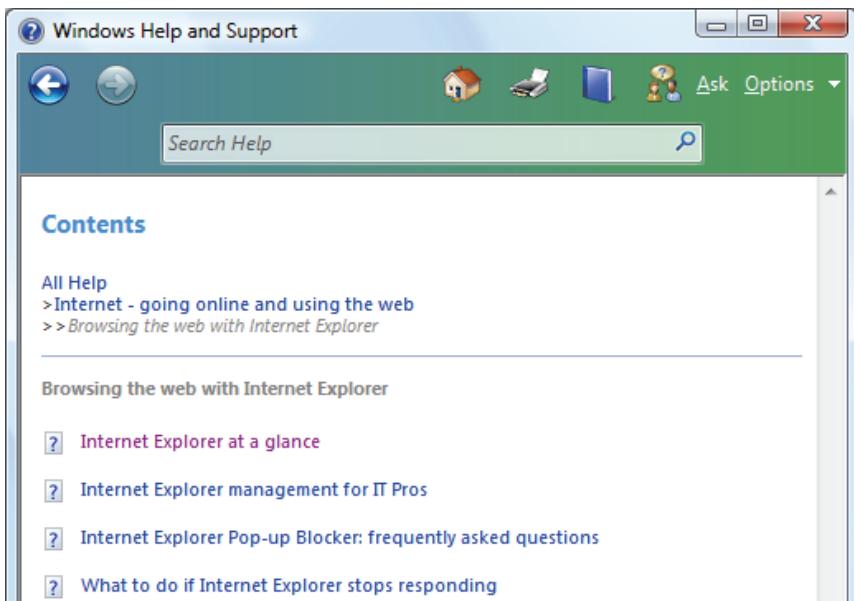
Close the demo window when you have finished watching the presentation.

## Browsing for Help

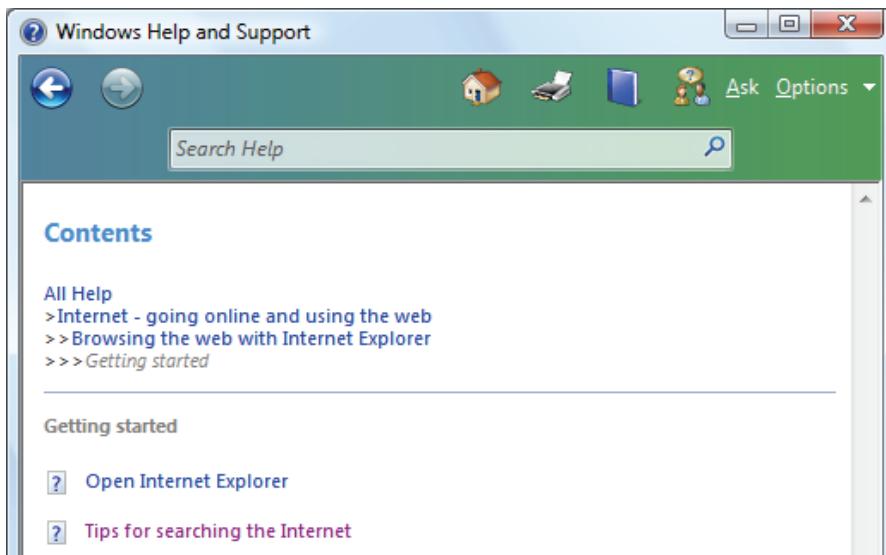
Click on the **Browse Help** icon.



This will display a window, as illustrated below.



You can use this window to browse for topics of interest. For instance clicking on the **Getting Started** item, will display the following.



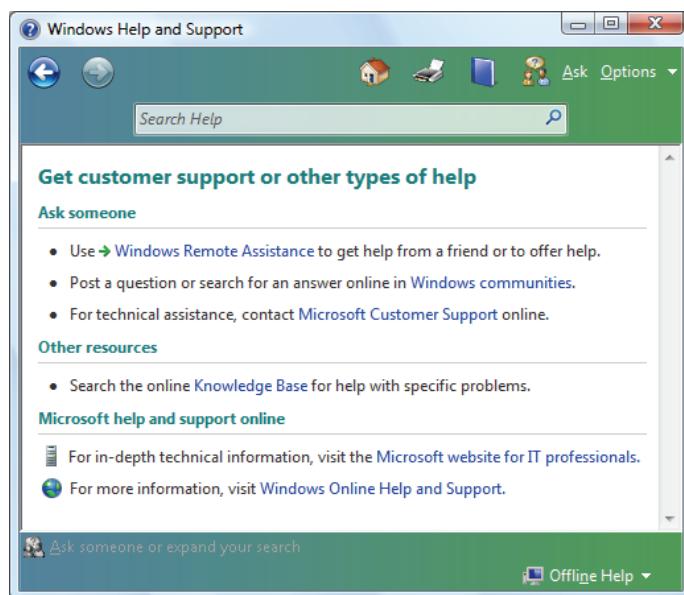
Experiment by clicking on some of these links and seeing what sort of help is available.

## Asking for Help

Click on the **Ask** icon.



This will display the following window.



You can use this to get help online or search the **Knowledge Base** which is a technical database which can be very useful for solving particular problems.

## Printing Help sheets

*Display a page of help information and then click on the **Print** icon to print that page of information.*



## Settings

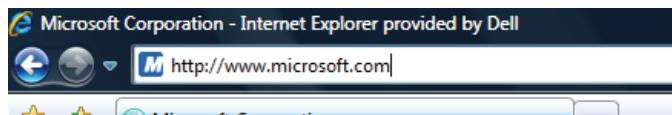
### Setting Home Page (Start Page)

You can set your Home Page to any Web page you like. Once set this means that the page you select will be displayed automatically within the Internet Explorer each time you start the program.

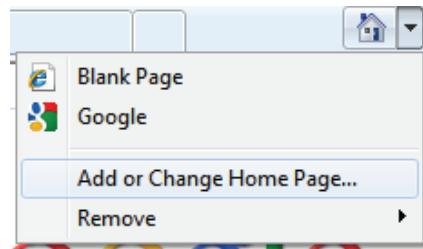
*Display the Web page that you would like to set as the home page. In this case type the following into the address bar and then press the **Enter** key:*

**www.microsoft.com**

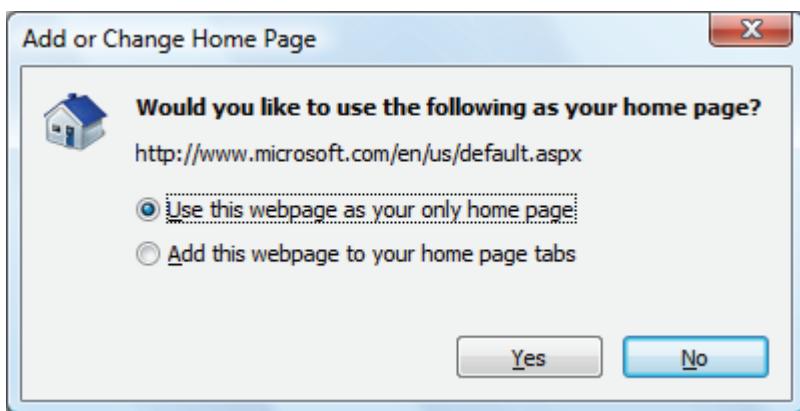
You will see the following



*Once the Microsoft Home is displayed, click on the **down arrow** next to the **Home** icon. This will display a drop down menu. Select the **Add or Change Home Page** command.*



This will display the **Add or Change Home Page** dialog box, as illustrated.



*Click on the **Use this webpage as your only home page** option. Click on the **Yes** button. You will not see any changes, but the home page has been changed.*

**NOTE:** You may see a pop-up from your anti-virus checker asking if you really want to allow your home page to be changed. The reason for this is that some malicious virus type programs often try to change your home page to a page selling you a product or service you do not want.

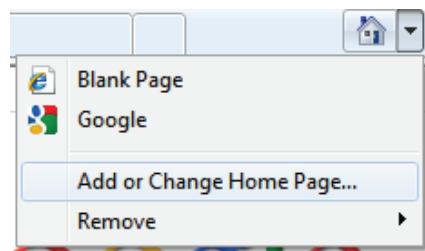
*Close the Internet Explorer program and then restart the Internet Explorer program. You should see that the Microsoft page now opens up automatically.*

## Setting multiple Home Pages

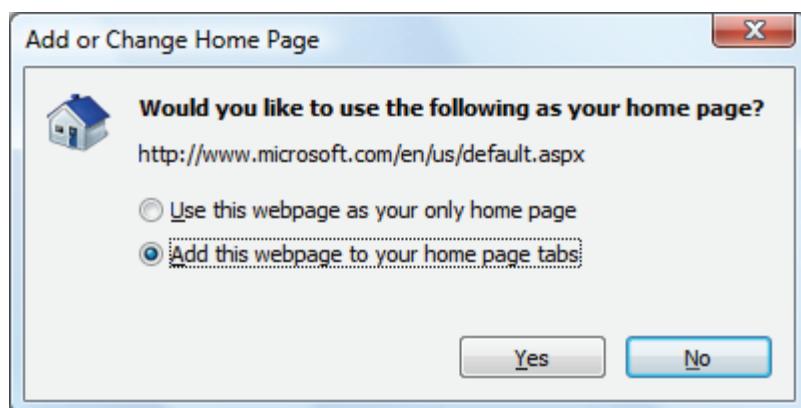
*Display the Web page that you would like to set as a home page on another of your tabs. In this case type the following into the address bar and then press the **Enter** key:*

**www.intel.com**

*Once the Intel Home is displayed, click on the **down arrow** next to the **Home** icon. This will display a drop down menu. Select the **Add or Change Home Page** command.*

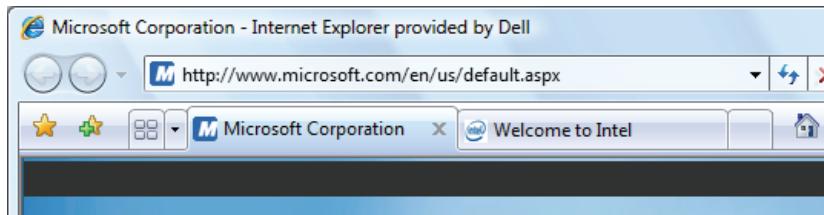


This will display the **Add or Change Home Page** dialog box, as illustrated.



*Click on the **Add this webpage to your home page tabs** option. Click on the **Yes** button. You will not see any changes, but the home page has been changed.*

*Close the Internet Explorer program and then restart the Internet Explorer program. You should see that the Microsoft Web site and the Intel Web sites both now open up automatically, as illustrated.*



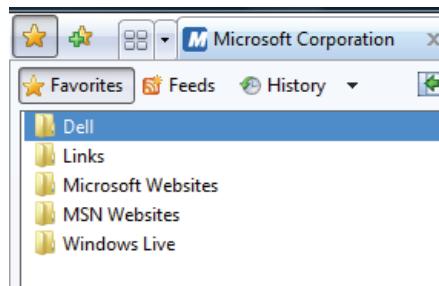
## Displaying your viewing history

Internet Explorer keeps a log of the Web sites you have visited. You can display this list and click on a Web site within the history list to revisit it.

*To view your history, click on **Favourites Centre** icon (top-left of your window).*

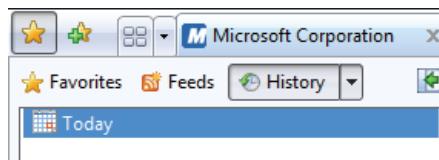


This will display the following drop down.

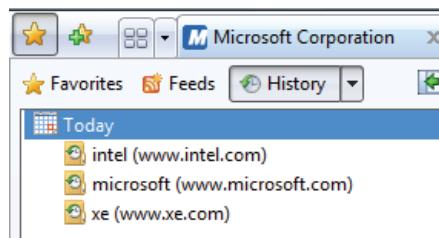


**TIP:** The keyboard shortcut to display this drop down is **Alt+C**.

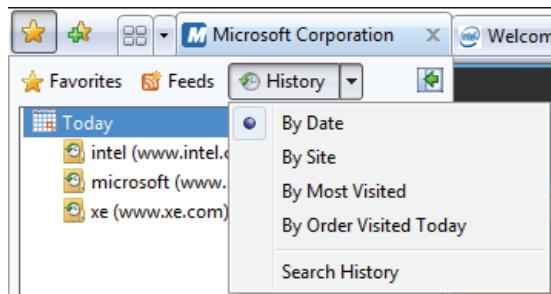
*Click on the **History** button. You will see the following.*



*Click on the **Today** icon and the list will expand to display all the Web sites you have visited today. Clicking on an item in the list will display that Web site.*



**TIP:** Clicking on the **down arrow** next to the **History** button will allow you to sort the history by specified criteria, such as **date**, **site name**, **most visited sites** and by **order visited today**.



## Deleting a history item

To delete a history item, right click over the item in the history list and from the pop-up menu displayed, select the **Delete** command.

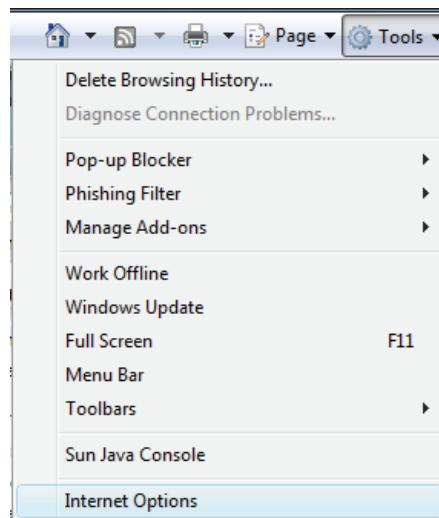


## Deleting the entire browsing history and temporary files

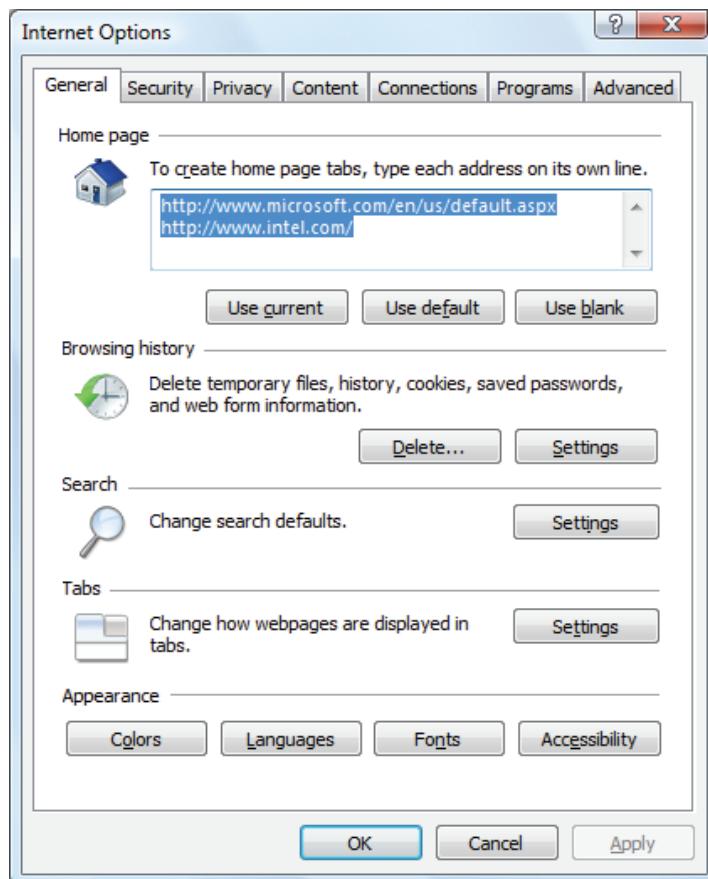
Click on the **Tools** button (top-right of your screen).



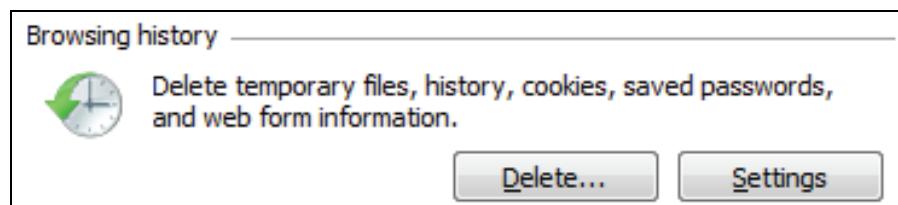
From the drop down list displayed, select the **Internet Options** command.



This will display the **Internet Options** dialog box.



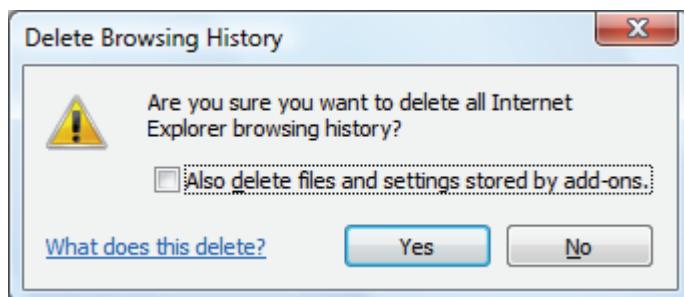
Within the **Browsing history** section of the dialog box, click on the **Delete** button.



This will display the **Delete Browsing History** dialog box.



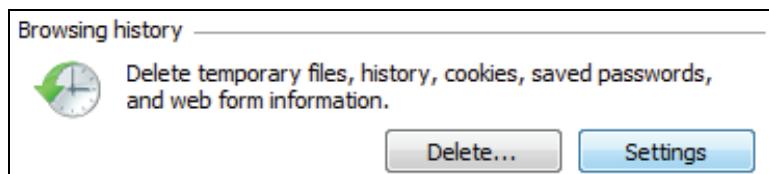
You can choose to delete only particular types of files or you can click on the **Delete all** button displayed at the bottom of the dialog box. Click on this option and you will see the following dialog box.



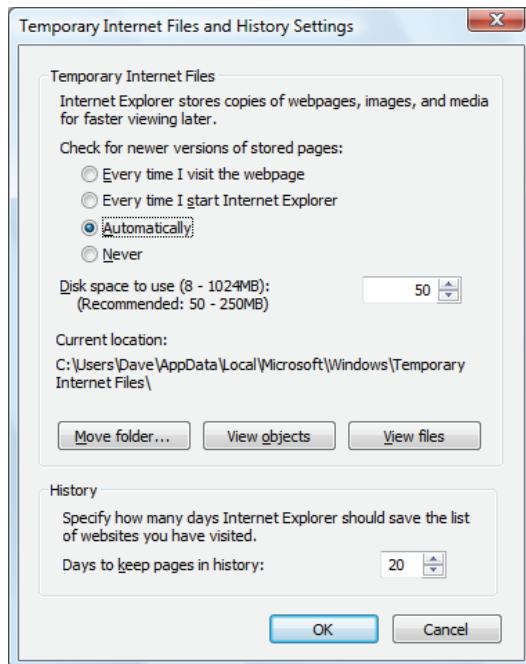
*Click on the **Yes** button to delete your entire browsing history, along with any temporary files that may have been downloaded.*

## Customizing history options

Click on the **Tools** button (top-right of your screen). From the drop down list displayed, select the **Internet Options** command which will display the **Internet Options** dialog box. Within the **Browsing history** section of the dialog box, click on the **Settings** button.



This will display the Temporary Internet Files and History Settings dialog box.



You can use the settings within this dialog box to specify how many days are recorded within the History tracking system.

## Information Bar

The Information Bar is displayed, when needed, just above a Web page and is used by Internet Explorer to display information relating to security, file downloads and blocked pop-up windows.

In the example illustrated, we visited the CNN Web site ([www.cnn.com](http://www.cnn.com)) and the following dialog box was displayed.

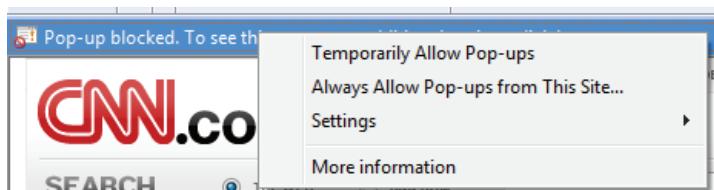


**TIP:** As Web sites are always changing, you may not see this pop-up if you try visiting the CNN web site.

After reading the Information Bar window, clicking on the **Close** button will close the window. A message is displayed within the Information Bar.



Clicking on the **Information Bar** displays a list of options.



### Temporarily Allows Pop-ups.

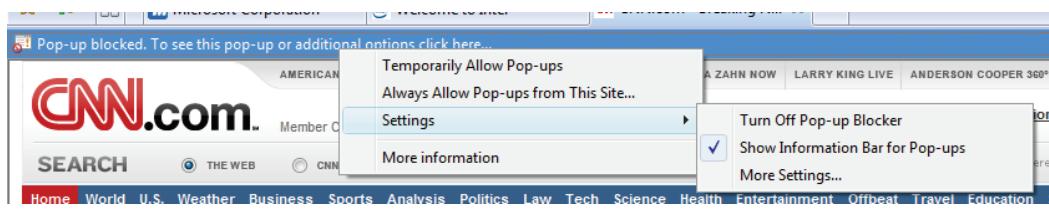
Allows pop-ups while you are currently viewing this site. If you later come back to this site the pop-ups will again be blocked.

### Always Allows Pop-ups from this Site.

This option will always allow this site to display pop-up messages. Be very sure about this before using this option.

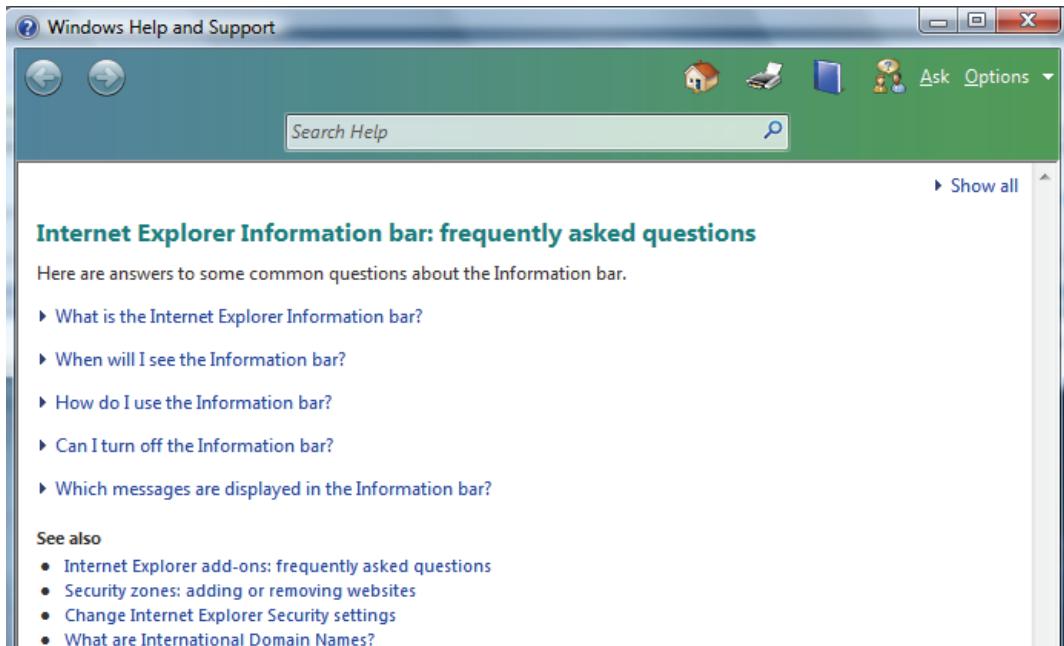
### Settings.

Clicking on this option will display a submenu of additional options, allowing you to turn off pop-up blocking or specify which sites you will allow pop-ups to be displayed from.



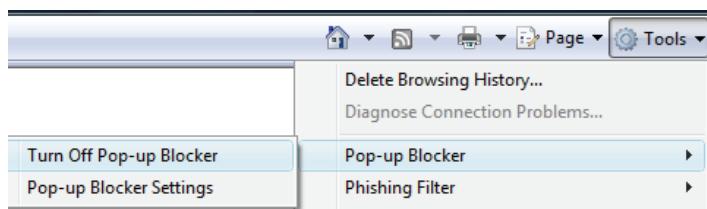
## More Information.

Clicking on this option displays Help about pop-up blocking

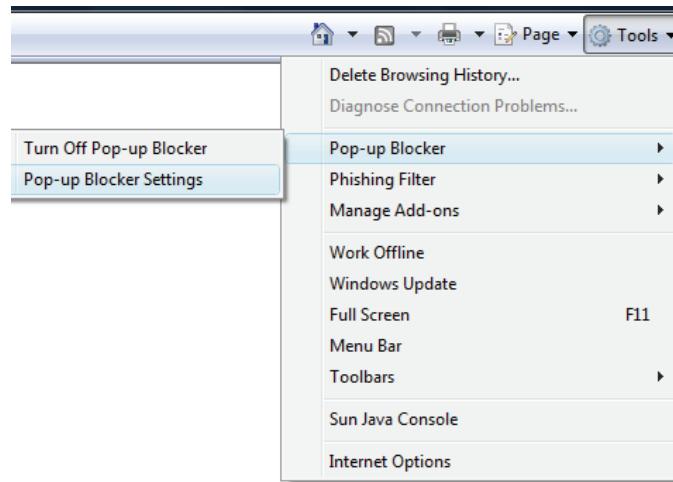


## Pop-Up blocking

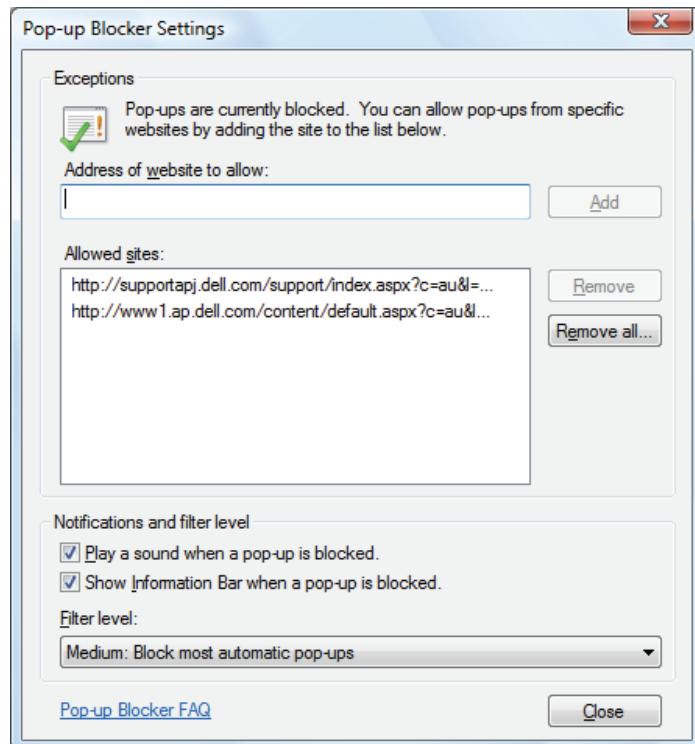
Pop-ups are annoying little windows or messages that pop-up when you visit certain sites. They are mostly used for marketing purposes but sometimes may be used for surveys or other purposes. It is a good idea to make sure that your computer is setup to block pop-ups. To do this click on the **down arrow** next to the **Tools** button within the Internet Explorer toolbar. From the drop down list displayed, click on the **Pop-up Blocker** command. From the submenu displayed, make sure that pop-up blocking is enabled.



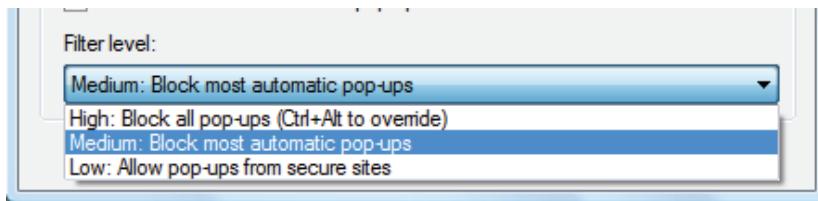
*Click on the **down arrow** next to the **Tools** button within the Internet Explorer toolbar. From the drop down list displayed, click on the **Pop-up Blocker** command. From the submenu displayed, click on the **Pop-up Blocker Settings** command. This will display the following.*



This will display the **Pop-up Blocker Settings** dialog box.

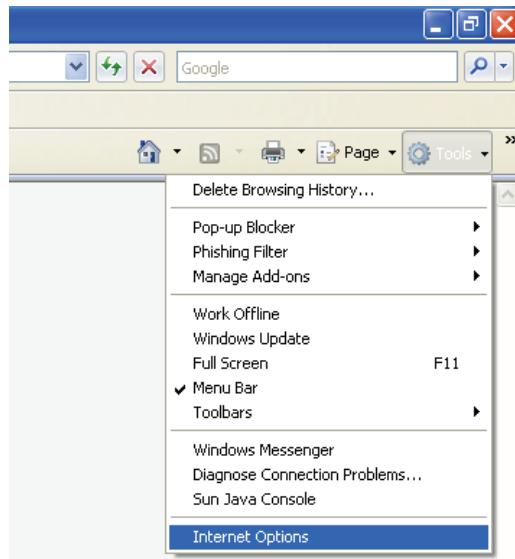


If you want to allow pop-ups from trusted sites, you can enter the Internet address (URL) into the **Allowed sites** section of the dialog box. You can also remove any sites that have been listed there. You can use the **Filter level** section of the dialog box to set the strength of pop-up blocking.

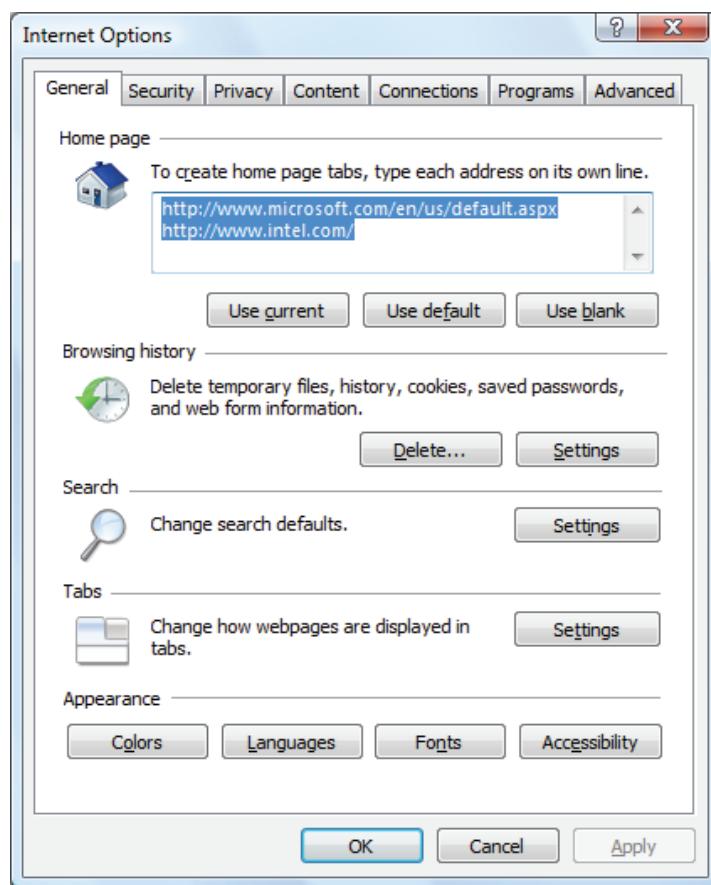


## Turning off popup blocking

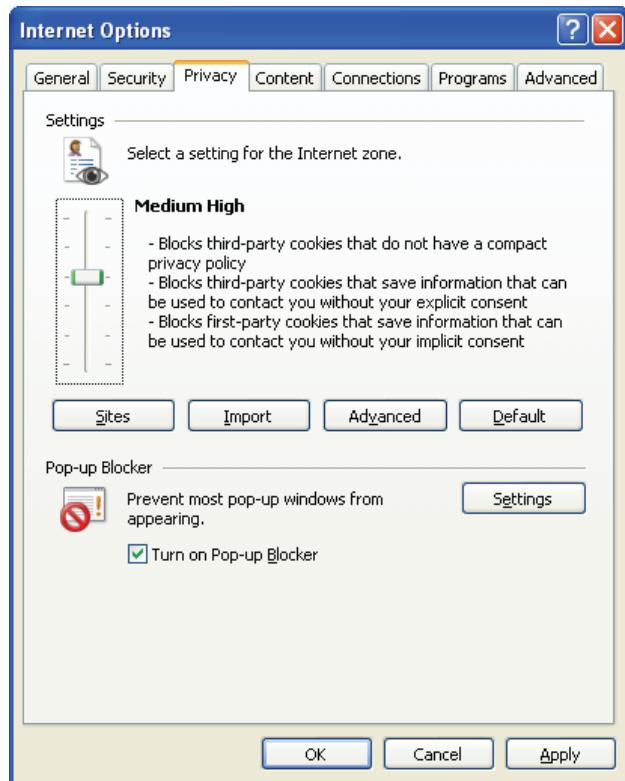
To do this click on the **Tools** button in the Internet Explorer toolbar. From the drop down menu displayed select the **Internet Options** command.



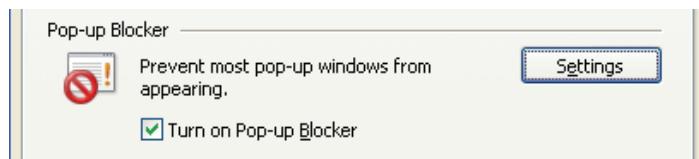
This will display the **Internet Options** dialog box.



Click on the **Privacy** tab, to display the following.



Remove the tick from the **Turn on Pop-up Blocker** tick box and the click in the **OK** button to close the dialog box.

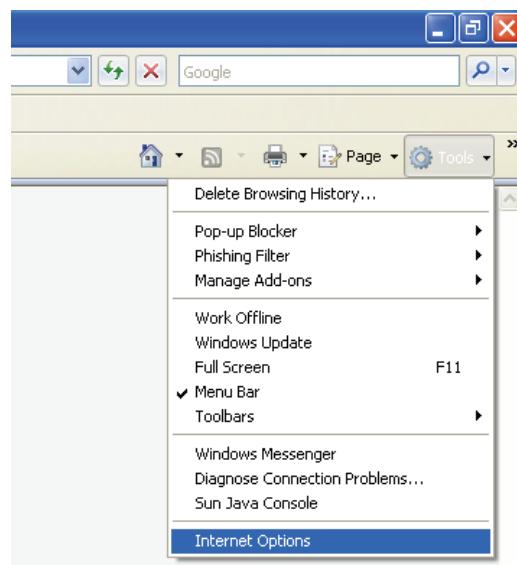


## Cookies

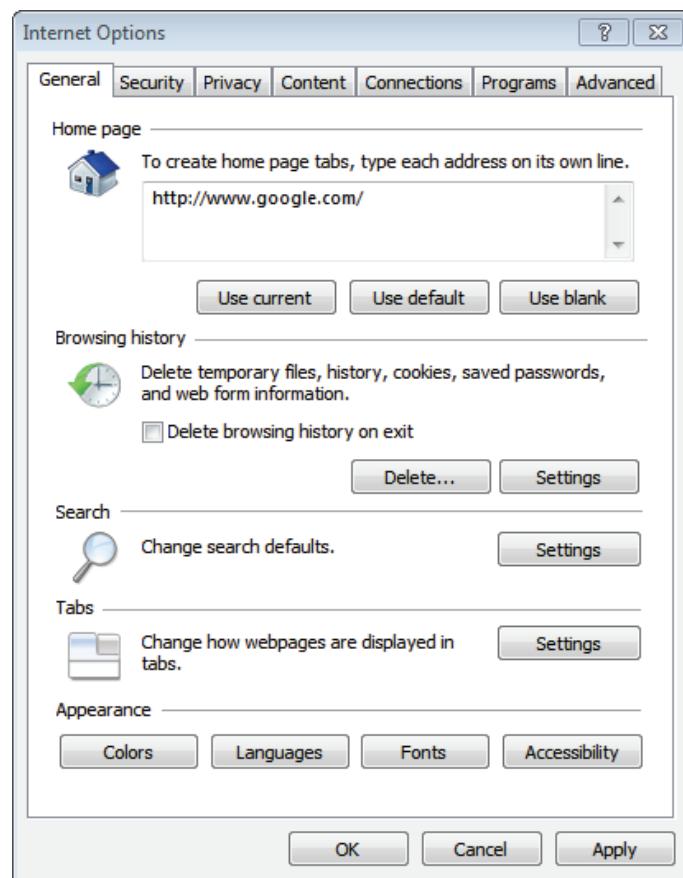
Some Web sites can store hidden information about you on your hard disk using cookies. This information is stored in small text files. Cookies can be useful, for instance, a site may store your preferences about a Web site, so that when you re-visit the site your preferences can be accessed automatically. Cookies are used by some Web sites to identify you; this saves you having to "log in" to the Web site each time you visit.

**More information:** <http://www.cookiecentral.com>

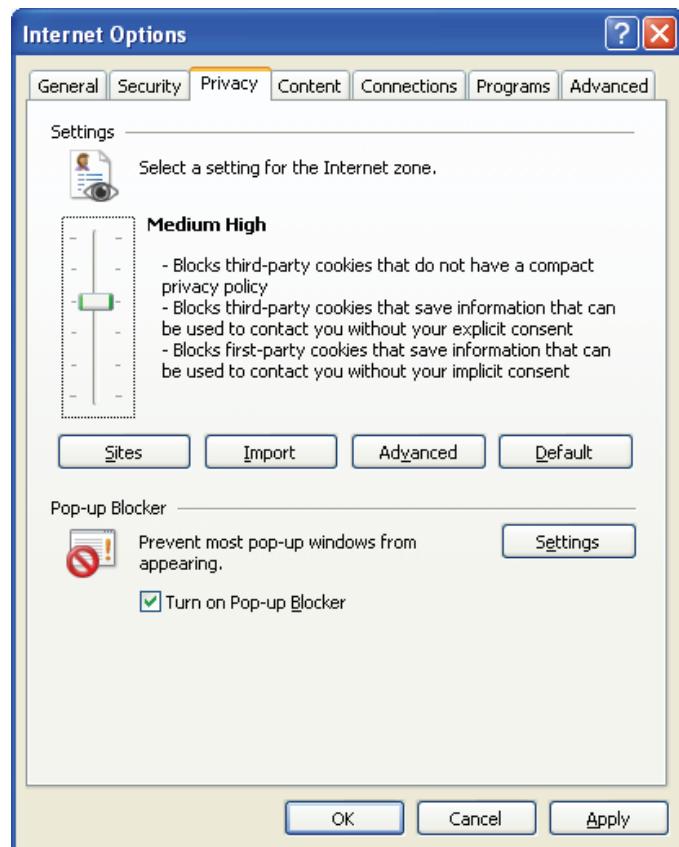
You can totally prevent the downloading of cookies or you can limit the type of cookies that are downloaded to your computer. To do this click on the **Tools** button in the Internet Explorer toolbar. From the drop down menu displayed select the **Internet Options** command.



This will display the **Internet Options** dialog box.



Click on the **Privacy** tab, to display the following.



You can use the slider to control the way cookies are handled. If you drag the slider to the top you will see the following. All cookies are blocked.

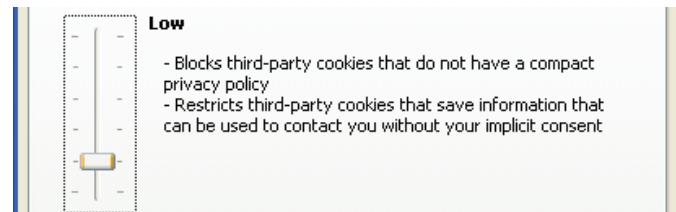


If you drag the slider to the bottom, all cookies are allowed.

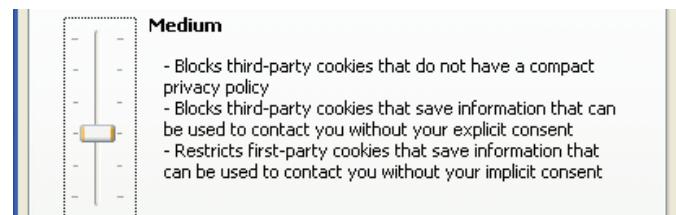


In-between these two extremes, you have the following settings.

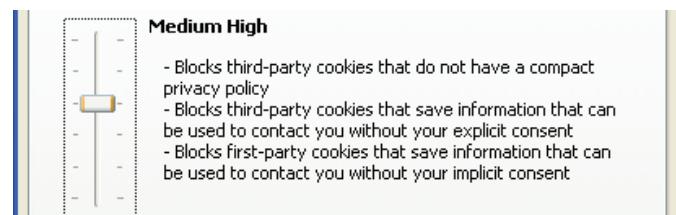
**Low:**



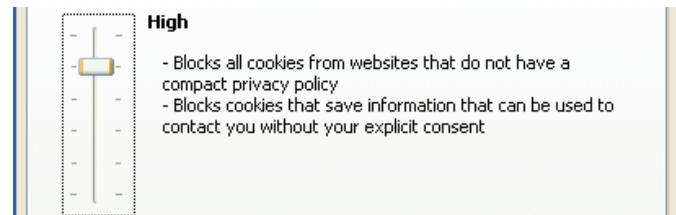
**Medium:**



**Medium High:**



**High:**



Select the desired privacy level and click on the **OK** button to close the **Internet Options** dialog box.

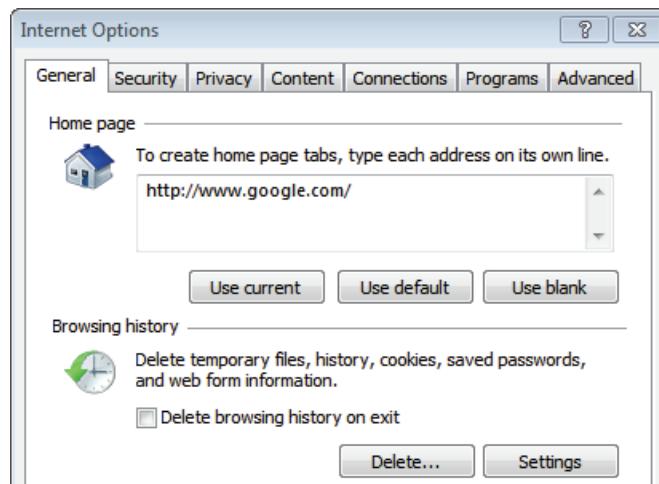
## Internet cache

Each time you display a Web site within your Web Browser, a copy of the information (both text and pictures) is saved on your hard disk. The reason for this is that the next time you want to re-visit the site; the information is quickly loaded from the copy on your hard disk, rather than slowly from the actual Internet site.

As pictures are stored in the cache, if you are visiting a site which has many separate Web pages, with say a company logo on each page, then all subsequent pages from that site will load a little faster as the logo graphics will load from the cache, not via the Internet.

## Emptying the cache and deleting temporary Internet files

Click on the **Tools** button (top-right of your screen). From the drop down list displayed, select the **Internet Options** command which will display the **Internet Options** dialog box. Make sure that the **General** tab is selected.



Click on the **Delete** button and you will see the following.



Click on the **Delete files** button. You will see a warning dialog box displayed.



Click on the **Yes** button. You will see the temporary files being deleted, as illustrated.



Close the dialog box once all the temporary files have been deleted.

## Toolbars

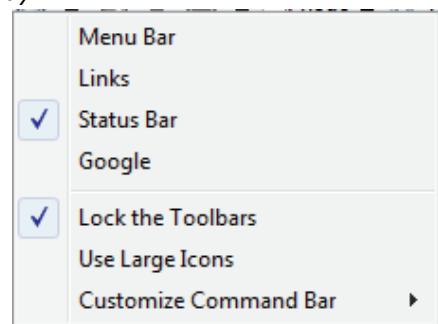
There are a number of different toolbars that you can display. Move the mouse pointer over one of the icons in the toolbar, as illustrated below.



*Right click and you will see other toolbars that you can display.*

*Click on the **Menu Bar** command and you will see drop down menu items displayed to the left of your toolbar. This gives you quick access to a range of commands and customization options.*

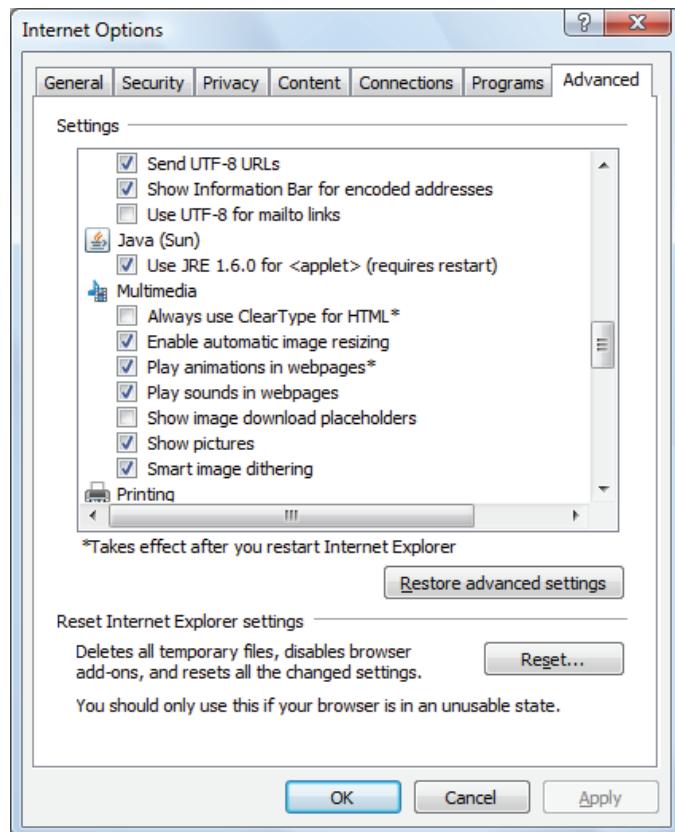
**TIP:** These drop down menus are very similar to the options displayed within earlier versions of Internet Explorer, so if you have some experience of using a previous version you may find this option useful.



## Disabling picture display

If you set the Internet Explorer not to display pictures, then Web pages will load much faster. However the whole point of a Web page is the ability to display text and pictures. You are missing out on a lot by not seeing pictures. In some cases a Web site may consist of only pictures (with even the text on the Web site, actually being a picture of the words).

*To disable the displaying of pictures, click on the **Tools** button within the Internet Explorer toolbar. From the drop down menu displayed select the **Internet Options** command. Click on the **Advanced** tab and then scroll down to the **Multimedia** section, as illustrated below.*



*To disable the display of pictures, remove the tick next to the **Show Pictures** option. Do not actually do this; just remember how to do it.*

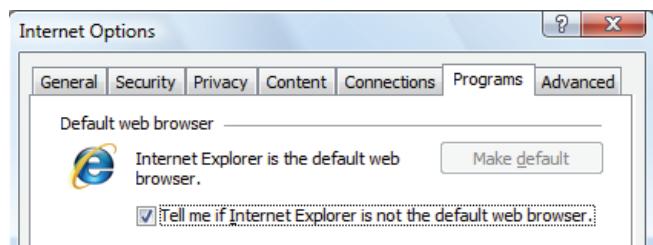
**TIP:** With modern high speed broadband connections it is very unlikely you would ever need to do this. However if you find yourself far from home with a very limited Internet connection, then it is a trick that may one day come in useful for speeding up your Internet access.

## Setting your default browser

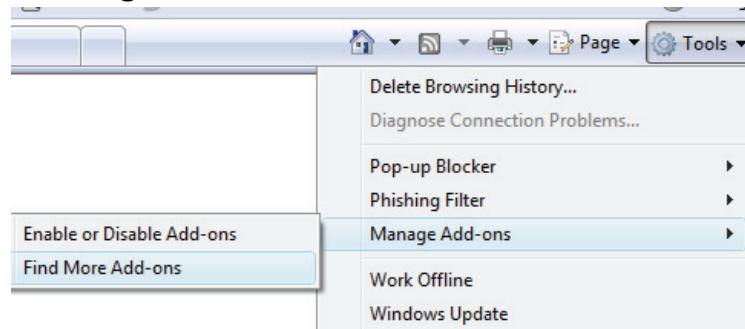
Microsoft Internet Explorer is a Web Browser. There are many other Web Browsers available and if you install another browser you may need to set the default browser from one program to another. Click the **Tools** button within the Internet Explorer toolbar. From the drop down menu select the **Internet Options** command. This will display a dialog box.

Click the **Programs** tab and then click on the **Make default** button and click on the **OK** button to close the dialog box and save your changes.

**TIP:** If you installed another Web Browser, it will normally be set to be the default browser automatically.



## Installing Add-ons



ons are available.

Do not actually install any add-ons, but take a look around and see what is available. You may wish to install some of these after the course on your own computer.

**TIP:** In a business environment you may be prohibited from installing add-ons on your business computer. Always check with your computer support department before installing anything on your computer.

You can add extra functionality to the Internet Explorer. To do this click on the **Tools** button and click on the **Manage Add-ons** command. From the submenu displayed, click on the **Find more Add-ons** command.

You will see a page displayed within the Internet Explorer explaining more about add-ons and what add-

# Navigation

## Hyperlinks

Slowly move the mouse pointer over the Web page displayed on your screen. You will notice that if you point to certain text or pictures, the mouse pointer changes to the shape of a small hand.



When the pointer changes to this shape it means that you are pointing to a hyperlink. When you click on a hyperlink you will jump to a new location. That location could be a different location on the same page. It could be a different Web page of the same Web site. It could even be a different Web page on a different Web site.

**TIP:** Hyperlinks may also allow you to download files from the Web site.

Try clicking on a few hyperlinks and see what happens.

## Back and Forward buttons

The **Back** button allows you to go back to the last Web page you displayed on your screen. Having gone back, the **Forward** button allows you to go forward to the next page that you visited. Experiment with using these buttons.

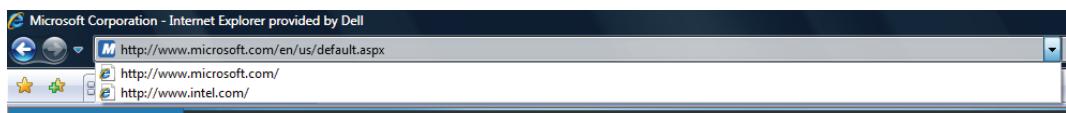


## Navigating through Web sites

Normally when you first view a Web site you see what is called the Home Page for that Web site. The Home Page is the starting page for a Web site and you use hyperlinks within that page to visit other pages within the Web site. See if you can see a link called Home Page on the pages you visited within the Microsoft Web site. Not all Web pages will have this link, but most well designed Web pages will have some sort of link to allow you to quickly jump back to the home page.

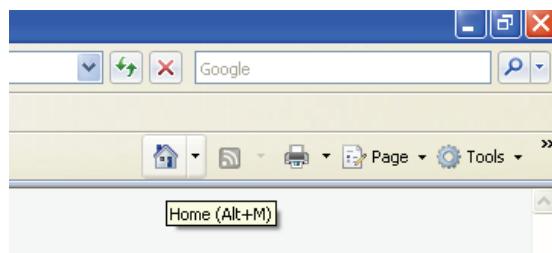
## Revisiting Web pages via the address bar

If you click on the **down arrow** to the right of the **address bar** you will see a list of recently visited Web pages. Try clicking on one of these and you will display that page within the Internet Explorer.



## Visiting the Home Page

To visit the Internet Explorer Home Page, click on the **Home** icon within the toolbar, as illustrated.



## Bookmarks

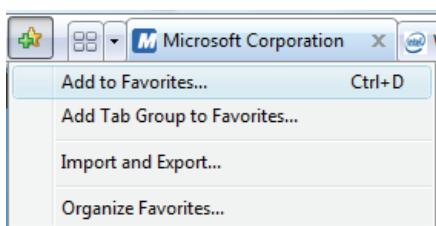
### Adding a Web page to your favourites

Favourites are also called bookmarks, and act in the same way that you would use a bookmark to mark a place in a book you are reading. You can set a bookmark and later use the bookmark to redisplay a particular Web page. This means that you do not have to remember the Web address of a Web page, just click on the favourite that you have saved for that particular page.

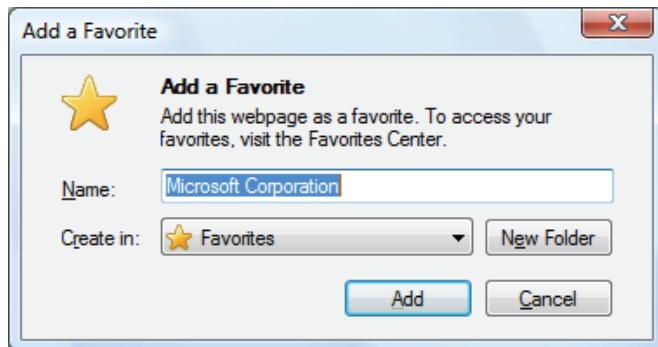


Display the Microsoft home page. To add a bookmark for the Microsoft home page, click on the **Add to Favourites** icon (top-left of your screen),

*From the drop down list displayed, select the **Add to Favourites** command.*



This will display the **Add a Favourite** dialog box.



*Click on the **Add** button and you have created a bookmark for the page that is currently displayed within the Internet Explorer.*

### Opening a favourite (bookmark)

First type in the address of another Web site, so that we can use the favourites list to display the favourite Web site we have just added. Type in the following Web address and press the **Enter** key:

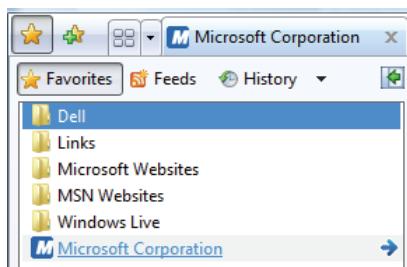
**www.dell.com**

Click on the **Favourites Centre**



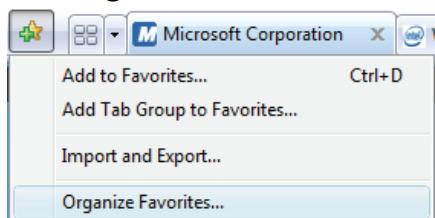
icon.

Within the drop down displayed, click on the **Favourites** button.



*Click on the required item within the favourites list and that Web site will be displayed on your screen.*

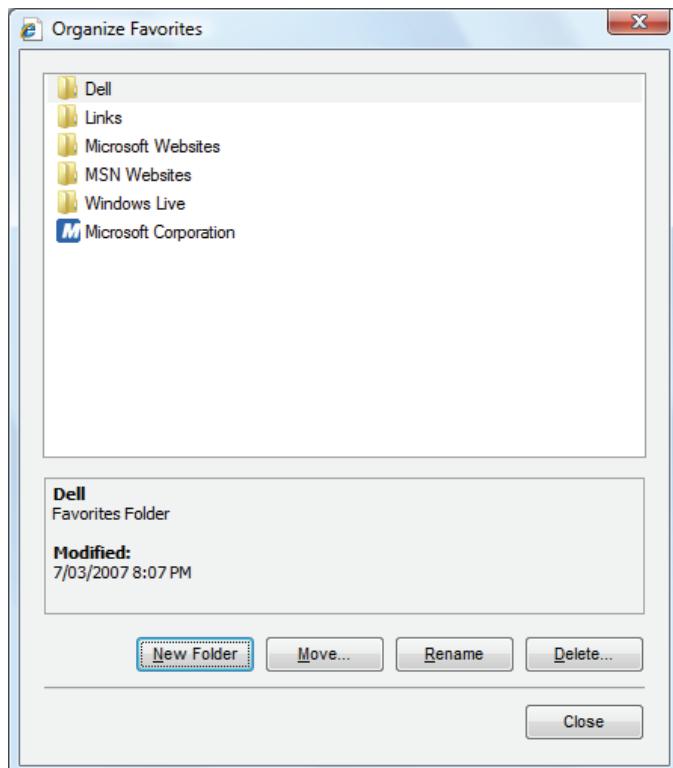
## Creating a new favourites folder



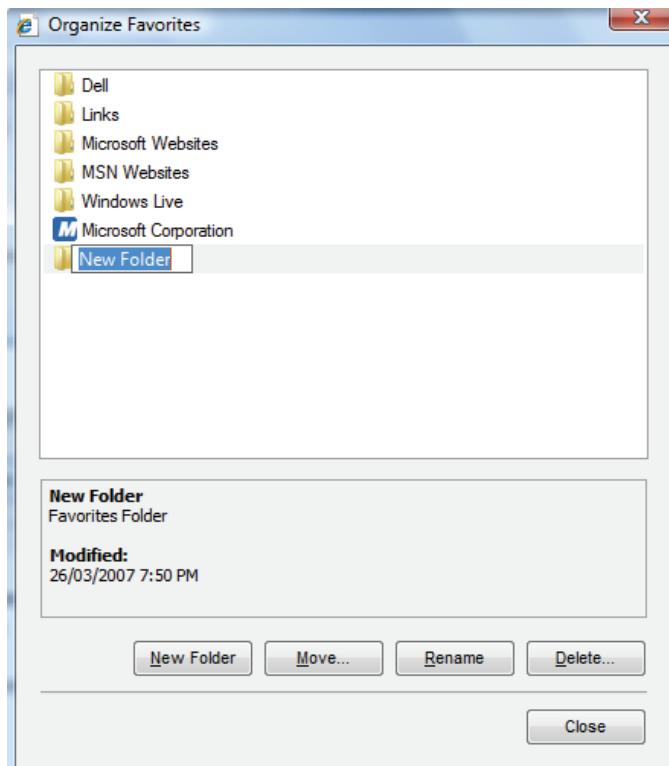
You can easily create a folder in which you can organize your favourites. A particular favourite can be moved from one folder to another so that your favourites can be grouped to make them more accessible.

Click on the **Add to Favourites** icon and from the drop down displayed, select the **Organize Favourites** command.

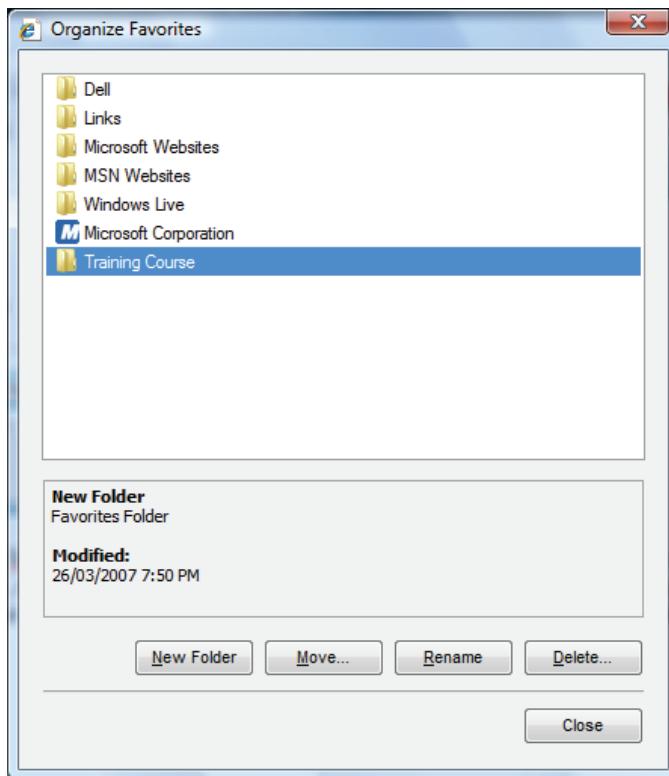
This will display the **Organize Favourites** dialog box.



*To create a new folder click on the **New Folder** button. You will see a new folder is created, called **New Folder**. This is displayed in editing mode, so you can now type in a new name for the folder such as '**Training Course**'. Then press the **Enter** key.*



You will now see the new folder displayed, as illustrated.



## Moving a favourite to a folder

Click on a favourite, such as the **Microsoft** favourite. Click on the **Move** button. You will see a dialog box displayed.



Select the folder that you want to move the favourite to, in this case the **Training Course** folder. Click on the **OK** button and the favourite will be moved to the folder as requested.

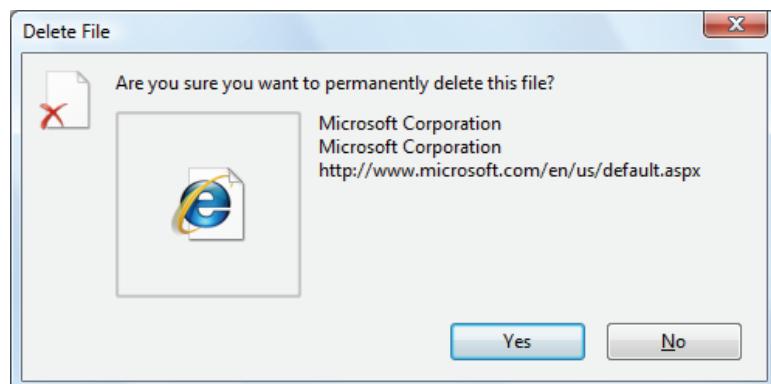
## Renaming a bookmark

Your favourite is now in the **Training Course** folder.

Click on this folder to display the favourite. To rename the favourite, once selected, click on the **Rename** button. Type in a new name, in this case **Microsoft Web Site**. Press the **Enter** key and the favourite is renamed.

## Deleting a bookmark

Select your Microsoft favourite and click on the **Delete** button. You will see a warning dialog box.

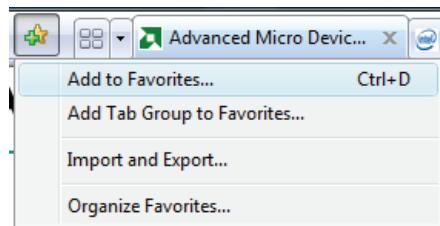


Click on the **Yes** button.

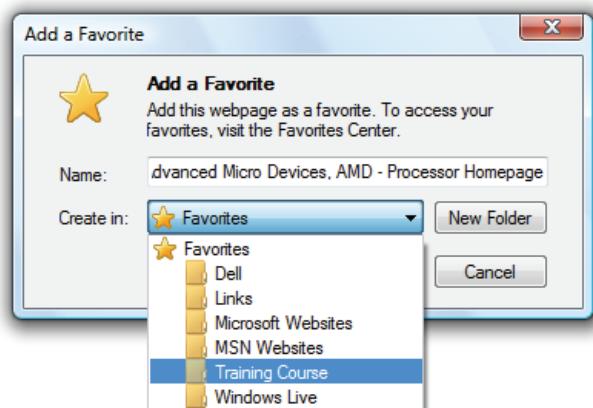
## Adding a Web page to a specified bookmark folder

You can add a new favourite directly to a folder within your favourite sites.

*Visit a Web page at [www.amd.com](http://www.amd.com). We shall create a favourite for this Web page. Click on the Add to Favourites icon. From the drop down displayed, click on the Add to Favourites command.*

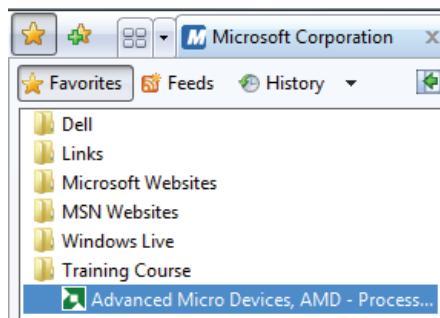


This will display the **Add a Favorite** dialog box. Within the **Create in** section of the dialog box, click on the down arrow next to **Favourites**. In this case select the **Training Course** folder.



*Click on the **Add** button and the favourite will be created.*

*Click on the **Favourites Centre** icon and verify that the favourite has been added to the **Training Course** folder.*



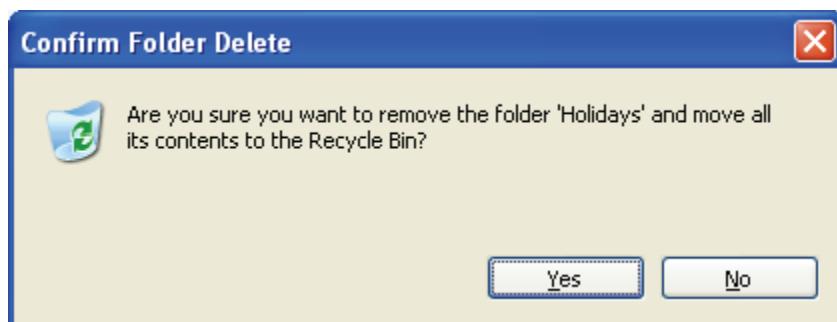
## Deleting a favourites folder

*Use the techniques described above to create a favourites folder called **Holidays**.*

*Display the favourites and select the **Holidays** folder, as illustrated.*



With the Holidays folder selected, press the **Del** key. You will see the following.



Click on the **Yes** button to delete the favourite folder.

# Using the web

## Forms

### Submitting & resetting Web based forms

In most cases a Web based form will look similar to the equivalent printed form. You can enter data in the normal way, sometimes selecting options from drop down menus. An example form is illustrated below.

The screenshot shows a web browser displaying a Google Account creation page. At the top left is the Gmail logo. To its right is the title "Create a Google Account - Gmail". Below the title is a language selection dropdown set to "English". The main heading "Create an Account" is centered above a descriptive text: "Your Google Account gives you access to Gmail and [other Google services](#). If you already have a Google Account, you can [sign in here](#)". The form itself is titled "Get started with Gmail". It contains several input fields: "First name" and "Last name" (both empty), "Desired Login Name" (containing "John.Smith" with a suffix ".gmail.com" to its right) with a note "Examples: JSmith, John.Smith" and a "check availability!" button, "Choose a password" and "Re-enter password" (both empty), and checkboxes for "Stay signed in" and "Enable Web History" (the latter is checked). There is also a "Password strength:" bar indicating a minimum of 8 characters. At the bottom, there is a "Security Question" dropdown set to "Choose a question ..." and a note about password recovery via security questions. The entire form is contained within a light blue border.

Normally you need to use the **TAB** key (not the **ENTER** key) to move from field to field within the form. When you have finished, there is often a button at the bottom of the form called **Submit**, or something similar. Clicking on this button will transmit the form across the Internet.

Many forms also have a **Reset** or **Clear** button. Clicking on this button will clear any information that you have entered into the form.

**TIP:** Be very careful when sending your personal information via a web site form. Always read the Privacy Policy of the organization providing the form.

## Searching

### Search Engine Web sites

If you want you can visit a search engine Web site directly using any of the Web addresses listed below.

Google - [www.google.com](http://www.google.com)

Microsoft- <http://bing.com>

Yahoo - <http://www.yahoo.com>

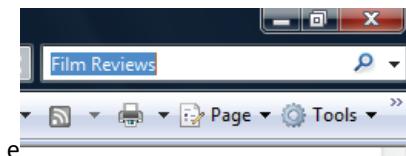
**TIP:** A good site that lists many more search engines is called Search Engine Watch. Have a quick look at this site and see what other search engines are available. [www.searchenginewatch.com](http://www.searchenginewatch.com)

### Using Instant Search

You can enter a search word or phrase into the Instant Search box. This is normally displayed at the top-right of the Internet Explorer window, as illustrated.



Type in the phrase **Film reviews** and press the **Enter** key.



**TIP:** If you press **Alt+Enter** rather than **Enter** then the search results will be displayed within a new tab.

You will see a page of search results displayed, as illustrated.

Film Reviews - Google Search - Internet Explorer provided by Dell

http://www.google.com/search?hl=en&rls=com.microsoft%3A%3AIE-SearchBox&rlz=1TDAAU&q=Film+Reviews

Microsoft Corporation computer courseware - Go... Film Reviews - Google ...

Sign in

**Google** Web Images Video News Maps Desktop more » Advanced Search Preferences

Search

Results 1 - 10 of about 89,500,000 for **Film Reviews** (0.20 seconds)

**Film.com**  
Film.com - Movies, TV, DVDs, and entertainment news with commentary, reviews, trailers, and video.  
[www.film.com/](http://www.film.com/) - 40k - 25 Mar 2007 - [Cached](#) - [Similar pages](#)

**ROTTEN TOMATOES: Movies and Games, Reviews and Previews**  
When a film has 40 reviews, 5 of which are from Cream of the Crop critics, and has a Tomatometer of 75% or higher, it is Certified Fresh by Rotten Tomatoes. ...  
[www.rottentomatoes.com/](http://www.rottentomatoes.com/) - 128k - 25 Mar 2007 - [Cached](#) - [Similar pages](#)

**MRQE - Movie Review Query Engine**  
Web's largest online directory of movie reviews. ... Sundance Film Festival 2006, Three Rivers Film Festival 2005, New York Film Festival 2005, Toronto Film ...  
[www.mrqe.com/](http://www.mrqe.com/) - 38k - 25 Mar 2007 - [Cached](#) - [Similar pages](#)

**Reviews | Guardian Unlimited Film**  
Home · Reviews · Features · Interviews · Now showing · Games · Arts & entertainment · Blog · News · Brits in film · Trailer park · Video & DVD · Talk ...  
[film.guardian.co.uk/Reviews/Front/](http://film.guardian.co.uk/Reviews/Front/) - 39k - [Cached](#) - [Similar pages](#)

[.. rogerebert.com .. FRONTPAGE \(xhtml\)](http://rogerebert.com/)  
Full and capsule film reviews from the acclaimed critic. Also includes film festival details, interviews, and essays.  
[rogerebert.suntimes.com/](http://rogerebert.suntimes.com/) - 42k - 25 Mar 2007 - [Cached](#) - [Similar pages](#)

**Channel 4 Film - movie, film and DVD reviews, cinema listings ...**  
The UK's most comprehensive film site with over 10000 film reviews, 100000 filmographies, 1000 DVD reviews movie news and listings.  
[www.channel4.com/film/](http://www.channel4.com/film/) - 25 Mar 2007 - [Similar pages](#)

**Film Reviews, Movie Reviews, DVD Reviews and Video reviews and ...**  
Read and write Movie reviews, did review and documentaries, music videos and TV programs and compare prices of thousands of DVDs.  
[www.reviewcentre.com/consumer\\_reviews18.html](http://www.reviewcentre.com/consumer_reviews18.html) - 41k - [Cached](#) - [Similar pages](#)

**The Internet Movie Database (IMDb)**  
Movie Reviews: 'Pride', 'Movie Reviews: 'Reign Over Me' ... Indie Film @ IMDb · Ask a Filmmaker: John August on mastering American lingo. ...  
[www.imdb.com/](http://www.imdb.com/) - 53k - 25 Mar 2007 - [Cached](#) - [Similar pages](#)

**Movie Reviews, Movie Critics - Metacritic.com**

Sponsored Links

**Watch a great Film?**  
Brisbane Times Reviews Some Great DVDs. Get A New Perspective On News  
[brisbanetimes.com.au](http://brisbanetimes.com.au)

**FilmO**  
Real Online Film Reviews  
Reviews, Screenings, Free Tickets  
[www.filmo.com.au](http://www.filmo.com.au)

**Latest Film Clips**  
Watch The Film Reviews Clips  
Sign Up For Free & Fast Access Now!  
[www.monkeymag.co.uk](http://www.monkeymag.co.uk)

**Film Reviews**  
Watch reviews of all the upcoming movies. Entertainment news online.  
[www.News.com.au](http://www.News.com.au)

**Downloadable Papers**  
Established site features papers on  
Reviews film  
<http://www.1millionpapers.com>

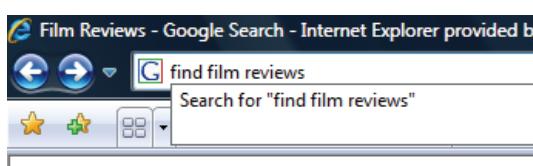
Internet | Protected Mode: On 100%

Clicking on one of the search result links will display the relevant Web site. In the example we clicked on the 'Rotten Tomatoes' Web site link. This is a well-known site containing film reviews.

**TIP:** When you see a page of search results, clicking on a link will display that Web site, and replace the page of search results. If you want the Web site link to open within a new window, press the **Shift** key while you click on the link. The Web page will then open within a separate window, and you can still access the page of search results.

The screenshot shows the Rotten Tomatoes website in Microsoft Internet Explorer. The address bar displays "http://www.rottentomatoes.com/". The page features the Rotten Tomatoes logo at the top left. A navigation menu includes Home, Movies, DVD, Celebrities, News, Critics, Trailers & Pictures, and Community Beta. Below the menu is a search bar with options for RT, Showtimes & Tickets, or Web search. A promotional banner for Flixster and the Tomatometer app is visible. On the left, there's a "TOP BOX OFFICE" list with movies like "The Twilight Saga: Eclipse" and "The Last Airbender". The main content area shows "TODAY'S FEATURES" with a large image of Leonardo DiCaprio from "Inception". Below it, there are links for "All-New Inception Pictures", "The American Trailer", "First Trailer for Rango", and "10 Certified Fresh Musicals". To the right, there are two ads for the Flixster app on iOS, each with a download link to the App Store.

## Using the Address Bar

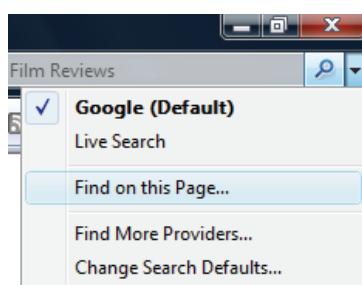


*Click within the Internet Explorer **Address Bar**. Type in the word **Find** followed by the search phrase. In the example we are searching for **Film reviews**.*

*Pressing the **Enter** key will display a page of search results.*

## Adding new search engines

Click on the **down arrow** to the right of the **Search Box** and you will see a drop down list.



*Click on the **Find More Providers** command. You will see a page displaying other search engines.*

**Add Search Providers to Internet Explorer 7 - Internet Explorer provided by Dell**

<http://www.microsoft.com/windows/ie/searchguide/en-intl/default.mspx?dcsref=http://runonce.msn.com/runonce2.aspx>

**Microsoft Corporation** computer courseware - Go... **Add Search Providers t...**

## Windows

### Add Search Providers to Internet Explorer 7

To add a provider to the Internet Explorer 7 Instant Search box, click the provider's link below. You can set any of these as the default search provider by selecting the **Make this my default search provider** check box in the **Add Search Provider** dialog box that appears when you click the link.

[See Global Search Guides](#)

Web Search	Topic Search	Create Your Own
<a href="#">AOL</a> Stop Searching, Start Finding	<a href="#">Amazon</a> Search Amazon's online stores <a href="#">www.cnet.com</a> Search tech news, reviews and downloads	<b>Create Your Own</b> Add your own search provider to your copy of Internet Explorer 7 by following these steps: 1. Visit the desired search engine in another window or tab 2. Use the search engine to search for TEST (all capital letters) 3. Paste the URL of the Search results page URL: <input type="text"/> 4. Specify a name for the search provider Name: <input type="text"/> 5. <b>Install</b> <a href="#">View XML</a> <small>If your search provider doesn't install correctly, <a href="#">click here</a> to select another character encoding.</small>
<a href="#">Ask.com</a> Better search results with keywords or questions	<a href="#">eBay</a> Search Online Auctions	
<a href="#">Google</a> Google Web Search	<a href="#">ESPN</a> Search sports online	
<a href="#">Lycos</a> Lycos Search - Go Get It!	<a href="#">indiatimes.com</a> Indian news, shopping and travel	
<a href="#">Rediff.com</a> Search India as it happens	<a href="#">Microsoft</a> Search Microsoft.com	
<a href="#">Sify</a> News,Sports,Finance,Movies,Videos	<a href="#">Naukri.com</a> Top Jobs In India	
<a href="#">Windows Live Search</a> From Microsoft. Find it Fast	<a href="#">News Corp. Online</a> Australian news, sports, stocks, culture	
<a href="#">Yahoo!</a> Yahoo! Web Search	<a href="#">Virgin.com</a> Virtually everything . . . Virgin.com	
	<a href="#">Wikipedia</a> Search The Free Encyclopedia	

**Inclusion Criteria**  
 Do you own a website? [Click here](#) to learn how to promote your favorite search engines in Internet Explorer 7.

*Click on the search engine you wish to add, in this case, click on **Yahoo!**. You will see the **Add Search Provider** dialog box.*



*Click on the **Add Provider** button.*

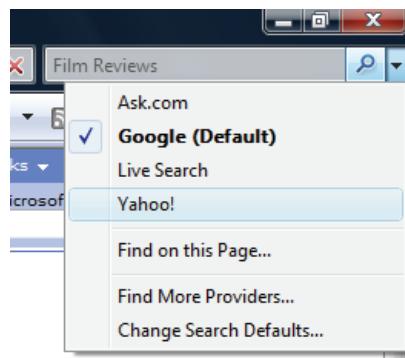
We can add another search engine at the same time.

Click on the **Ask** link. Again you will see a dialog box. Click on the **Add Provider** button.



### Temporarily changing the search engine

Click on the **down arrow** to the right of the **Search Box** and from the drop down displayed select the search engine you wish to use. In this example select **Yahoo**.



Type the search phrase **Film reviews** into the **Search Box** and then press the **Enter** key. As you will see, different search engines return different search results.

Film Reviews - Yahoo! Search Results - Internet Explorer provided by Dell

http://search.yahoo.com/search?p=Film+Reviews&ei=utf-8&fr=b2ie7

Microsoft Corporation computer courseware - Go... Film Reviews - Yahoo! ...

Yahoo! My Yahoo! Mail Welcome, Guest [Sign In]

Web | Images | Video | Local | Shopping | more

**YAHOO! SEARCH** Film Reviews

Search Results

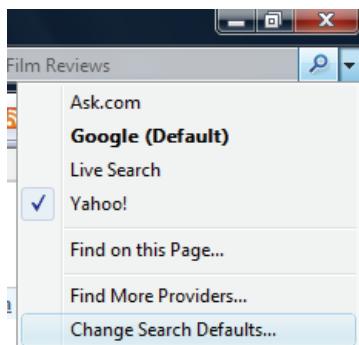
Also try: [300 film reviews](#), [ebert and roeber film reviews](#), [borat film reviews](#) More...

- Rent DVDs Online at BigPond Movies**  
www.bigpondmovies.com - Always have great DVDs at home with BigPond Movies when you hire online.
- Rotten Tomatoes**  
Read reviews of current movies from the nation's top critics and many other sources, used by Rotten Tomatoes to formulate a single "rotten" or "fresh" rating. Also ...  
www.rottentomatoes.com - 131k - [Cached](#) - [More from this site](#)
- Ebert & Roeper**  
... Roeper, the movie critics' show with Roger Ebert and Richard Roeper, featuring thumbs up/thumbs down ratings and audio clips of current reviews. ...  
www.ebertandroeper.tv - 2k - [Cached](#) - [More from this site](#)
- Movie Reviews - E! Online**  
Movies reviews for current releases from E! Online, with each film graded from A to F by both critics and users, as well as news about upcoming movies and DVDs.  
www.eonline.com/movies/reviews - 31k - [Cached](#) - [More from this site](#)
- Movie Reviews - Movies.com**  
Provides reviews for the latest theatrical movies, with a "We Say, Critics Say, You Say" chart.  
movies.go.com/reviews - 45k - [Cached](#) - [More from this site](#)
- Movie Review Query Engine**  
Searchable database of movie reviews from newspapers and magazines worldwide. Find movie reviews by titles, or browse reviews of current releases.  
www.mrqe.com - 38k - [Cached](#) - [More from this site](#)
- filmcritic.com**  
Movie reviews, feature stories, and film information from critics around the world. See ratings for box office and DVD releases, film festival coverage, and critic's ...  
www.filmcritic.com - 33k - [Cached](#) - [More from this site](#)

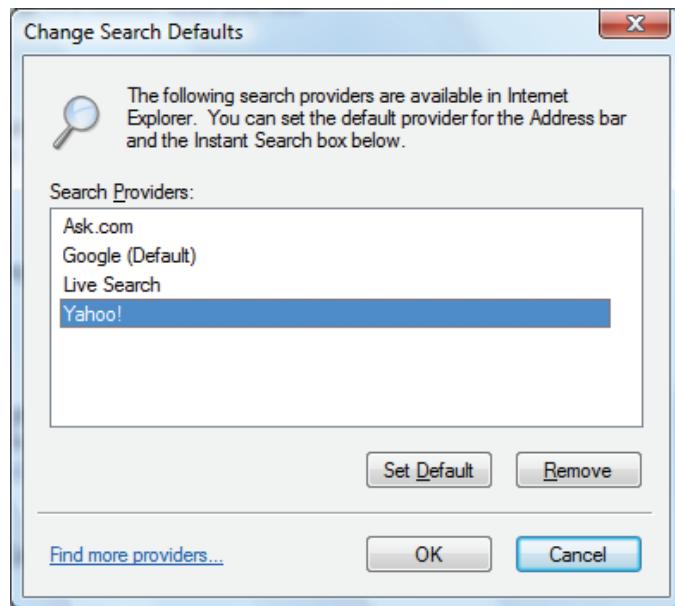
**TIP:** This search engine will only be used until you select another search engine or until you close Internet Explorer. When you reopen the Internet Explorer, the default search engine will be used again.

### Changing the default search engine

Click on down the arrow to the right of the **Search Box** and from the drop down displayed click on the **Change Search Defaults** command.



This will display the **Change Search Defaults** dialog box. Select the search engine that you want to set as the default, such as **Yahoo**, click the **Set Default** button and then click on the **OK** button.



Before continuing set the default to the **Google** search engine.

## Using keywords and phrases

Many people think that when you use a search engine, such as Google, it will magically search the entire Web and find the information which you require. The first thing to understand is that a search engine like Google will only search through a list which it maintains of sites that have been registered with that particular search engine. This accounts in part for the widely differing results you sometimes get when you search using different search engines. Also each search engine has different criteria for ranking search results, i.e. the order in which search results are displayed on your page. These search results are often displayed 10 per page, with a brief description about each site which it has found matching your requirements. In general it is better to use two or more words, or a short phrase when searching.

### **Don't use a single search word!**

Normally you should use two (or more) words or a short phrase rather than a single word when using a search engine. Try to use unique words which directly relate to what you are searching for. For instance if you are searching for information about film reviews then search for **film reviews**, not just **reviews** which would include all sorts of reviews.

## Using specific words

If you search using two words such as **film reviews**, then often a search engine will go off and find all the pages which it knows about relating to **film**, **reviews** and **film reviews**. This could include all types of reviews, not just film reviews.

To get round this problem many search engines allow you to insert a + symbol between your words, this means that you only want to find pages containing all your words.

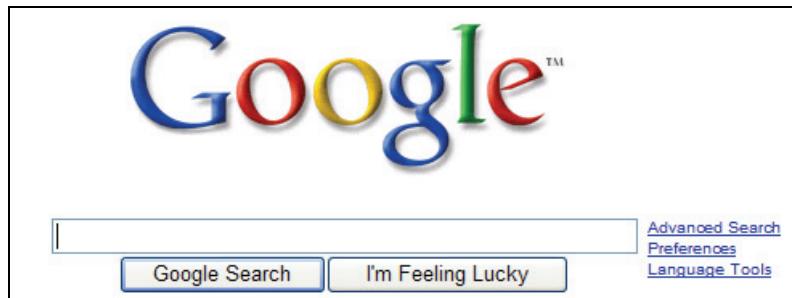
## Using an exact phrase

Sometimes you would be better enclosing your search phrase with quotation ("") symbols. This will then mean that you want to find the exact phrase which you have entered. Thus if you search for "**"film reviews"**", using the quotation marks, then you should see more relevant search results.

**NOTE:** Search engine options will vary from one search engine to another. Always use the on-line Help available!

## By excluding word(s)

Some search engines will let you search for certain words, while excluding other words from the search. To try this in Google, first type **www.google.com** in the Internet Explorer Address Bar to display the Google search engine. You will see the following.



Click on the **Advanced Search** link and you will see the following (remember that the Internet is constantly evolving so what you see might not be exactly like the illustration below).

A screenshot of the Google Advanced Search interface within a Microsoft Internet Explorer window. The title bar says "Google Advanced Search - Windows Internet Explorer". The main page has the Google logo and "Advanced Search" text. It includes sections for "Find results" (with all of the words, with the exact phrase, with at least one of the words, without the words), "Language", "Region", "File Format" (set to "Only"), "Date", "Numeric Range", "Occurrences", "Domain", "Usage Rights" (set to "not filtered by license"), and "SafeSearch" (set to "No filtering"). There are also dropdown menus for language, region, file format, date, numeric range, occurrences, domain, usage rights, and safe search. The URL in the address bar is "http://www.google.com/advanced\_search?hl=en".

In the example illustrated let's say we wanted to find information about viruses but wanted to exclude the word computer from our search. We would type in the following.

with <b>all</b> of the words	<input type="text" value="virus"/>
with the <b>exact phrase</b>	<input type="text"/>
with <b>at least one</b> of the words	<input type="text"/>
<b>without</b> the words	<input type="text" value="computer"/>

Click on the **Google Search** button will then display the search result as required.

Tip: Save time by hitting the return key instead of clicking on "search"

**++ virus ++**

The Virus Foundry, the site containing commercial fonts for online purchase by Jonathan Barnbrook, designer of Exocet and Mason released by Emigre.  
[www.virusfonts.com/](http://www.virusfonts.com/) - 5k - [Cached](#) - [Similar pages](#)

**Virus The Movie**

Includes plot, cast and crew information, video clips, photos and a game.  
[www.virusthemovie.com/](http://www.virusthemovie.com/) - 7k - [Cached](#) - [Similar pages](#)

If you look carefully at the search page that is displayed you will see that the syntax for excluding a word is displayed, as illustrated below.

Web Images News Maps New! Groups

virus -computer

Search:  the web  pages from Australia

I.e. in this case **virus -computer**

## By date

Type **www.google.com** in the Internet Explorer Address Bar to display the Google search engine. You will see the following.



*Click on the **Advanced Search** link.*

Within the “**with all these words**” section we can type in our search phrase, such as **computer viruses**. As you can see clicking on the drop down arrow within the **Date** section allows you to search for pages posted during a specific time period, ranging from the last 24 hours through to the last year.

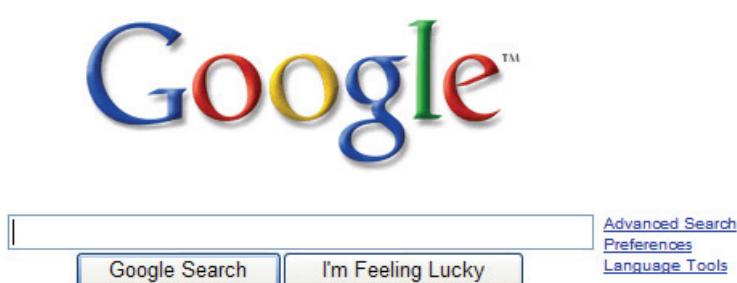
**TIP:** If you are trying this after experimenting with the previous section make sure to remove any words from the “**without the words**” section.

Google™ Advanced Search

Find results	with all of the words with the exact phrase with at least one of the words without the words	computer viruses
Language	Return pages written in	any language
Region	Search pages located in:	any region
File Format	Only return results of the file format	any format
Date	Return web pages first seen in the	past 24 hours
Occurrences	Return results where my terms occur	anytime
Domain	Only return results from the site or domain	past 24 hours
Usage Rights	Return results that are	past week
SafeSearch	<input checked="" type="radio"/> No filtering <input type="radio"/> Filter using <a href="#">SafeSearch</a>	past month
<i>Click on the <b>Google Search</b> button will then display the search result as required.</i>		

## By file format

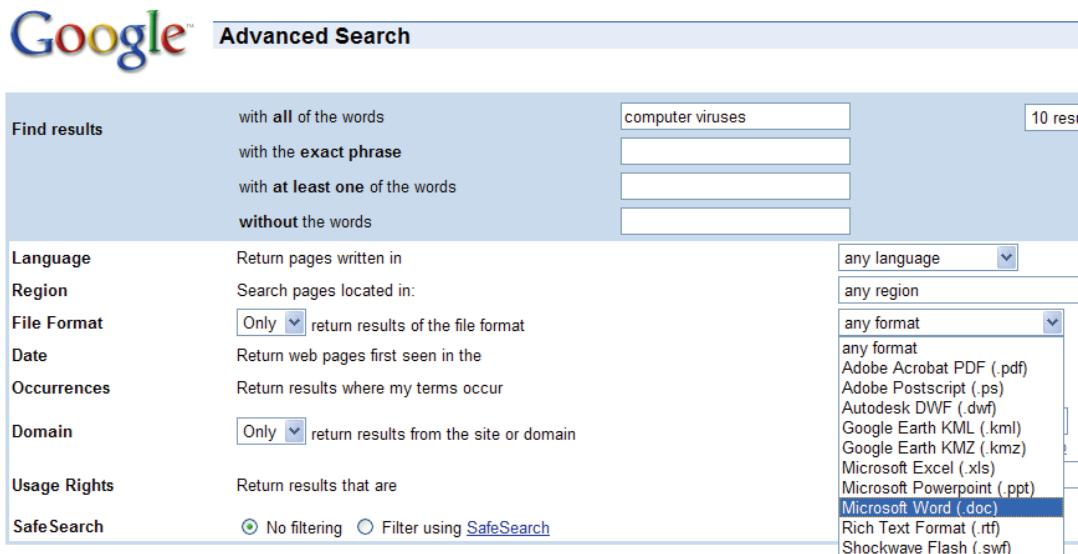
Type [www.google.com](http://www.google.com) in the Internet Explorer Address Bar to display the Google search engine. You will see the following.



*Click on the **Advanced Search** link.*

Within the “**with all these words**” section we can type in our search phrase, such as **computer viruses**. As you can see clicking on the drop down arrow within the **File Format** section allows you to search for information in a range of different formats, such as Adobe Acrobat PDF, Microsoft Word and Rich Text Format (RTF). In the example shown we have selected only documents in **Microsoft Word** format.

**TIP:** If you are trying this after experimenting with the previous section make sure to remove any restrictions from within the **Date** section.

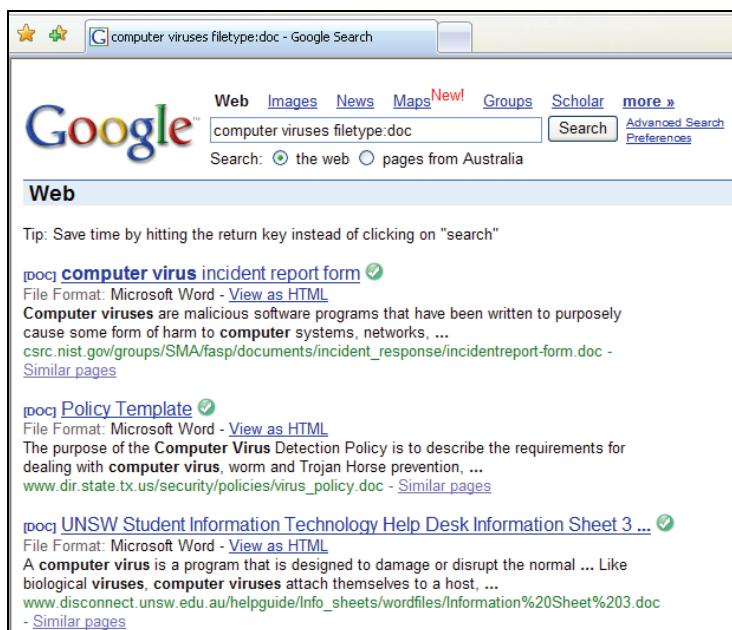


The screenshot shows the Google Advanced Search interface. In the 'Find results' section, there are four options: 'with all of the words', 'with the exact phrase', 'with at least one of the words', and 'without the words'. Below these, there are several search parameters with dropdown menus:
 

- Language:** any language
- Region:** any region
- File Format:** any format (dropdown menu open, showing: Adobe Acrobat PDF (.pdf), Adobe Postscript (.ps), Autodesk DWG (.dwg), Google Earth KML (.kml), Google Earth KMZ (.kmz), Microsoft Excel (.xls), Microsoft Powerpoint (.ppt), Microsoft Word (.doc) - which is selected)
- Date:** any date
- Occurrences:** any occurrence
- Domain:** any domain
- Usage Rights:** any usage rights
- SafeSearch:** No filtering or Filter using SafeSearch

 A dropdown menu for 'File Format' is visible on the right side of the interface, listing various document types including Microsoft Word (.doc).

Your search results will look something like the illustration below. As you can see only Word documents have been listed.

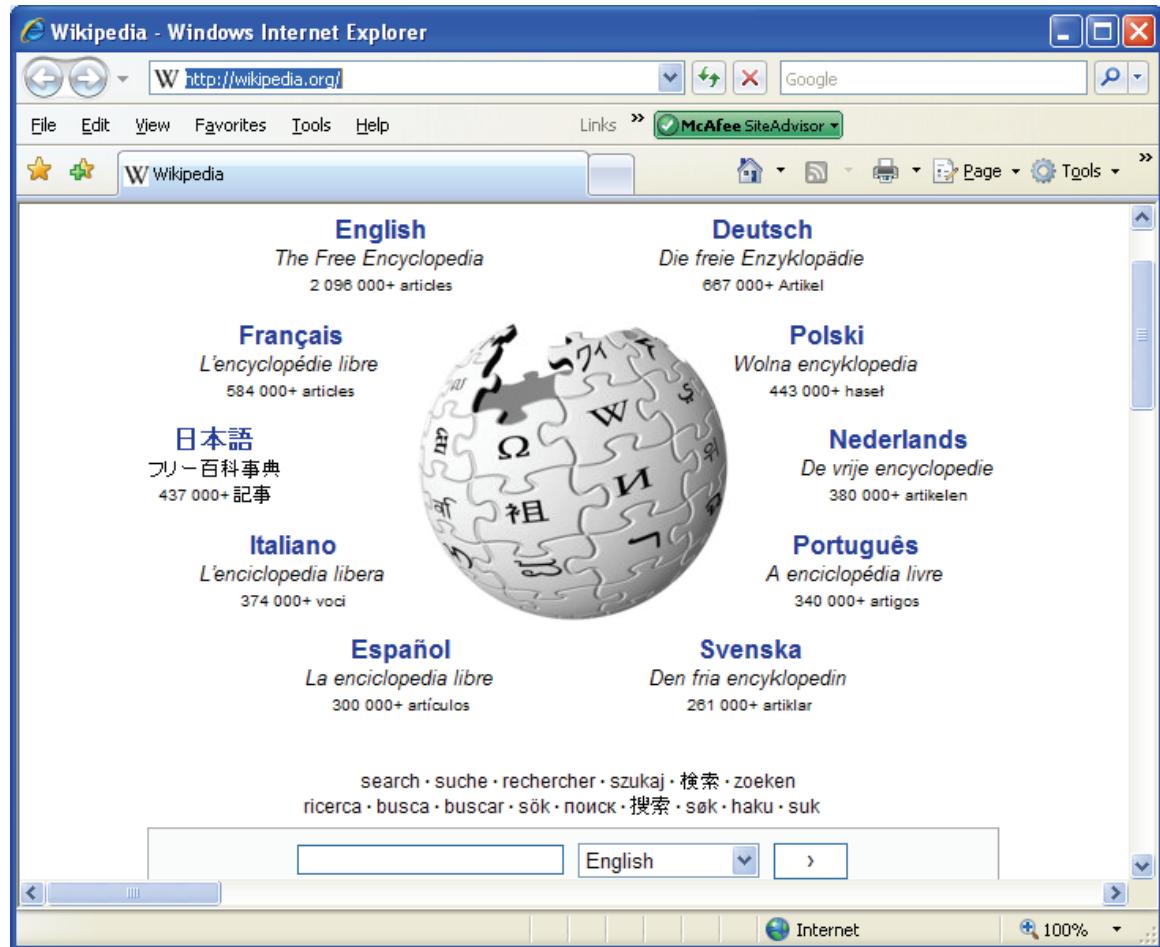


The screenshot shows the Google search results for the query "computer viruses filetype:doc". The results are filtered to show only Microsoft Word documents (.doc). The first result is a link to a Microsoft Word document titled "computer virus incident report form". The second result is a link to a Microsoft Word document titled "Policy Template". The third result is a link to a Microsoft Word document titled "UNSW Student Information Technology Help Desk Information Sheet 3 ...". Each result includes a "View as HTML" link and a "Similar pages" link.

**NOTE:** Word documents may contain virus like code, so you should be careful when opening documents unless you have confidence in the source from which you download them.

## Online encyclopaedias

The Internet contains a number of online encyclopaedias, the best known of which is Wikipedia which you can investigate at: <http://wikipedia.org>



As you can see it is multilingual and has up to date information on a range of subjects. For instance try searching this encyclopaedia for information about Podcasting. You will find lots of information, links and references, as illustrated.

**Podcast - Wikipedia, the free encyclopedia - Windows Internet Explorer**

File Edit View Favorites Tools Help Links > McAfee SiteAdvisor

W http://en.wikipedia.org/wiki/Podcasting

Podcast - Wikipedia, the free encyclopedia

article discussion edit this page history

Sign in / create account

27,012 have donated.

You can help Wikipedia change the world!

From the fundraising blog – Why Wikipedia Does Not Run Ads

"Cheaper than cable" – Anon.

**Podcast**

From Wikipedia, the free encyclopedia (Redirected from Podcasting)

A **podcast** is a digital media file, or a related collection of such files, which is distributed over the Internet using syndication feeds for playback on portable media players and personal computers. The term, like "radio", can refer either to the content itself or to the method by which it is syndicated; the latter is also termed **podcasting**. The host or author of a podcast is often called a **podcaster**.

The term "podcast" is a portmanteau of the words "iPod" and "broadcast",<sup>[1]</sup> the Apple iPod being the brand of portable media player for which the first podcasting scripts were developed (see [history of podcasting](#)). These scripts allow podcasts to be automatically transferred to a mobile device after they are downloaded.<sup>[2]</sup>

Though podcasters' web sites may also offer direct download or streaming of their content, a podcast is distinguished from other digital media formats by its ability to be syndicated, subscribed to, and downloaded

http://en.wikipedia.org/w/index.php?title=Podcast&action=history

There are many other examples such as Microsoft Encarta site which you can view at:

<http://encarta.msn.com>

**MSN Encarta : Online Encyclopedia, Dictionary, Atlas, and Homework - Windows Internet Explorer**

File Edit View Favorites Tools Help Links > McAfee SiteAdvisor

MSN Encarta : Online Encyclopedia, Dictionary, Atlas, ...

encarta greeting cards more

MSN home | Mail | My MSN | Sign in

msn POWERED BY Qwest Encarta®

Search Encarta Web Make Encarta your homepage

Home Encyclopedia Dictionary Atlas K-12 Success College & Grad School Adult Learning Quizzes More

**Do Champs Make the College?**  
How athletic success may boost admissions.

< Previous Next >

**Today's Highlights** November 22, 2007

**What makes people picky eaters?**  
Ever wonder why cranberry sauce seems so polarizing? Don't be deceived by a clean plate! (Check the napkin.)

**This Week: Come on, Pilgrim**  
Were the Pilgrims really thankful? Some Thanksgiving myths debunked.

Native American quiz  
Test your knowledge of North American tribes.

What are we having?  
How much do you know about your holiday meal?

Advertisement

PRINT YOUR MEMORIES

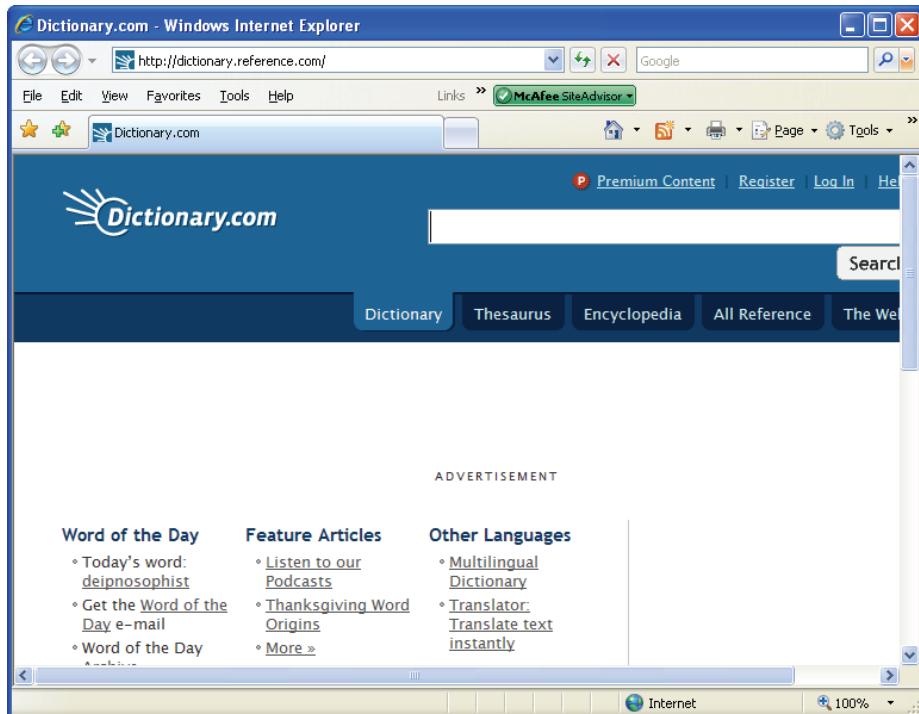
It's easy at Wal-Mart

Try searching the web for other free online encyclopaedias.

## Online dictionaries

The Internet contains many online dictionaries; you can find an example at:

<http://dictionary.reference.com>



Try searching the web for other free online dictionaries.

# Web Outputs

## Saving files

### Copying a picture from a Web site page

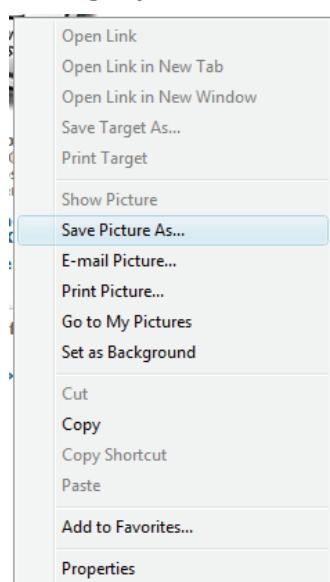
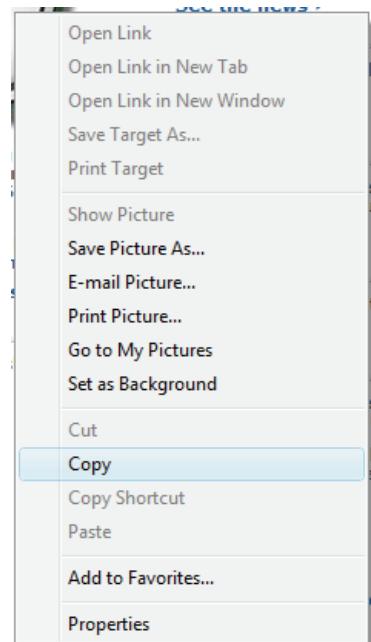
Display a Web page within the Internet Explorer, such as [www.intel.com](http://www.intel.com), right click on a picture within the Web page, and select the **Copy** command.

This will copy the image to the Clipboard. The image can then be pasted into a document using the normal **paste** command.

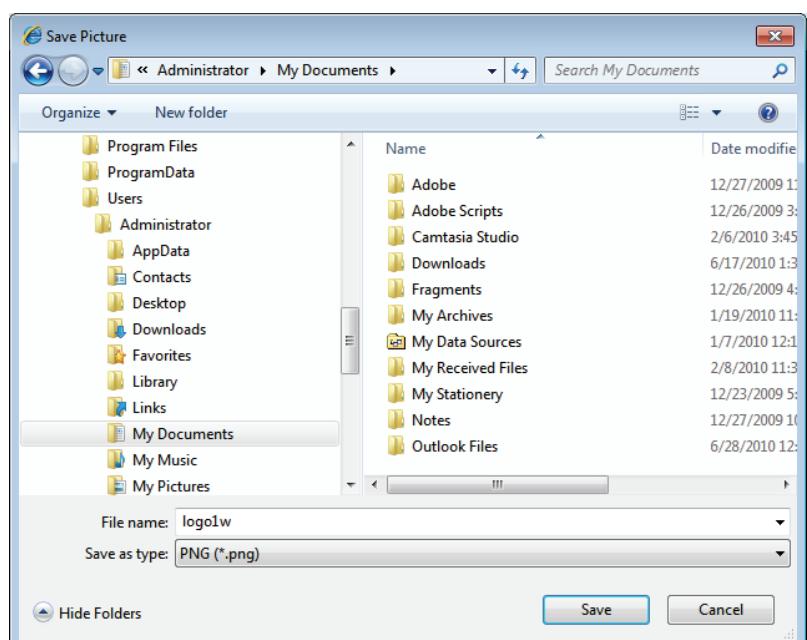
*Open the **WordPad** program. To do this click on the **Start** button and then click on **All Programs**. Click on **Accessories** and then click on **WordPad**. Press **Ctrl+V** to copy the contents of the Clipboard into the WordPad window. Close the WordPad program without saving your document.*

### Saving a picture on a Web page as a picture file

Display a Web page within the Internet Explorer, such as [www.intel.com](http://www.intel.com), right click on a picture within the Web page, and select the **Save Picture As** command.



This will display the **Save Picture** dialog box.



You can then save the picture as a JPEG file to your hard disk. This picture can then be used in any documents that you create.

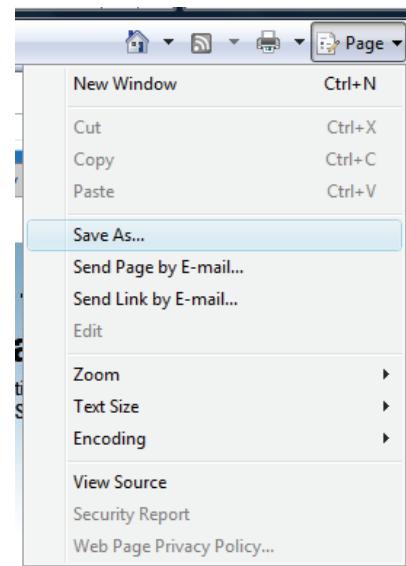
**WARNING:** Most pictures that you will see on Web pages are subject to copyright and you may need permission to use them within any documents that you create.

## Copying a Web address (URL) to a document

Display a Web page such as [www.google.com](http://www.google.com). Right-click over a hyperlink and from the pop-up menu displayed, select the **Copy Shortcut** command. The hyperlink URL has been copied to the Clipboard.

*Open the **WordPad** program. To do this click on the **Start** button and then click on **All Programs**. Click on **Accessories** and then click on **WordPad**. Press **Ctrl+V** to copy the contents of the Clipboard into the WordPad window. Close the WordPad program without saving your document.*

## Saving a Web page



*Display the Web page that you wish to save to disk, such as [www.dell.com](http://www.dell.com).*

*Click on the **down arrow** to the right of the **Page** button (displayed on the toolbar) and select the **Save As** command.*

*You will see the **Save Webpage** dialog box.*

*You can use this dialog box to specify a file name and a folder location.*

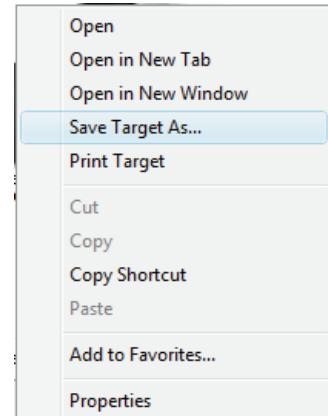
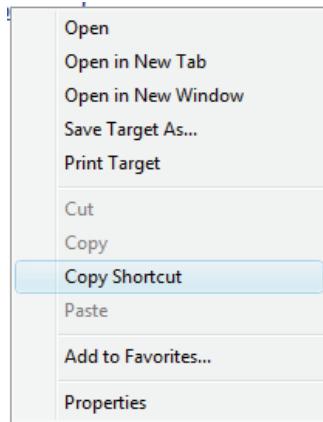
*Clicking on the **Save** button will save the Web page to your hard disk.*

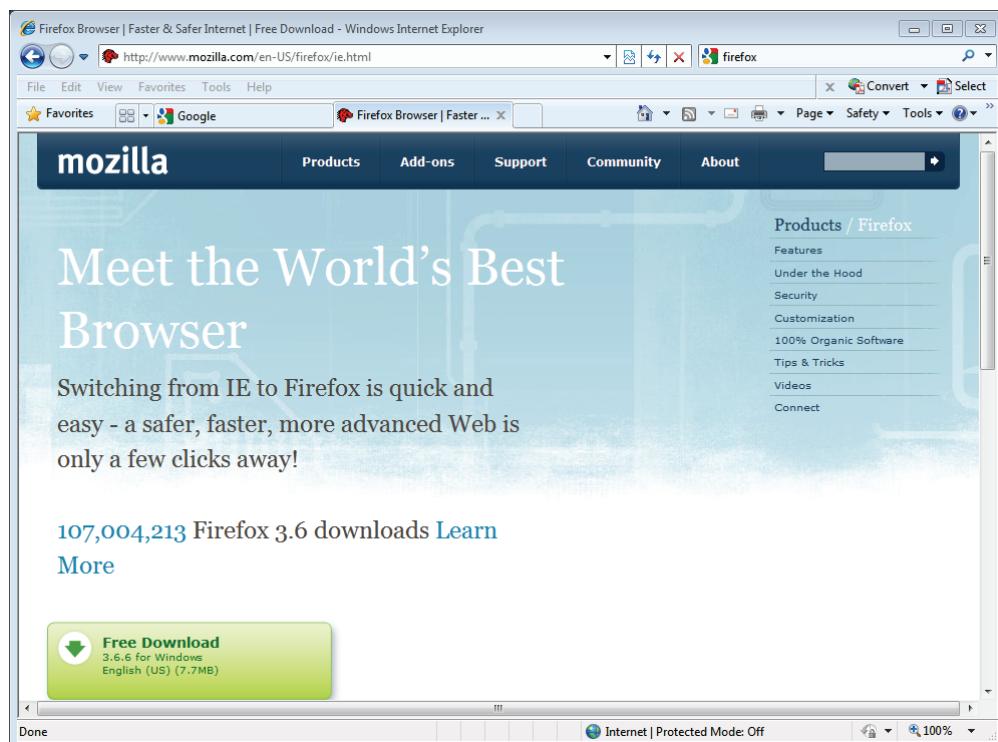
## Downloading files from a Web page

Some Web pages give you the option of clicking on a hyperlink to download a file. This file might be a program or a document. Many documents will be available as either Microsoft Word formatted files or Adobe Acrobat PDF formatted files.

*To download a file you would right click on the hyperlink, and from the pop-up menu displayed, select the **Save Target As** command.*

You will then see a dialog box allowing you to specify the folder in which you want to save the file.

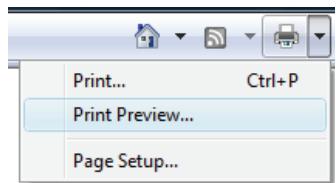




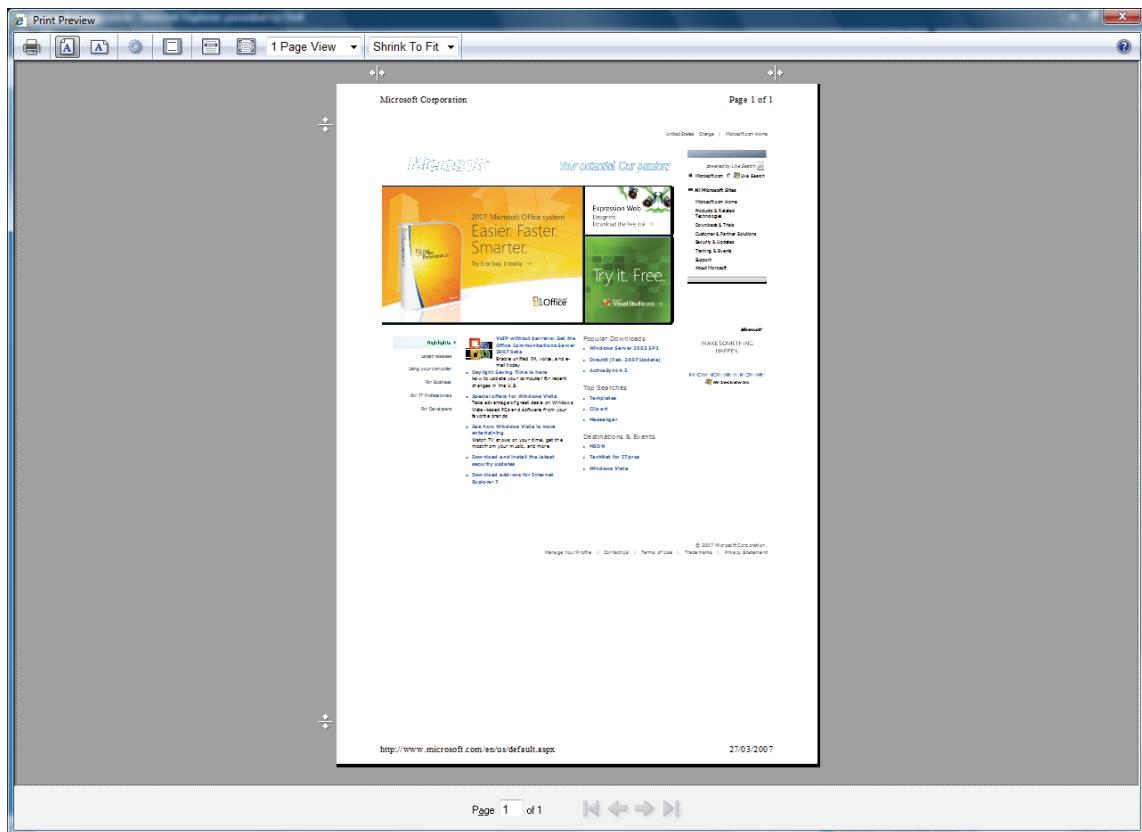
# Preparing & Printing

## Previewing Web pages

To see how a Web page will print, display a Web page such as [www.microsoft.com](http://www.microsoft.com) and then click on the down arrow to the right of the **Print** icon on the Internet Explorer toolbar. From the drop down listed, click on the **Print Preview** command.



You will see the Web page displayed within the **Print Preview** window.



You will see the following icons displayed within the Print Preview toolbar.



**Print****Portrait**

Prints the page using portrait page orientation.

**Landscape**

Prints the page using landscape page orientation.

**Page Setup**

Allows more control over how the page is set up.

**Turn headers and footers on or off**

Controls the printing of additional information such as the date, URL and page number.

**Full width view**

Zooms the Web page displayed within the Print Preview window to the width of the window.

**Full page view**

Zooms the Web page displayed within the Print Preview window to fill the Print Preview window.

**Page** 1 Page View ▾

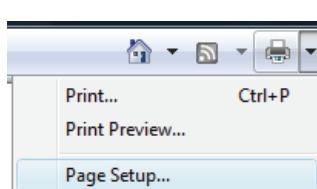
Let's you specify the number of pages to display.

**Change Print Size** Shrink To Fit ▾

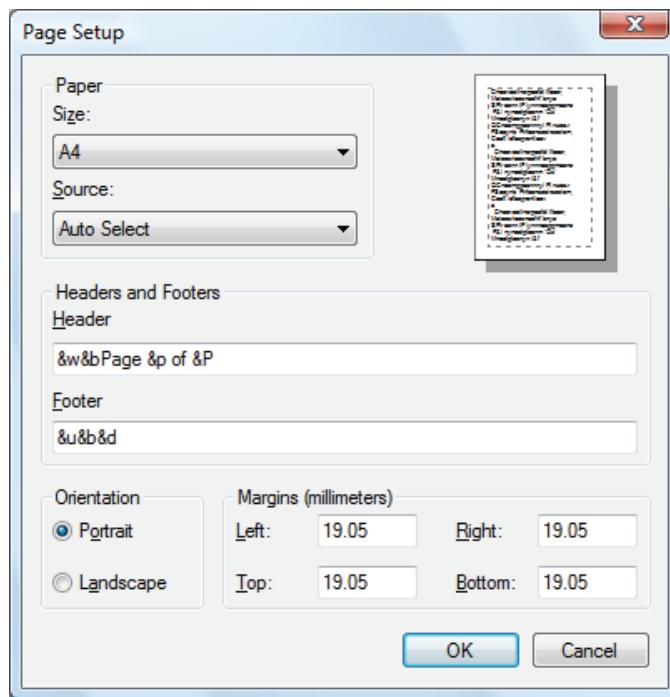
Reduces or enlarges the Web page when displayed to fit the printed page. Earlier versions of Internet Explorer would often print pages with the right section of the Web page not being printed correctly.

## Page Setup - Orientation, paper size and page margins

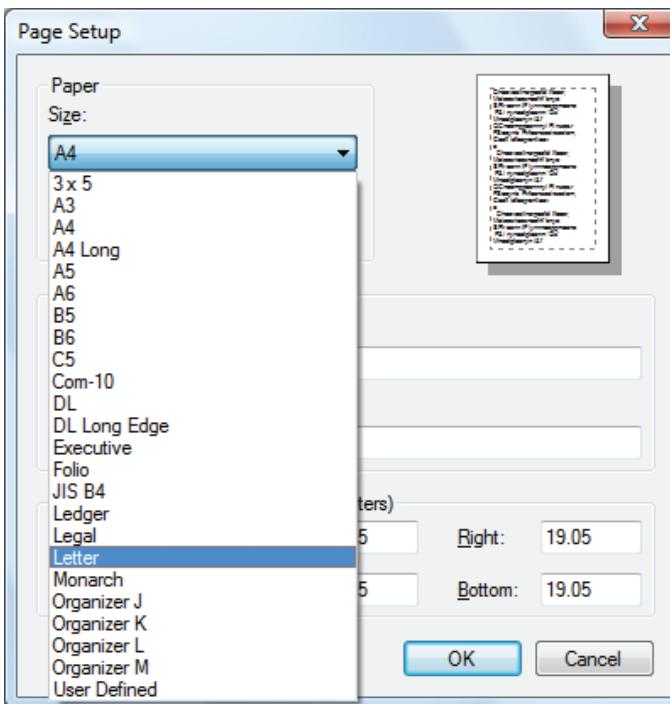
Click on the **down arrow** to the right of the **Print** icon within the Internet Explorer toolbar. From the drop down displayed, click on the **Page Setup** command.



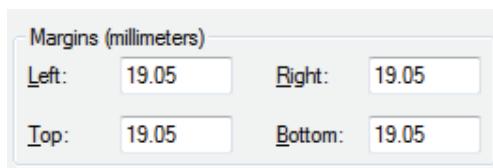
This will display the **Page Setup** dialog box.



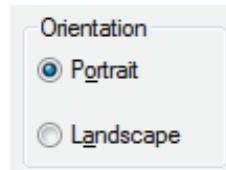
To select the correct paper size click on the **down arrow** next to the **Size** section and select as required.



Use the **Margins** section of the **Page Setup** dialog box to set top, bottom, left and right margins.



Use the **Orientation** section of the **Page Setup** dialog box to select either landscape or portrait page orientation.



Use the **Headers and Footers** section of the **Page Setup** dialog box to set the information you want displayed within your header or footer.



There are codes that you need to insert into the Header or Footer box to display or format particular information.

**&w**

Displays the title of the Web page.

**&u**

Displays the Web page address URL address.

**&d**

Displays the date in a short format.

**&D**

Displays the date in a long format.

**&t**

Displays the time.

**&T**

Displays the time using a 24-hour format.

**&p**

Displays the current page number.

**&P**

Displays the total number of pages printed.

**&b**

Aligns text to the right.

**&b**

Let's you centre text and must be placed before and after the text you want to centre.

**&&**

Displays a single ampersand (&) sign.

**TIP:** If this all looks like too much trouble, just use the default settings offered by the Internet Explorer.

## Printing the entire Web page

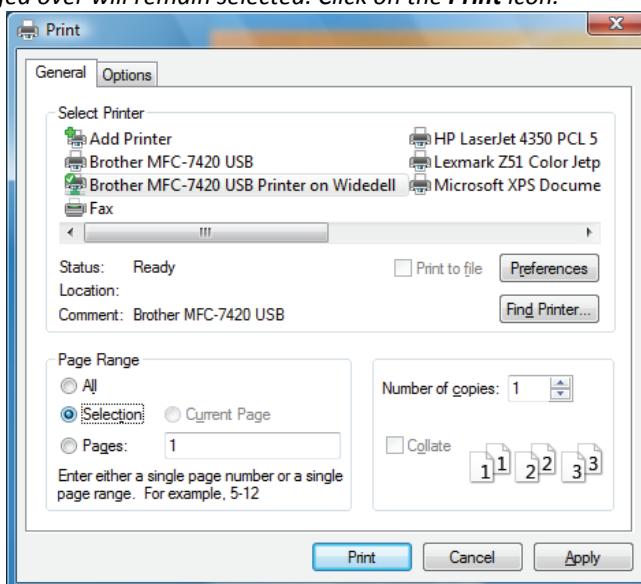
Normally to print the entire page, you would display a page within the Internet Explorer, such as the Microsoft home page and then click on the **Print** icon.



**TIP:** The keyboard shortcut to print a Web page is **Ctrl+P**.

## Printing a selected area on a Web page

*To print just a selected area of a Web page first select an area on the Web page by dragging across the area you wish to print with the mouse key pressed down. When you release the mouse key the area you dragged over will remain selected. Click on the **Print** icon.*



Within the **Print Range** section, click on the **Selection** button.



Click on the **Print** button and just the selected area will be printed.

### Printing specific page(s)

Display a web page that contains a lot of data that will require more than one page to print.

Press **Ctrl+P** to display the **Print** dialog box. Within the **Page Range** section of the dialog box, enter the pages or page range that you wish to print.

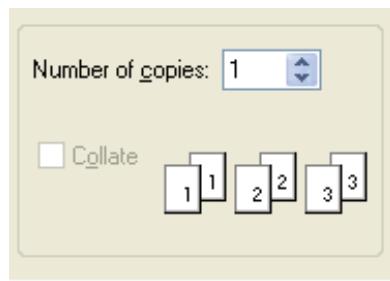


Click on the **Print** button to print the requested pages.

### Printing a number of copies

Display a web page that you wish to print multiple copies of.

Press **Ctrl+P** to display the **Print** dialog box. Within the **Number of copies** section of the dialog box, enter the number of copies that you wish to print.



Click on the **Print** button to print the requested copies.

# Communication

# Terminology & Concepts

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## The structure of an email address

Take a typical email address:

**lamia@gmail.com**

The first part of the address “**lamia**”, is the user name and indicates the person to whom the email is addressed.

The “@” symbol marks the end of the user name.

The “@” symbol is followed by one or more sub-domains, separated by periods. In the example above the “**gmail**” is the sub-domain. Sub-domains are registered by organizations or individuals to give themselves an internet identity.

At the very end of the email address is the TLD or Top Level Domain. In the example the TLD is “.com”, indicating an international company. There are other TLDs such as “.net”, “.org”, “.biz” and “.info” designed to help you identify different types of organization.

## SMS (Short Message Service)

Commonly known as ‘texting’. SMS allows you to send and receive text messages between mobile (cell) phones.

## Voice over Internet Protocol (VoIP)

Voice over Internet Protocol, is a technology that allows you to talk with other people via the Internet. You can talk for free to other people using VoIP on their computers. You can even make calls to real telephones at a much cheaper rate than normal. This system is ideal when you need to make a lot of long distance or international calls. You can use VoIP by just installing a microphone and headset, or you can purchase a special VoIP compatible phone, which will normally plug into one of the USB sockets on your computer. A well-known VoIP product supplier is Skype, who produce a range of excellent phones.



### Benefits of VoIP

Inexpensive long-distance and international calls compared to traditional phone systems.

You can search for contacts, worldwide.

You can combine speech with video when you use a Webcam.

Portable, people can contact you on the move as long as you have an Internet connection. This is especially useful when travelling internationally, as international calls using mobile (cell) phones are very expensive.

**WARNING:** A VoIP phone is not suitable for making emergency calls. If your computer is unavailable you may not be able to use the VoIP phone.

Also the voice quality may be worse compared to using a traditional phone.

## Instant messaging (IM)

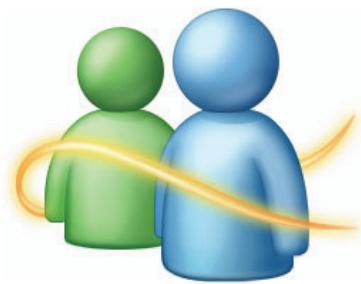
Instant messaging (IM) provides a mechanism for real-time communication between two or more people sending text messages via their computers. This is different from sending an email which once sent may be read sometime later by the person you sent the email to.



Some types of instant messaging software let you speak rather than having to type your messages. You can use your web cam so that you can see the person you are talking to.

### Benefits of IM

There are many benefits including:



#### **Real-time communication:**

Unlike leaving an email, IM allows you to communicate in real time and have a two way conversation.

#### **Knowing whether contacts are online:**

Unlike when sending an email, you can see if the person you want to send the message to is online or not.

#### **Low cost:**

Compared to traditional phone calls, IM is very cost effective, especially when combined with the flexibility of use and additional features compared to a traditional phone call.



#### **Ability to transfer files:**

As well as sending text messages you can attach files including pictures, sound, video and other files.

## Online (virtual) communities

It is important to understand the concept of online (virtual) communities. These can take many forms including:

- Social networking websites
- Internet forums
- Chat rooms
- Online computer games

### Social networking websites

These sites allow you to link up with other people, to share news, experience and gossip. Some such as 'Friends Reunited' are specifically designed to let you find friends that you have lost contact with.

MySpace



Facebook



hi5



Bebo



Twitter



These are some more social networking websites

#### Internet forums (message boards / discussion boards)

An Internet forum is a web based application that lets you join in online discussions. You can post your views or comments for all in the forum to see and react to. Try searching the Web for information on message boards and you will find that there is a discussion for you, whatever your interest!

#### Chat rooms

The term 'chat room' has had a lot of media attention over the last few years. The term has evolved to include any web based mechanism to share your news with others on the web. The communication is in real time, i.e. you can talk to other individuals, rather than leaving messages. Try searching the Web for more information and examples.

#### Online computer games

Online games are games that are accessed and played via the Internet. In many cases you can play against other people. Try searching the web using the phrase 'online computer games' and you will find lots of sites you can access.

# Security Considerations

## Spam or Unsolicited Email

Spam is the bulk sending of unsolicited and often fraudulent email messages, normally trying to sell a commercial product or service. There are companies which will sell lists of email addresses by the million. If you are a regular Internet user, then the chances are that the providers of these lists will pick up your email address (using a variety of sneaky techniques). As more and more companies buy in these lists and use them in their marketing campaigns, you will receive more and more spam emails, offering you an increasingly bizarre range of products and services! In many countries the sending of spam is now against the law!

Increasingly unscrupulous marketing companies are using popup windows within your Web browser to display unwanted messages. There are now many anti-popup programs available to help block this newer type of spam.

## Phishing

Phishing refers to efforts to trick you into revealing your personal or financial information. This is often done by sending out millions of emails at random claiming to be from your bank or similar organizations and then requesting that you update your details, using a link provided within the email. When you click on this link you are taken to a web site that looks just like the real thing but is in fact a copy of a banks web site. When you type in your details, you have just given the information to criminals who will use that information in identity theft related crime.

Be careful of emails claiming to be from financial institutions or popular web sites instructing you to click on a link and login. Often the link points to a clone of the legitimate web site which is under the control of criminals. Should you click on the link & log into the fake site you will have inadvertently given your password details away. Never click on a link in an email, to be safe open your web browser and type in the address for the web site, this way you can be sure that you are viewing the legitimate site.

Modern web browsers such as Internet Explorer 7+ or Mozilla Firefox 3+ have anti-phishing features that will display a warning if you visit a web site that has been identified as fraudulent.

## Viruses

Be very careful about opening files which are attached to email messages as they may contain viruses. You should know that Microsoft Word documents can contain special types of virus, called macro viruses. Even pictures can contain virus like code.

## Digital signatures

A digital signature is a code which is attached to an email to uniquely identify the sender. Like a traditional hand written signature the purpose of the digital signature is to guarantee that the sender of the message is who he or she claims to be. Digital signatures employ sophisticated encryption techniques to ensure that they cannot be counterfeited.

## E-mail Theory

### The advantages of using email

#### Fast

One of the great things about email is that you can send messages and files to anyone in the world, almost instantly.

#### Low cost

The cost of sending information by email is a fraction of that involved when using the traditional mail system, especially when emailing to a different country.

#### Worldwide portability

Once you have an email account set up, you should be able to access your email from anywhere that has an Internet connection. Even many holiday hotels now have an email connection for customers!

#### Time Zone friendly

If you live in Europe and phone someone in the western United States at 9 am locally, you would either get no answer (because the office in the US would be empty), or you could be waking them up in the middle of the night. The great thing about sending an email is that you can send it anytime you want and the recipient will read the mail when they want.

#### Web-based Email

Many email providers now offer a web-based interface for accessing your email. This enables you to access your message from any web enabled PC or device without the need to install software.

### Netiquette

There are some simple rules when sending emails:

#### Use short, accurate subject descriptions

In a busy office situation, a person may receive many emails a day. Prior to opening the email the only indication that an email might be relevant to that person is the email subject header. Keep emails simple, short and to the point!

Avoid using all upper case letters in a message: The use of letters in UPPER CASE is considered as shouting within an email. Use of all upper case (or all lower case) can also make the message difficult to read.

#### Be brief

People tend to 'skim read' email messages. If they are too long the chances are that the recipient will miss important information buried within the message.

#### Use the spell checker

Never send an email without spell checking the contents first. This can give a really poor impression about your organization.

**Respect privacy and confidentiality**

Never quote part of one person's email within another email without permission. In many cases there is a message attached to the bottom of emails, warning that the email is confidential!

**Don't 'flame'**

If some idiot emails you over something which is inappropriate, do not respond and get into a series of increasingly hostile email exchanges. This is called flaming. Never reply to unsolicited email (spam), unless you want to receive even more rubbish in your email inbox!

**Issues when sending file attachments**

There are a number of issues to consider such as:

**File size limits**

If you attach a file of a certain size, then the coding necessary you attach the file to the email will make the file size of the attached file larger than the original file size.

Many email system will set limits on the size of email attachment that they will accept. These limits differ from one system to another. Also remember that the larger the attached file that longer your email will take to be delivered.

**File type restrictions**

Many email systems will block attached files if the attachment is an executable file. This is because many virus and other malicious software types are spread through the emailing of attached executable files. Even if you can attach an executable file, do not be surprised if the email is rejected by the email software of the person you are sending the file to.

**Do not send to many attachments at the same time**

Send a lot of simultaneous attachments (such as photographs), may exceed file size attachment limits.

**Netiquette**

Remember do not send large file attachments to people who are not expecting them.