

DIGITAL LITERACY

SKILLS



The Republic of Uganda

ACKNOWLEDGEMENTS

The Digital Skills Facilitator Training Guide and Learner Handout is a product of UNICEF and the Uganda Ministry of Education and Sports with generous support from the Netherlands Ministry of Foreign Affairs. The Guide and Handout is developed to enhance the acquisition of digital skills and literacy under an initiative involving UNICEF, UNHCR, ILO, and the Ministry of Education and Sports.

The Facilitator Training Guide is adapted from the *No One Behind Digital Competent Citizen Training Manual* in accordance with *DigComp 2.0: The Digital Competence Framework for Citizens*. The adaptation was made possible by the valuable contributions of content writers from Digital Frontiers and content reviewers from Umuzi and UNICEF.

Special appreciation to the partners involved in the development of Uganda Digital Skills Framework, who supported the adaptations of the training guide resources and materials, and the pilot phase, which informed revisions:

Digital Agenda Technical Committee (DATC) of the Education and Sports sector; National Curriculum Development Center (NCDC); Directorate of Industrial Training (DIT); Business, Technical and Vocational Training department (HTVET); National Council for Higher Education; Ministry of Gender, Labor and Social Development; Name of the IP, Local Governments of pilot districts (Isingiro, Terego, Madi Okollo, Ubongi, and Kampala).



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Module 1

Foundation digital skills

This module includes the following units:

Unit 1

Basics of a computer

Unit 2

Basics of an internet-enabled mobile device

Unit 3

Introduction to the internet

1

Basics of a computer



Learning outcomes

By the end of this unit, you should be able to:



- start up a computer safely
- shut down a computer safely
- understand the different components and accessories of a computer
- understand the basics of an operating system
- use the basic features of word processing software (e.g., Word or equivalent) to create and edit documents
- use the basic feature of spreadsheet software (Excel or equivalent) to create and edit spreadsheets
- use the basic features of presentation software (e.g., PowerPoint) to create and edit presentations.

Introduction to computers

- You encounter many different types of computers daily.
- A computer can be a laptop, a desktop computer, a tablet, a smartphone or even a smart watch.
- A computer is any electronic device that works with data.
- The primary tasks of a computer are:
 - **Storing data:** A computer can keep data that might be needed so that it can be used at suitable times.
 - **Retrieving data:** A computer can find the stored data when the user needs or requests it.



Figure 1.1.1 – Different types of computers

- **Processing data:** A computer can use and interpret the data to give the data to the user in a different form, for example, graphs, pictures, documents and more.

Starting up a computer safely

- You must start up and shut down a computer safely.
- If you don't, the data on the computer could be damaged. This will make the computer work incorrectly, or not at all.
- To start up a computer:

Find the power button. On-buttons can be in different places, depending on the device. To start up the computer, press the power button and wait for it to start up.

Shutting down a computer safely

- Shutting down a computer is important to keep the data stored on the computer safe.
- To shut down a computer safely, first save any open documents and close any open programs.
- Then navigate to the power settings of the computer.
- Select the option that says *Power off* or *Shutdown*. Wait for the device to shut down completely and the screen is black.

Skills to practise

Computers are all around us. We use them in our lives every day.

Talk about computers

1. Make a list of all the computers you work with daily.
2. Ask family and friends if they use computers that you may not have worked with yet.
3. Explain briefly what computers do to make your life easier or safer.

Hardware

- Computers are made up of **hardware** and **software**. A computer needs both to work properly.

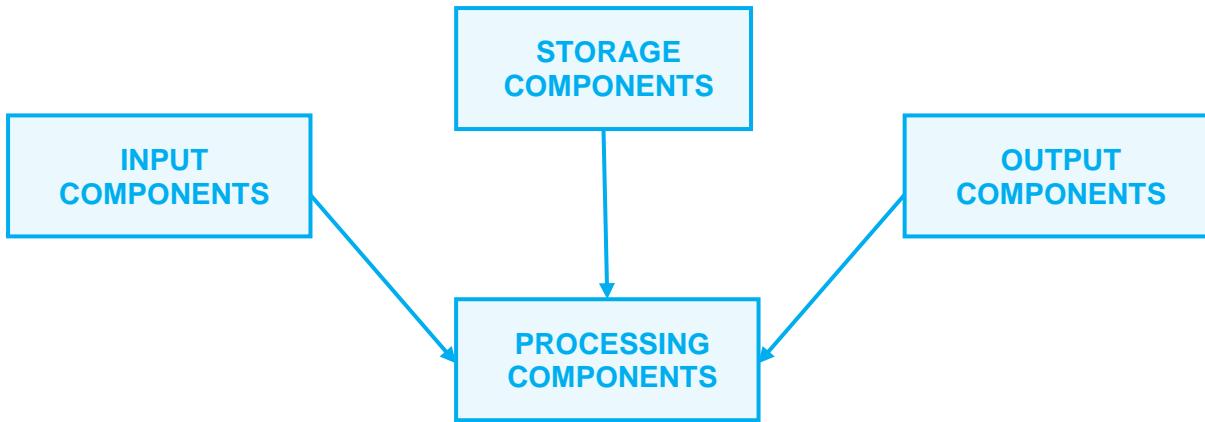
- **Hardware:** The physical parts of the computer that run when they receive instructions from the software.
- **Software:** The sets of instructions that can be stored on the computer and that hardware uses to run.
- Computers have various components (parts) and accessories (extras).
- They are either visible and outside the computer or can only be seen if the computer is opened.

Components

A computer uses components for input, processing, output, and storage.

- **Input components**
 - Used to put data into the computer for storage and processing.
 - The computer requires input from the user to tell it what to do.
 - This includes keyboards, touch screens, and mice.
- **Processing components**
 - The Central Processing Unit (CPU) controls all the operations of the computer.
 - It processes the data received.
 - It is found inside the computer and cannot be seen unless the computer is opened.
- **Output components**
 - Used to send processed or stored data out back to the user in a way that makes sense.
 - This is the result of processed data.
 - The main output component of a computer is the monitor (screen).
- **Storage components**
 - These are the tools that keep the data safe until it is needed or given to the user through output devices.
 - The main storage component of a computer is the hard drive.

All the input, output, processing, and storage components work together to make the computer function properly.



Accessories

- Accessories are optional extras.
- Basic accessories like mousepads, cleaning kits, covers and screen protectors make using your computer easier or safer.
- Some accessories add functionality to a computer but are not essential to the working of the computer. For example:
 - **Input accessories:** joysticks, webcams, remotes, scanners, and microphones.
 - **Output accessories:** speakers, headphones, and printers.
 - **Storage accessories:** compact discs (CDs), USB drives, external hard drives, and SD cards.

Operating system of a computer

- The most important software on a computer is the operating system (OS) software.
- It performs the tasks that must happen for the computer to work.
- It is how the user and the computer communicate.
- It contains the instructions to make all the input, output, processing, and storage tasks happen.
- The OS performs the following tasks:
 - Recognises and installs components or accessories.
 - Translates the data provided by the user.
 - Puts the data into a language the processing components can understand.

- Tells the processing components what to do with the data and what output to create.
 - Manages the storage components.
 - Loads and runs software and allows the software to communicate with the hardware.
 - Manages system errors and lets the user know if there is an issue.
- Not all computers use the same OS software.
 - The OS software depends on the type of computer and the manufacturer of the computer.

Skills to practise

Categorize computer components and accessories

1. Make two lists with these headings:

- Components of a computer
- Accessories of a computer

2. Put each of these tools under the right heading.

SD card	printer	CD	hard drive	joystick
microphone	keyboard	monitor	touch screen	virtual keyboard
CPU	USB drive	speaker	remote	webcam
headphones	scanner	external hard drive		

3. Add to the lists if there are any other components or devices you can think of.

4. Next to each component or accessory, write these letters:

- i → input
- o → output
- p → processing
- s → storage

Word processing software

- Word processing software uses text typed on a keyboard to create and edit documents containing the text on the computer.
- Word processing happens in two main steps: creating and editing documents.

Creating a document

- The first step is to create a document.
- There are two options when creating documents:
 - **Blank document:** a blank document with no text on it. The user will start with nothing and must add everything on the page.
 - **Template:** A template is a document that has text, colours, styles that the user can use to create something similar.
- Once a blank document has been created, the editing can begin.

Editing a document

The first step in editing the document is saving it.

Always save documents with a name that makes it easy to find again.

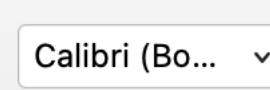
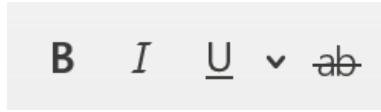
Tip:

- Ensure names are unique.
- Avoid using spaces, rather use underscores.
- Add the date where possible and use YYYYMMDD as a format.
- Keep your file names to under 25 characters.

	My word document	
	Module1_Foundations_Unit1_202305	

- Documents must be saved in a place that can easily be remembered and accessed later.

- Save the document while working to make sure the saved file is the most up-to-date.
- Once the document has been saved, you can start to add text.
- Basic tasks while using a word processor:

Task	Explanation	Example
Change type of font	The text can be changed to any available font by opening the font type menu and selecting a different font. 	Century Gothic Comic Sans Bradley Hand Times New Roman
Change font size	The size of the text can be changed to any size by opening the font size menu and changing the size. It is measured in points (pt). 	14 pt 18 pt 22 pt 24 pt
Change text colour	The colour can be changed by opening the font colour menu and choosing a colour. 	Purple Blue Green Orange
Format text	The text can be formatted by selecting the specific type of formatting that is needed. 	B <i>I</i> <u>U</u> ab

Add lists	<p>Text can be broken up into lists that either have numbers or bullets. Lists can be added by selecting the specific type of lists that is needed.</p> 	<ul style="list-style-type: none"> 1. Number list 2. Number list • Bullet list • Bullet list
Align text	<p>Text can be aligned to the centre, the right or justified. Justified means the text is aligned against the left and right margin so it looks like a box.</p> 	<p>The text in this line is left-aligned.</p> <p><i>The text in this line is centre-aligned.</i></p> <p>The text in this line is right-aligned.</p> <p>The text in this line is justified.</p>

Tip:

- Users can quickly and easily duplicate text by using the **copy** function.
 1. Select the text to be copied.
 2. Press **ctrl + C**.
 3. Navigate to where the copied text must be placed.
 4. Press **ctrl + V**.
- Users can quickly and easily duplicate and delete text by using the **cut** function.
 1. Select the text to be copied.
 2. Press **ctrl + X** (note that text will disappear from here).
 3. Navigate to where the cut text must be placed.
 4. Press **ctrl + V**.
- Users can quickly and easily save their files by using the **save** function.
 1. Press **ctrl + S**.



Skills to practise

Work with a document

1. Create a blank document.
2. Save your document with an appropriate name. Remember the rules for naming files correctly.
3. Edit your document to look like this example. Follow these guidelines:
 - Use any fonts of your choice, but you must use two, as per the example.
 - The blue heading must be 28 pt.
 - The green heading must be 24 pt.
 - The formatting, alignment and lists must be the same as in the example.

Basic word processing software Skills to practice 3

3 November 2022

To my dear friend,

It has been a **long** time since I have written you a letter. I hope that you will be as happy to receive it as I am to write it.

I have been learning *the basics of word processing software*. I have enjoyed it very much. I have learnt the following:

- How to change the type, size and colour of fonts
- How to format text
- How to make lists with numbers and bullets
- How to align text to the right, centre, left or justified.

I still have to complete the following lessons in this unit:

1. Basics of spreadsheet software
2. Basics of presentation software.

I hope to hear from you soon.

4. Carefully go over your document one last time to make sure you have copied this example correctly.
5. If you are done with your document, remember to save again.

Spreadsheet software

- A spreadsheet:
 - is made up of rows and columns that form a grid used to store and analyse data
 - contains individual cells that each hold their own value.
 - You must understand each of these terms:

Row	run horizontally across the sheet and numbered from 1.
Column	run vertically down the sheet and numbered from A.
Cell	the specific block created by row and column lines.
Cell reference	the unique name that is given to each cell based on where the columns and rows intersect.
Range	a collection of selected cells separated by a colon (:) sign.
Value	the data in the cell which can be text, dates, numbers, or other data.

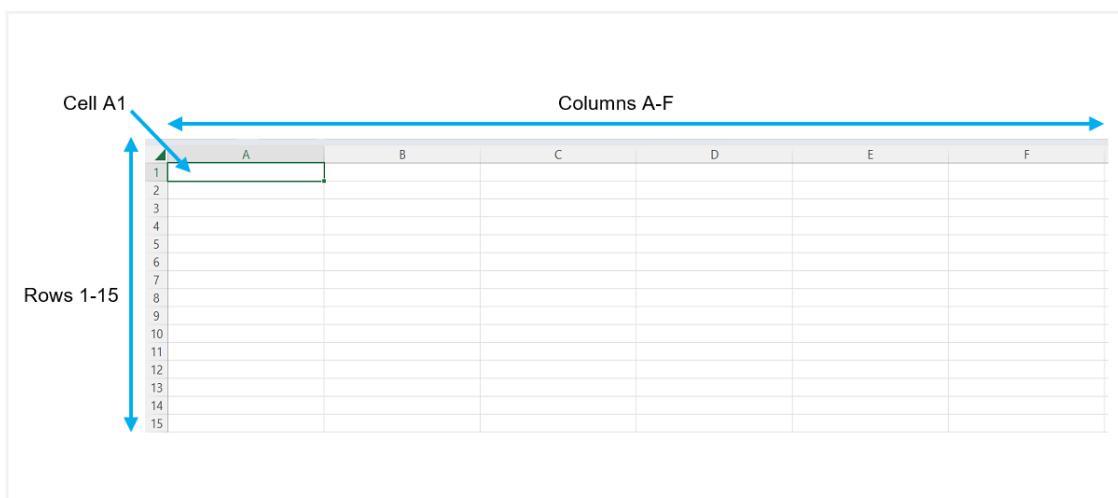


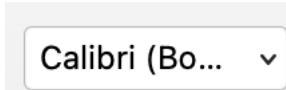
Figure 1.1.2 – Labelled screenshot of spreadsheet software

Creating a spreadsheet

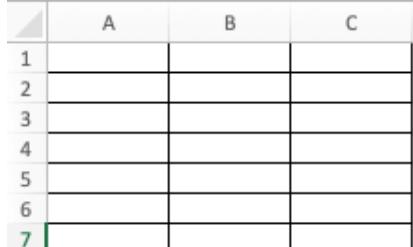
- When creating a spreadsheet, you can choose between a blank spreadsheet or a template.

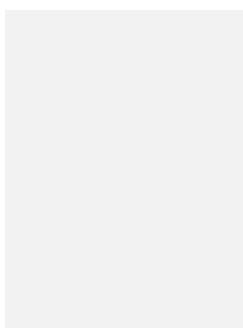
Edit a spreadsheet

- These are the basic functions used while editing a spreadsheet:

Task	Button/ menu
Change type of font	
Change text size	
Change text colour	
Format text	
Align text	

- A spreadsheet is made to analyse data, here are more advanced functions:

Task	Explanation	Example
Change type of borders	In a blank spreadsheet, the grid will have no borders. This can be changed by opening the borders menu. 	 A screenshot of a spreadsheet application showing a grid of cells from A1 to C7. The first six rows (1-6) have horizontal borders, and the first six columns (A-C) have vertical borders. Row 7 has a green background color.



	A	B	C
1			
2			
3			
4			
5			
6			
7			

Change fill colour

The cells will have no colour. Colour can be added by opening the fill colour menu and choosing another colour.



	A	B	C
1	Red	Blue	Red
2	Orange	Green	Orange
3	Yellow	Light Green	Yellow
4	Yellow	Light Green	Yellow
5	Green	Orange	Green
6	Green	Red	Green
7	Blue	Red	Blue

	A	B	C
1	Yellow	Green	
2	Yellow	Green	
3	Yellow	Green	
4	Red	Blue	Blue
5	Red	Yellow	
6	Blue	Green	
7	Red		

Merge cells

Cells can be merged to make wider or higher cells. This is done by selecting the cells and selecting the right option from the merge menu. Cells can be merged horizontally or vertically.



Change row height

The row height can be increased in two steps.
1.Select the row.
2.Drag the row higher.

	A	B	C
1	Yellow	Green	
2	Yellow	Green	
3	Yellow	Green	
4	Red	Blue	Blue
5	Red	Yellow	
6	Blue	Green	
7	Red		

Change column width

The column width can be increased in two steps.

1. Select the column.
2. Drag the column wider.

	A	B	C
1	Yellow	Green	
2	Orange	Green	
3	Orange	Blue	Blue
4	Red	Yellow	Yellow
5	Red	Blue	Green
6	Red	Blue	Green
7	Red	Blue	Blue

Align text vertically

Text can be aligned vertically in a cell. It can be changed to the top or the middle of the cell by clicking on the button of choice.



	A	B	C
1	Yellow	Green	Top aligned
2	Orange	Green	Middle aligned
3	Red	Blue	Bottom aligned
4	Red	Blue	Blue
5	Red	Blue	Green
6	Red	Blue	Green
7	Red	Blue	Blue

Wrap text

Text can either be made smaller to fit a cell or it can be wrapped and run underneath each other. Select the wrap text menu and choose the right option to make the text fit in the cell.



	A	B	C
1	Yellow	Green	This text has been wrapped to fit.
2	Orange	Green	This text has not been shrunk or wrapped
3	Red	Yellow	Yellow
4	Red	Blue	Blue
5	Red	Yellow	Yellow
6	Red	Blue	Blue
7	Red	Blue	Blue

Tip:



- Copy = **ctrl + C**
- Paste = **ctrl + V**
- Cut = **ctrl + X**
- Save = **ctrl + S**

Spreadsheets allow you to select different number formats for the cells and use formulas to complete calculations.

- **Number format:** The number format can be changed by selecting the desired format from the number format menu, for example:
 - Number: specify decimal places
 - Currency: specify type of currency
 - Date: specify date format
- **Formulas and functions:** Formulas and functions are instructions given to the computer to do calculations.

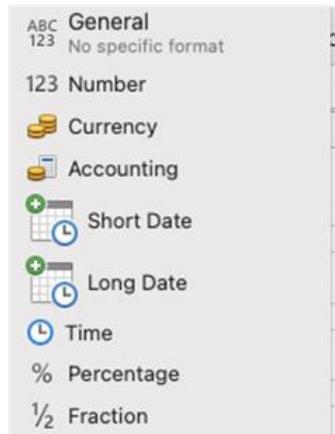


Figure 1.1.3 – Number format menu

Tip:

- **Formulas** are calculations that are manually entered.
- All formulas must begin with an equal (=) sign.
- The formula can be seen in the bar at the top of the spreadsheet that has an *fx* symbol at the beginning of it.



- For formulas, specific signs are used to do calculations:
 - Addition – plus (+) sign
 - Subtraction – dash (-) sign
 - Multiplication – asterisk (*) sign
 - Division – forward slash (/) sign.
- Formulas can be made up of either numbers or cell references.



Tip:

- **Functions** are pre-defined calculations that have an easy to remember name.
- All functions must begin with an equal (=) sign.
- The function name follows directly after the equal sign.
- Once the function name is entered, open brackets and type the in the cells that will form part of the calculation.
- The brackets must be closed to ensure the calculation works.
- Formulas can be made up of numbers, cell references or ranges.



B1		<input type="button" value="x"/>	<input type="button" value="v"/>	<input type="button" value="fx"/>	=SUM(105+259+85)
	A	B	C	D	E
1	105	449			
2	259				
3	85				

SUM function with numbers

B1		<input type="button" value="x"/>	<input type="button" value="v"/>	<input type="button" value="fx"/>	=SUM(A1+A2+A3)
	A	B	C	D	E
1	105	449			
2	259				
3	85				

SUM function with cell references

B1		<input type="button" value="x"/>	<input type="button" value="v"/>	<input type="button" value="fx"/>	=SUM(A1:A3)
	A	B	C	D	E
1	105	449			
2	259				
3	85				

SUM function with ranges

Work through this table of basic functions:

Function	Explanation	Example																														
SUM	This function adds values. =SUM	<table border="1"> <thead> <tr> <th colspan="2">B1</th> <th><input type="button" value="x"/></th> <th><input type="button" value="v"/></th> <th><input type="button" value="fx"/></th> <th>=SUM(A1:A3)</th> </tr> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1500</td> <td>3000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>1000</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>500</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	B1		<input type="button" value="x"/>	<input type="button" value="v"/>	<input type="button" value="fx"/>	=SUM(A1:A3)		A	B	C	D		1	1500	3000				2	1000					3	500				
B1		<input type="button" value="x"/>	<input type="button" value="v"/>	<input type="button" value="fx"/>	=SUM(A1:A3)																											
	A	B	C	D																												
1	1500	3000																														
2	1000																															
3	500																															

AVERAGE

This function works out the average of a set of values.
=AVERAGE

B1		f _x	=AVERAGE(A1:A3)
	A	B	C
1	1500	1000	
2	1000		
3	500		

COUNT

This function works out how many cells contain numbers.
=COUNT

B1		f _x	=COUNT(A1:A3)
	A	B	C
1	1500	1	
2	A thousand	2	
3	500		

MAX

This function tells the user which value is the highest.
=MAX

B1		f _x	=MAX(A1:A3)
	A	B	C
1	1500	1500	
2	1000		
3	500		

MIN

This function tells the user which value is the lowest.
=MIN

B1		f _x	=MIN(A1:A3)
	A	B	C
1	1500	500	
2	1000		
3	500		

Skills to practise

Work with a spreadsheet

1. Create a blank spreadsheet.
2. Save your spreadsheet with an appropriate name. Remember the rules for naming files correctly.
3. Edit your spreadsheet according to these guidelines:
 - a) Merge row 1 and 4 from column A to column F.
 - b) Column F must have its width increased by another row's width.
 - c) Add the heading **Skills to practise 4** in the top merged row that is:
 - in a font of the learner's choice
 - 22 pt size
 - in any shade of blue
 - formatted in bold
 - left-aligned (horizontally)
 - top-aligned (vertically)

- d) Add all borders to the cells from A1 across to F1 and down to row 10.
- e) Row 10 must be filled in any shade of grey.
- f) Cells B5 to B9 and D5 to D9 must be filled in green.
- g) Row 5 to 10 must be centre-aligned.
- h) Row 5 to 10 must use the currency number format for United States Dollars with two decimal places.
- i) Cell C10 must use a general number format with no decimal places.
4. Type the following data into the spreadsheet into the specified cells. Currency symbol and decimals will be added automatically.

Cell reference	Value	Cell reference	Value	Cell reference	Value
A5	100	C5	10	E5	999
A6	200	C6	AAA	E6	111
A7	300	C7	20	E7	777
A8	400	C8	BBB	E8	333
A9	500	C9	30	E9	555

5. Do the following calculations on the spreadsheet in the specified cells.

Cell reference	Calculation	Suggested formula	Correct answer
A10	Add A2 to A9	=SUM(A5:A9)	\$1500,00
C10	Count the numbers in the cells	=COUNT(C5:C9)	3
E10	Highest value from E5 to E9	=MAX(E5:E9)	\$999,00
F5	Average number from A5 to A9	=AVERAGE(A5:A9)	\$300,00
F6	Lowest value in all cells	=MIN(A5:E9)	\$10,00

6. Carefully go over your spreadsheet one last time to make sure you have followed all the steps correctly.

	A	B	C	D	E	F
1						
2						
3						
4						
5	\$100,00		\$10,00		\$999,00	\$300,00
6	\$200,00		AAA		\$111,00	\$10,00
7	\$300,00		\$20,00		\$777,00	
8	\$400,00		BBB		\$333,00	
9	\$500,00		\$30,00		\$555,00	
10	\$1 500,00		3		\$999,00	

7. If you are done with your spreadsheet, remember to save it again.

Presentation software

- Presentations are:
 - a method of conveying ideas using text, audio, image, and video
 - used to support a speech that is presented by a speaker
 - made up of slides that can be edited to suit the user's needs.
- Important definitions:

Slide single “page” on a presentation.

Slide deck collections of slides.

Title the first level heading at the top of each slide.

Subtitle the second level heading on each slide.

Transitions how slides change from one to the next in a slide show.

Animations how content appears on the slide in a slide show.

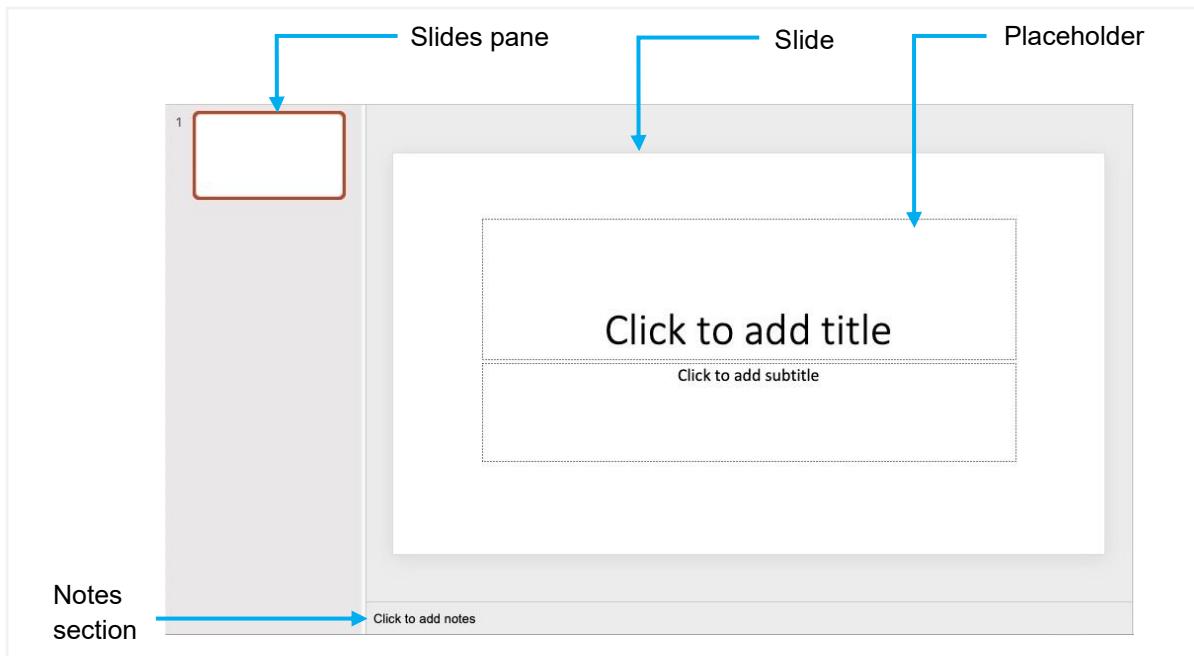


Figure 1.1.18 – Labelled screenshot of presentation software

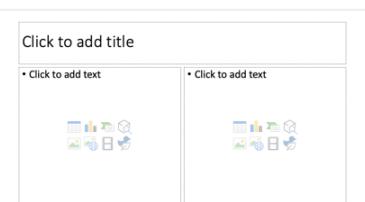
Creating a presentation

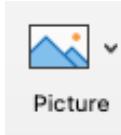
Start by creating either a blank presentation or a presentation from a template.

Editing a presentation

Once a blank presentation has been created, save it and name it.

The basic tasks used to create a presentation:

Task	Explanation	Example
Add new slide	When a blank presentation opens, the presentation will only have one slide. More can be added using the new slide menu. There are pre-defined slides with placeholders, but users can also insert a blank slide that contains no placeholders.	  

		
Insert picture	Insert pictures by uploading from your computer or using the internet to search for images.	
Insert video	Insert a video from whatever source you choose. Videos will fill the whole slide and play during the presentation.	
Insert audio	Insert audio from whatever sources you choose. Audios will show as a small speaker icon on the slide.	
Insert shape	Add all types of shapes from the insert shape menu.	
Insert text box	Insert text on. A text box is the one way to create a new placeholder for text on the slide. This is done using the insert text box buttons.	

- **Animations**

- Animations are used to make any text or object appear on the screen.
- First the text or object must be selected, then the animation applied using the animation menu.

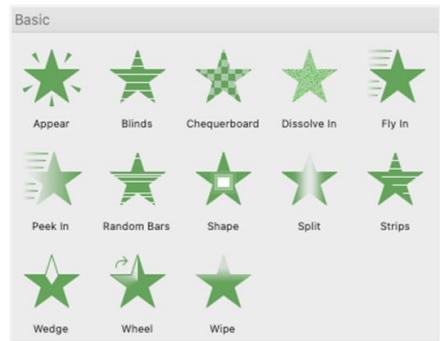


Figure 1.1.19 – Basic animations

- **Transitions**

- Transitions are used between slides to move from one slide to the next
- The transition will apply to the beginning of the slide being worked on.



Figure 1.1.4 – Basic transitions

Tip:

- It is also possible to use timings and triggers to make animations and transitions even more effective.



Timings: The user can select how long the animation or transition takes by setting the duration the slide or image is on the screen.

Triggers: The user can select what causes the animation or transition to begin, either by a mouse click or after a specified time.

- These tips can be used as extension for stronger learners but can be omitted completely, if not relevant.

Skills to practise

Work with a presentation

1. Create a blank presentation.
2. Save your presentation with an appropriate name. Remember the rules for naming files correctly.
3. Use all the skills you have learnt about in this unit to create a presentation
4. Your presentation must have six slides.
5. Each slide must have a heading.
6. The content on each slide must explain what you have learnt in that lesson.

SLIDE NUMBER	TITLE	CONTENT
1	Introduction to computers	Computers Starting up a computer safely Shutting down a computer safely
2	Hardware	Hardware Components of a computer Accessories of a computer
3	Operating system software of a computer	Software Operating system software of a computer
4	Word processing software	Creating a document Editing a document
5	Spreadsheet software	Creating a spreadsheet Editing spreadsheets
6	Presentation software	Creating a presentation Editing a spreadsheet

7. The following must be in your presentation:

- i. Fonts (types, sizes, colour)
- ii. Formatting (bold, italics, underlining)
- iii. Alignment (top, middle, bottom and left, right, centre, justified)
- iv. Lists (bulleted and numbered)
- v. Animations
- vi. Transitions
- vii. Pictures / Audio / Video

8. If you are done with your presentation, remember to save it again.

Knowledge and skill checklist



I know how to start up a computer safely.

I know how to shut down a computer safely.

I can identify the different components and accessories of a computer.

I understand the basics of an operating system.

I can create and edit documents using word processing software.

I can create and edit spreadsheets using spreadsheet software.

I can create and edit presentations using presentation software.

2

Basics of an internet-enabled mobile device



Learning outcomes

By the end of this unit, you should be able to:



- understand the different device types and operating systems
- understand how to use the basic functions of an internet-enabled feature phone
- understand how to use the basic functions of a smartphone
- understand how to use mobile internet
- understand how to use a variety of apps
- understand the different settings on different mobile devices
- understand security and privacy settings on different devices.

Introduction to mobile devices

- Mobile means to be able to move freely or easily.
- Mobile devices are computers that you can move around with, like laptops, smartphones, or tablets.

Mobile internet

- Mobile device can connect to the internet.
- There are two main ways that a mobile device can connect to the internet:

Mobile network

- The mobile device must have a sim card.
- A mobile network makes use of towers that send and receive radio signals from the sender to the receiver.
- The mobile network signal icon appears on the device to show the strength of the signal it is receiving.

Wi-Fi

- If not using a mobile network, the device will need to connect to the internet using Wi-Fi.
- Wi-Fi is a wireless network created when a router connects to an internet service provider.
- The router sends radio signals to nearby devices.
- To join a Wi-Fi network, select a network, there is usually a password that is entered to ensure only authorised devices are on the network.
- The Wi-Fi network signal icon appears on the device to show the strength of the signal it is receiving.

Tip:



- Not all Wi-Fi networks are safe, so only join networks that can be trusted.
- Criminals can use untrustworthy networks to steal your personal data.

Skills to practise

An internet-enabled mobile device can access the internet through mobile networks or Wi-Fi.

1. Talk about internet-enabled mobile devices

Make two lists with these headings:

- a) Advantages of mobile network internet
- b) Advantages of Wi-Fi internet.

2. Discuss using the internet

Which type of access do you mostly use?

Smartphones and tablets

- Smartphones and tablets are the most popular types of mobile devices.
- Laptops are also considered mobile devices.
- Smartphones and tablets function in almost the exact same way.

Features

Key features of smartphones and tablets:

- They use a battery, which will need to be charged using a power source.
- They use a sim card to connect to a mobile network provider.
- They can access the internet, either through cellular data (via a sim card) or through Wi-Fi.
- Their primary input comes from a touchscreen and virtual keyboard.
- They can download data from the internet.

Functions

Functions available on smartphones and tablets.

Function	Tablet	Smartphone
Making and receiving calls	✓	✓
Sending and receiving messages	✓	✓
Connecting to the internet via cellular data, Wi-Fi or Bluetooth	✓	✓
Downloading data from the internet	✓	✓
Using apps specifically designed for the device	✓	✓
Connecting additional accessories	✓	✓

Skills to practise

Create a spreadsheet

1. Ask 10 members of your family or friends these questions:
 - a) Do you prefer a smartphone or a tablet?
 - b) Which one would you use for watching a movie?
 - c) Which one would you use for making a voice call?
2. Tally the numbers for each question.
3. Put your answers onto a spreadsheet that looks like this:

Question	Smartphone	Tablet
Do you prefer a smartphone or tablet?		
Which one would you use for watching a movie?		
Which one would you use for making a voice call?		

Apps

- Apps is a shortened form of the word *applications*.
- Apps are types of software that do specific tasks.

Tip:



- Some apps are completely free to use.
- Some apps are free to download but require a subscription. This is paid for once the app is downloaded to unlock all the features the app has.
- Some apps are free to download but make use of in-app purchases.
- Some apps cost money to download.

- Apps can be downloaded in two ways.
 1. Navigating to the website where the app can be downloaded and downloading it.
 2. Navigating to the app store that is on the device and downloading it.
- Once an app has been downloaded, it will appear as an icon on the screen of the device.
- To launch the app, the user clicks on the icon. Some apps require the user to have an account.
- There are five main categories of apps.

1. Communications

Apps that are used to communicate with others through calls, messages, emails, chats, and social media.

2. Utilities

Apps like an alarm, camera, calculator, calendar, reminders, flashlight, weather and more.

3. Productivity

Apps used to complete specific, usually work-related tasks.

4. Media

Apps like a music player, podcast player, and photo and video gallery.

5. Games

There are many games available for download, but many of them can drain the battery of the device quickly or cost a lot of money.

Skills to practise

Download apps

1. Browse the app store on your device.
2. Find an example of each category of app on the store that you would like to use.

3. Assess whether they are free, subscription, once-off or in-app purchase apps.
4. Download the apps that are free only.
5. Talk to a fellow learner and ask them about the apps that they have downloaded.

Settings

- All devices have basic settings that can be changed.
- Settings refer to the way a user can change how the app, software or hardware looks or functions.
- There are two main categories of settings: personalization, and privacy and security.

Personalization

Means making something meet an individual's specific requirements. The most common types of personalization settings.

Personalization	Explanation	Example
Change the screensaver or lock screen	Screensavers or lock screens can have a picture. This is what you will see when the screen is locked.	
Change the wallpaper	Wallpapers are pictures. This is what you will see when the device is unlocked.	

Change notifications

Apps and software use notifications to alert you of communication. You can change the settings for specific apps or for the whole device.



Change ringtones and alert tones

You can change the sound you when you receive a phone call, message, or notification from an app.



Privacy and security

Privacy means having the ability to choose how much personal information is shared by apps, software, and device. It also means being able to decide what will be done with that personal information.

Security protects you from potential hackers.

Privacy settings:

Setting	Explanation
Locations services	This can be turned on or off.
Sharing information	You can choose whether to share your contact lists, calendars, photo and video gallery, saved files, camera and microphone.
Passwords	Make sure the password is not too weak so that hackers will not be able to easily gain access to the device.

Skills to practise

Think about the settings of a device

1. Read the following statements and say whether they are true or false.

Statement	True	False
You can only change your lock screen to a picture you have uploaded.		
The wallpaper one your device by default cannot be changed.		
Notifications are made up of banners and badges.		
A banner pops up on the screen with a summary of the notification.		
A badge is the sound the device makes when it receives a notification		
Most devices have pre-loaded ringtones to choose from.		
Location services must be turned on for all apps and software.		
The best password is a short one that is easy to remember like 12345.		

2. Type all the false sentences in a document to make them true.

Knowledge and skill checklist



I know about the different device types and operating systems.

I can use mobile internet.

I can use the basic functions of a smartphone or tablet.

I can use a variety of apps.

I understand the different settings on different mobile devices.

I understand security and privacy settings on different devices.

3

Introduction to the internet



Learning outcomes

By the end of this unit, you should be able to:



- connect a device to the internet
- locate the browser icon on a device and find a website
- understand mobile internet vs. computer internet
- understand the basic components of a website
- set up an email account on different devices / platforms
- set up a social media account on different devices / platforms
- set up a chat account on different devices / platforms.

Mobile internet and computer internet

The main differences between mobile internet and computer internet:

Mobile internet	Computer internet
Laptop, tablet, and smartphone	Laptop, desktop computer
The device does not need to have a cable (or wire) to connect to the internet. It is wireless.	The device connects to the internet using a cable. It is wired.
The device does not need to have a cable to connect to the internet. It is wireless.	The device connects to the internet using a cable. It is wired.
The device connects using Wi-Fi or a mobile network.	The device connects using an ethernet port or a USB Wi-Fi adapter
Internet is available while the user is on the move, taking the device with them.	Internet is only available in the location where the device stays and where it connects to the cable.

- An ethernet port is a place on the computer where you can plug in a cable that is connected to the internet.
- This allows the computer to access the internet.

Connect a device

- When accessing the internet using an ethernet cable, there is no need to find the network or enter the password since the device is physically connected to a network.

Skills to practise

Type sentences about going online

Type sentences in which you:

1. explain what mobile internet is
2. explain what computer internet is
3. provide steps for connecting to mobile internet
4. provide steps for connecting to computer internet
5. state which form of internet you think is the best.

Going online

- A mobile network is a regional or national network that connects devices with sim cards to one another using cellular data.
- Towers send and receive radio signals from the sender to the receiver.
- The interconnected towers form a network.
- A Wi-Fi network is a wireless network that is created when a router connects to an internet service provider by wire or cable and then sends radio signals to nearby devices.

Browsers

- A browser is an app or a type of software that allows the user to access the World Wide Web.
- The World Wide Web is the part of the internet that has websites and webpages.

Websites

Website	a group of connected webpages that all exist in one space
Webpage	a separate place on the website with specific content.
Landing page	the first webpage the user sees when going to a website.
Links	it is also called a hyperlink and it is a word or buttons that sends the user to another place on the internet.



Tip:

- Web addresses start with www. This is short for world web.
- Web addresses have different endings. Sometimes they show which country the website is from, for example:

.ug is an Ugandan website

.org is used for non-profit organisations

Skills to practise

1. Search online

- a) Think about your favourite type of food.
- b) Now, make sure you are connected to the internet.
- c) Launch your browser.
- d) Go to www.google.com.
- e) In the search bar, type in the name of your favourite food and add the word *recipe* at the end. Then click search.

2. Identify components of a webpage

- a) Open a few of the websites from your Google search.
- b) Try to identify each of these components on a webpage: menu, search bar, web address, back / forward, share, history, tabs, and refresh button.
- c) Show a family member or friend each of these different components.

Setting up accounts

Many websites allow users to set up a personal account for their website.

Email

Follow these steps to create an account:

1. Go to the sign-up section of the email platform
2. Complete personal details
3. Choose a username
4. Choose a password
5. Confirm the password
6. Read and agree to the Terms and Conditions.

Tip:

- When choosing a **username**, make sure it is:
 - Specific – it contains a name or a surname.
 - Professional – it is appropriate to use in all aspects of life.
 - Unique – it belongs only to the user and cannot be confused easily.



Tip:

- When choosing a **password** make sure it is a strong password that contains:
 - one or more uppercase letter (ABCDEF...)
 - one or more lowercase letter (abcdef...)
 - one or more symbol (@#\$%&*)
 - one or more number.



Social media

Social media platform sign-ups function in much the same way as email platforms.

Follow these steps to open a social media account:

1. Go to the sign-up section of the social media platform.
2. Complete personal details.
3. Choose a username.
4. Choose a password.
5. Confirm the password.
6. Read and agree to the Terms and Conditions.

Chat

The main difference between social media platforms and chat platforms is that chat platforms are mostly linked to the user's phone number.

These are the basic steps:

1. Launch the chat app or software
2. Read and agree to the Terms and Conditions.
3. Enter the phone number.
4. Complete registration with a verification code.
5. Users can personalize their account settings.

Here are some personalization options:

Optional set-up	Explanation
Profile picture	It is a picture that can be seen by people on the platform that identifies the user.
Cover picture	It is the picture that forms a banner on the personal profile of the user, usually specific to social media profiles.
About / Intro / Bio	A short introduction to the user.
Personal information	Some users choose to include their birthdays, location, workplace, education, and relationships on their profile.

Skills to practise

1. Explore your email account

- a) Open the email account you set up in class.
- b) Explore the settings.
- c) Find where to change your profile picture.
- d) Upload a picture of your choice.

2. Set up a social media account

- a) Choose one of the other social media platforms that you learnt about. It must be one that you did not set up an account for in class.
- b) Complete the set-up steps.
- c) Find where to change your profile picture.
- d) Upload a picture of your choice.
- e) Complete one other optional set-up.

Knowledge and skill checklist



I can connect a device to the internet.

I can find the browser and go to a website.

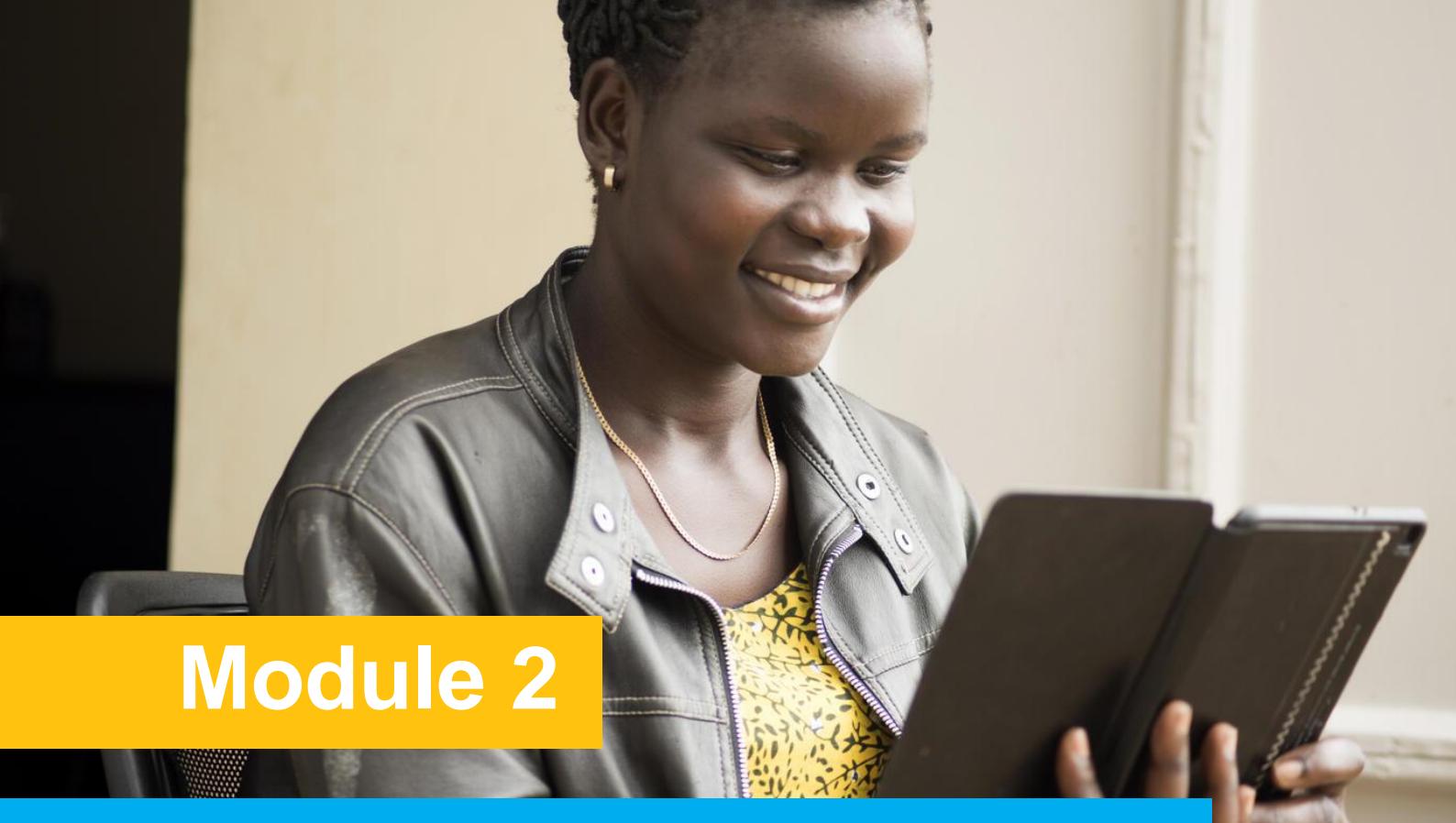
I understand the difference between mobile and computer internet.

I understand the basic components of a website.

I can set up an email account.

I can set up a social media account.

I can set up a chat account.



Module 2

Information processing

This module includes the following units:

Unit 1 Browsing, searching and filtering data, information and digital content

Unit 2 Evaluating data, information and digital content

Unit 3 Managing data, information and digital content

1

Browsing, searching, and filtering data, information and digital content



Learning outcomes

By the end of this unit, you should be able to:



- explain what information you need
- use different search engines to find information
- use some filters when searching
- explain how to access search engines
- explain how to between search engines.

Main concepts: IT, ICT, and internet

Before you start, you will need to know the following terms:

IT (Information Technology)

The hardware (all devices or machines), software (computer programs), and computer networks (computers connected to each other).

ICT (Information and Communication Technology)

The transfer and use of information using IT.

The internet

The global system made up of interconnected computers and computer.

Introduction to searching online

It is important to know how to search for information online so that you can find what you are looking for quickly.

You will need to understand the following terms:

Search engine	Specialized website that searches for information across the internet.
Search terms	The words or phrases that you use to search for information online.
Search results	A list of websites, or photos or videos, that a search engine shows you when you search.

How to start searching

- Step 1** To start a search, click on a browser, such as Edge, Firefox, or Chrome.
- Step 2** Go to the search engine's homepage and type your search terms into the text box.
- Step 3** To see your results, press Enter, or you can click an icon, such as the Google Search button or a magnifying glass.



Tip:

Some browsers allow you to conduct a search right from the browser's interface, for example, Chrome



Google Chrome



Microsoft Edge



Mozilla Firefox



Opera



Safari

Figure 2.1.1 – Icons of some browsers.

Search strategies

Three strategies for effective searching are:

- **Keep it simple:** A simple search term is better for getting specific results. For example: beans recipe.
- **Consider suggestions:** As you type, the search engine may give you suggestions. These can be useful and improve the quality of your results.
- **Use natural language:** You can type questions directly into a search engine, for example: “What do cats eat” or “Directions from X to X”

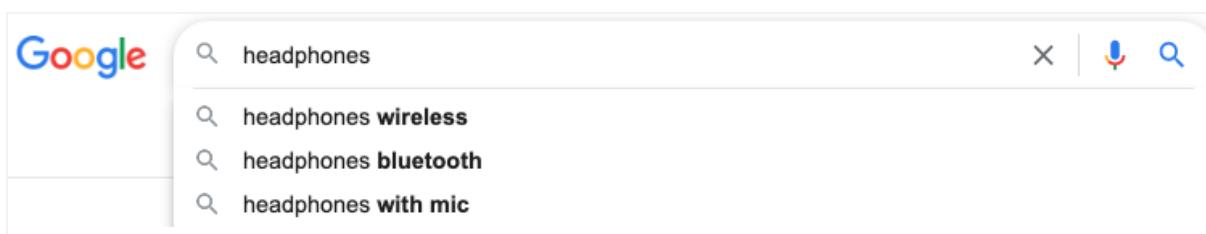


Figure 2.1.2 – Suggestions that appeared when the user typed in ‘headphones’.



Tip:

Depending on your search, the format of your results may vary and could include maps, a portion of a Wikipedia article, lists, and more. You can also search for images, videos, news, and more.

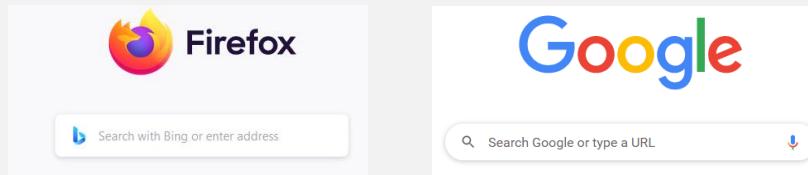
Skills to practise

Search online

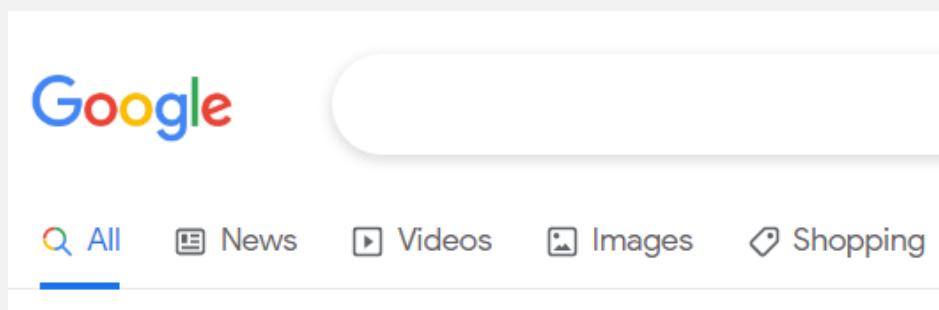
1. Identify key words for a search.
2. Practise writing the most effective key words for a search, e.g., African teams results from the 2022 Football World Cup key words – *African teams results 2022 World Cup*

A screenshot of a search bar. The text "African teams results 2022 World Cup" is typed into the search field. The search bar includes a magnifying glass icon, a microphone icon for voice search, and a clear 'X' button.

3. Search using more than one search engine.
4. For example, use Firefox and Google to search with the same key words and compare the results.



5. Use a filter to refine your search.
6. Using the same key words, filter your search by clicking on All, News, Videos or Images. Notice the different results.



7. Identify one suitable website that provides the best result from your search.

Knowledge and skill checklist



I know what I would like to search and can identify key words to narrow the search.

I can search using more than one web browser (e.g., Google Chrome and Microsoft Edge).

I can filter the type of search I want, and switch between filters (e.g., news and all).

I can switch between web browsers to compare results.

2

Evaluating data, information and digital content



Learning outcomes



By the end of this unit, you should be able to:

- compare different sources to assess the reliability of the information
- evaluate the data, information and digital content carefully.

Assess sources and information online

Information available on the Internet is not regulated or controlled for quality or accuracy.

It is very important for Internet users to evaluate the source or information.

Anyone can publish on the internet. It is difficult to find out who wrote the content

It's your responsibility to judge the accuracy of the source.

Ask yourself these questions before using resources from the internet:

- Who is the author? Is the author qualified to write on the topic? In case it is an organization, is it credible? Did I hear about it?
- What is the purpose of the site? Who is the intended audience?
- Is the information and language objective, unbiased and free of emotional expressions?
- Are the factual sources listed so information can be checked?
- Is information supported by evidence?
- How old is this information? When was the site last updated?

Check your emotions!

Be aware of when a small piece of writing has the power to change how you feel.

Evaluate your sources

Use the TAARP method to evaluate your sources:

T – Timeliness

Your resources need to be recent enough for your topic.

A – Authority

Does the information come from an author or organization that has authority to write about the topic?

A – Audience

Who are the intended readers and what is the publication's purpose?

R – Relevance

Does the article relate to your topic?

P – Perspective (point of view)

Biased sources can be helpful in creating and developing an argument, but make sure you find sources to help you understand the other side as well.

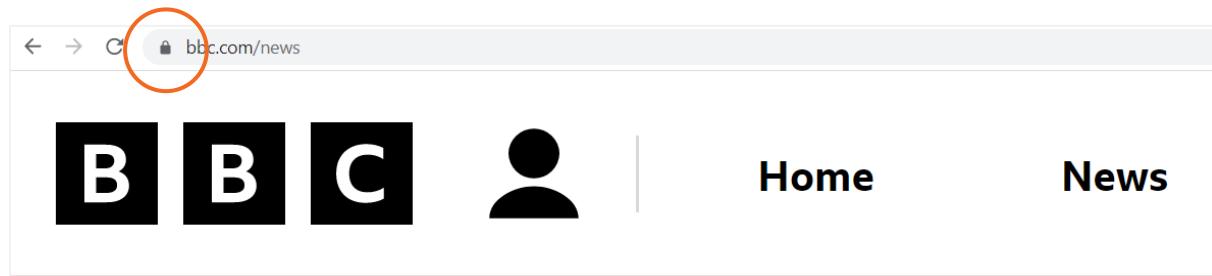


Figure 3.2.1 – A reliable and secure website will always have a lock before the URL

Evaluate websites

The TAARP method can be used, but there are extra things you can consider when looking at a website:

- The look and feel of the website
- The URL of your results
- Are there advertisements on the site?
- Check the links on the page
- Check when the page was last updated

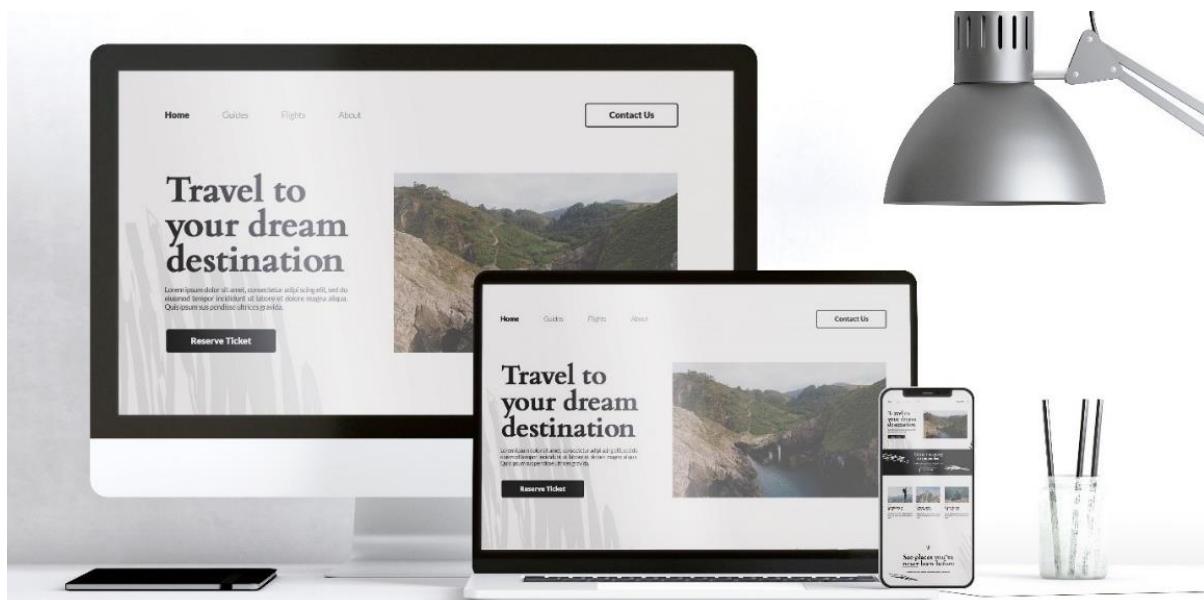


Figure 3.2.2 – The landing page of a website

Take note:

Informational resources mostly present correct information. These resources often end with .edu or .gov..

Advocacy resources are those sponsored by an organization that is trying to sell ideas or influence public opinion. These resources may end with .org. or .co.ug.

Business or marketing resources are sponsored by a business that is trying to sell products. You will usually find that these end with .com. or .co.ug.



News resources are those which provide extremely current information on news topics. These often end with .com. or .co.ug.

Personal web pages and resources are sites including social media sites like blogs, Twitter pages, Facebook pages and so on.

Skills to practise

Evaluate search results

1. Compare sites showing similar information to confirm correct information.
2. Choose a topic that is being reported in the news. Search use one of the fact check sites to assess the accuracy of the reporting.
 - <https://www.monitor.co.ug>
 - <https://www.newvision.co.ug>
 - <https://www.independent.co.ug>
3. Use the TAARP strategies to evaluate your search results in the above question.
 - T – Timeliness
 - A – Authority
 - A – Audience
 - R – Relevance
 - P – Perspective (point of view)

Knowledge and skill checklist

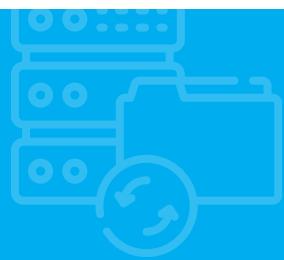


I can compare different sources to assess the reliability of the information I find.

I can evaluate the data, information and digital content carefully.

3

Managing data, information and digital content



Learning outcomes



By the end of this unit, you should be able to:

- classify the information in a methodical way using files and folders to locate these easier
- make backups of information or files I have stored.

Devices to save and retrieve information

In the same way you keep your clothing organized into drawers, you have many resources in your computer to store information. Below we introduce you to some of them.

Memory and Storage Devices



ROM (Read Only Memory)



RAM (Random Access Memory)



Memory card



USB stick



Internal hard drive



External hard drive



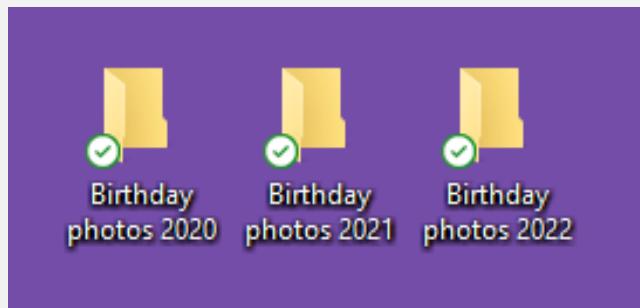
Cloud Storage

Use external hard drives or cloud storage to backup or to copy files. This is done to protect information from being lost should the device be lost, destroyed or stops working.

Skills to practise

Save files

1. Create a methodical folder structure for saved files.
2. Create folders for your saved photographs.



3. Save the files on a USB stick.

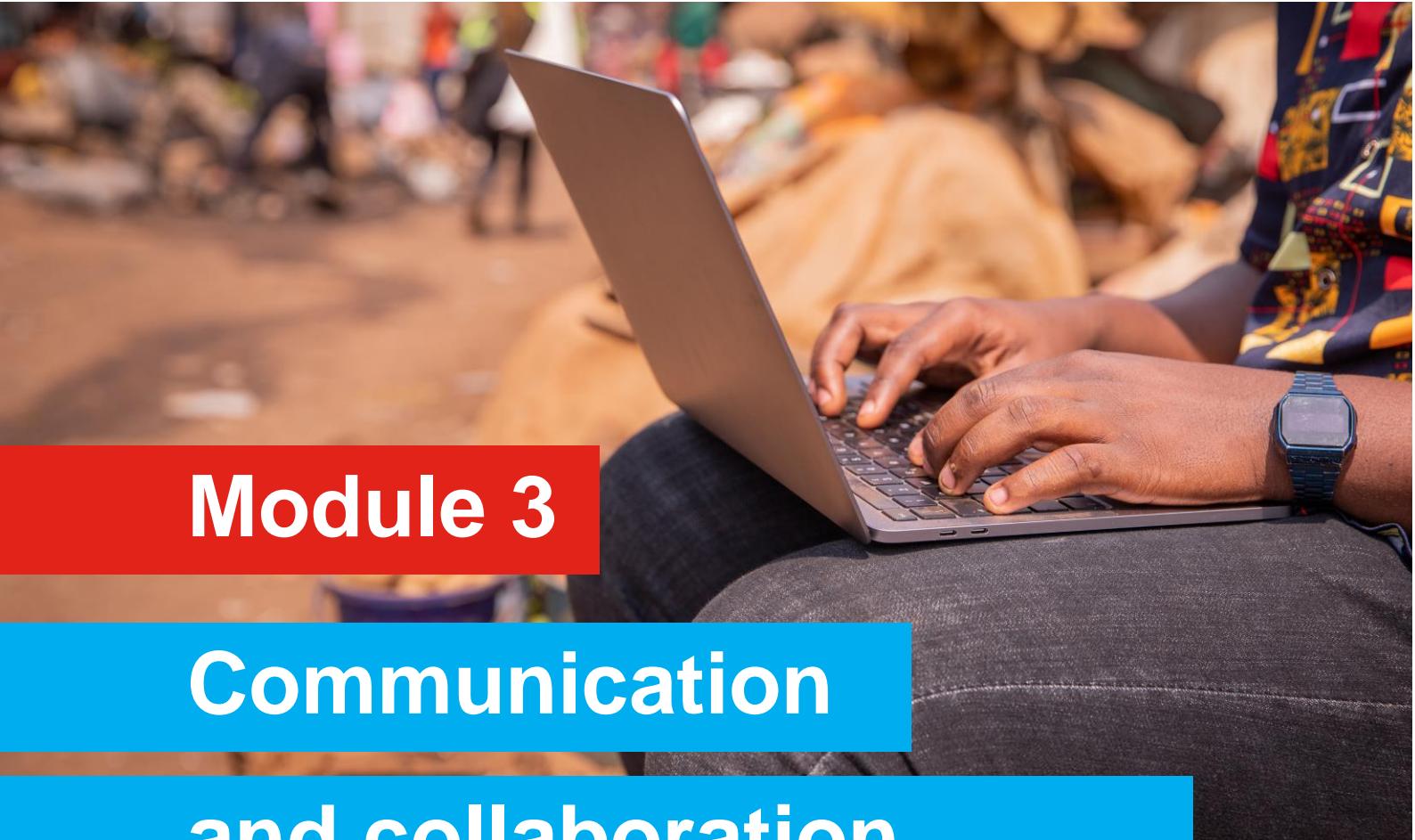


Knowledge and skill checklist



I can classify the information in a methodical way using files and folders to locate these easier.

I can make backups of information or files I have stored.



Module 3

Communication and collaboration

This module includes the following units:

Unit 1	Interacting through digital technologies
Unit 2	Sharing through digital technologies
Unit 3	Engaging in citizenship through digital technologies
Unit 4	Collaborating through digital technologies
Unit 5	Netiquette
Unit 6	Digital emotional intelligence
Unit 7	Managing digital identity

1

Interacting through digital technologies



Learning outcomes



By the end of this unit, you should be able to:

- use advanced features of several communication tools (e.g., using Voice over IP and sharing files).

The process of digital communication

The process of digital communication:

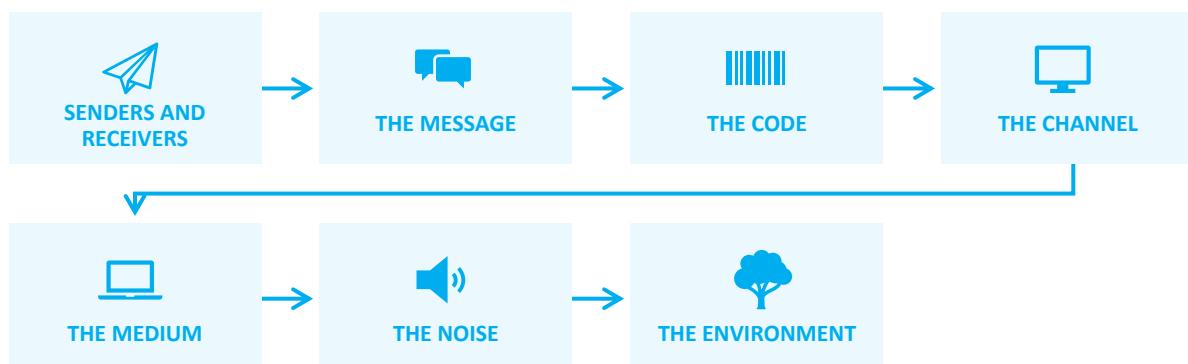


Figure 3.1.1 – The digital communication process

Senders and receivers

- The person who sends the message is the **sender**.
- The person that you are communicating with is the **receiver**.

The message

The message is the information that you are sending.

The code

Information is digitally encoded and decoded by the software or app used.

The channel

The interface through which communication can be made.

- On the web – websites
- For search – search engine results
- Communication – email and messaging apps
- Online events – webinar
- Digital media – video streaming and music sites
- Games – virtual games

The medium

- The physical way of storing media or archiving it.
- It can hold data, graphics, audio, and video.

Noise

Elements that can distort your communication.

Environment

The place that is enabled by technology and digital devices.

Interacting with digital technologies

Communication = the sender + message + the recipient

Communication is **effective** when the recipient understands the message.

Communicate with others

When interacting with an online service or social media platform:

- register an account that is secure and unique
- make it difficult to hack into the account
- username should not be your real name
- password should be strong: a mixture of letters, numbers, and symbols, and at least eight characters.

Content that **should not be posted** on the internet, includes:

- images and videos that are sexual, show religion in a poor light, insult others, expose others to unwanted attention, or are simply in poor taste.
- Comments that criticize, insult, judge, bully, or lie about someone.

How to post an image on a smartphone to a Facebook page

1. Log into your Facebook account.
2. Go to the page where you want to the image to appear.
3. Click on the **Photos** button to access the smartphone's gallery.
4. Select the picture you want to add.
5. Choose **Share external** from the drop-down menu at the top of the screen.
6. Click on Facebook's **News Feed** button.
7. Once the image appears on the page, add text or a caption explaining the image.
8. Click the **Post** button, then select which people should be able to view the image.

The steps explained above are the same for posting other content on other social media sites. The names of the options might be different, but the process is the same.

Follow these steps to post a thread on Twitter

1. Click on the tweet button to create a new tweet
2. If you want to add another tweet, select the plus icon.
3. If you want to delete any of the tweets, choose the delete button.
4. Once you are done adding all the tweets you want in the thread, select **Tweet all** to post them.

Instant messaging apps = chat apps

These apps:

- are more immediate than email
- can use Voice-over Internet Protocol (VoIP) to make data audio and video calls on chat apps: WhatsApp, Facebook Messenger, and Telegram
- use much less data than video calls do
- can be used to send plain text files, which require less data than image, audio, and video files
- have settings that can be changed: account security, notifications, storage and data, and the app language
- default to US English, but this can be changed to the user's language.
- can be used for email, instant messaging, social networking, blogs, and microblogs.

The advanced features of these technologies include:

- privacy, encryption, and security settings
- cloud and data synchronization between devices
- Bluetooth and cable file transfer
- troubleshooting errors
- personalization in terms of themes, notifications, and home screen display
- message broadcasting
- chatbots.

Secure digital communication

The term 'security' is used in data sharing and digital communications. This refers to:

- the threats that can cause information to be lost, stolen or corrupted (made unusable)
- access to information over a network by an unauthorized user who might steal or tamper with the information.

Examples of information that is secured by organizations and individuals include:

- confidential information, such as medical records and legal documents
- personal information, such as a person's name, address, contact details, and identity number

- financial information, such as bank account details of clients, accounting records of a company, staff salaries, credit records, and tax information.

Secure information is hidden from the public so that no unauthorized user can find it.

Security in digital communication means keeping information hidden (private) when it is being transferred across a network (usually the internet) to another user or system.

The most common ways of securing data include:

- using hardware to form a physical barrier (firewall) between the internal servers and the public servers, or firewall software
- installing anti-virus software and web protection software
- encrypting all data that is sent over a public network
- using a virtual private network (VPN) to create a one-to-one channel across the internet so that information cannot be intercepted.

Social media

Social media is the way that people create, share, and exchange information and ideas in virtual communities and networks.

The top social media apps are TikTok, WhatsApp, WeChat, Facebook, Instagram, Twitter, LinkedIn, and YouTube.

Ways to communicate with others using social media:

- Download and install WhatsApp or Telegram on a smartphone or tablet, then practise sending messages and images.
- Record and send a voice note and attach a file.
- Create a Gmail account you do not already have one.
- Store, share and collaborate on files in Google® Workspace.
- Do a video call using free services, such as Zoom or Skype.
- Build a simple blog, using images downloaded from the internet.
- Access and use an online chat forum, such as the ChatKK.

Skills to practise

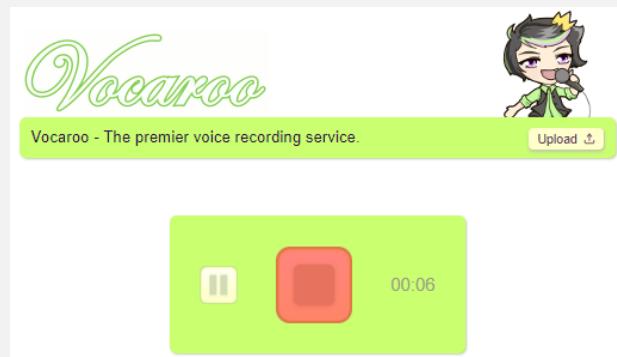
Send a voice note and share a file

1. Open the WhatsApp app on a tablet or smart phone. Send a voice message to a friend where you explain your Mathematics homework for tomorrow.
2. Open the Vocaroo website (<https://vocaroo.com/>)

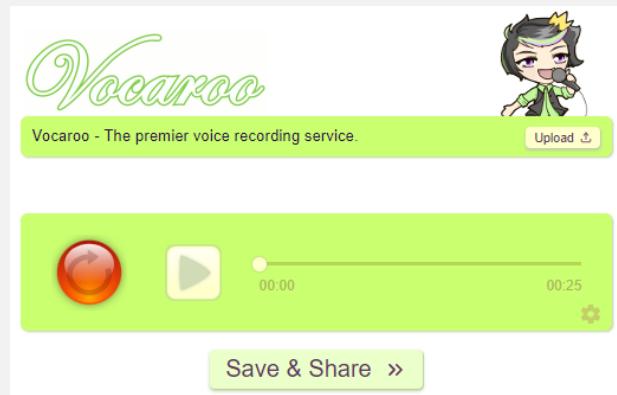
- a) Prepare a three-minute lesson on how to complete your Mathematics homework correctly. Click on the microphone to start recording the message.

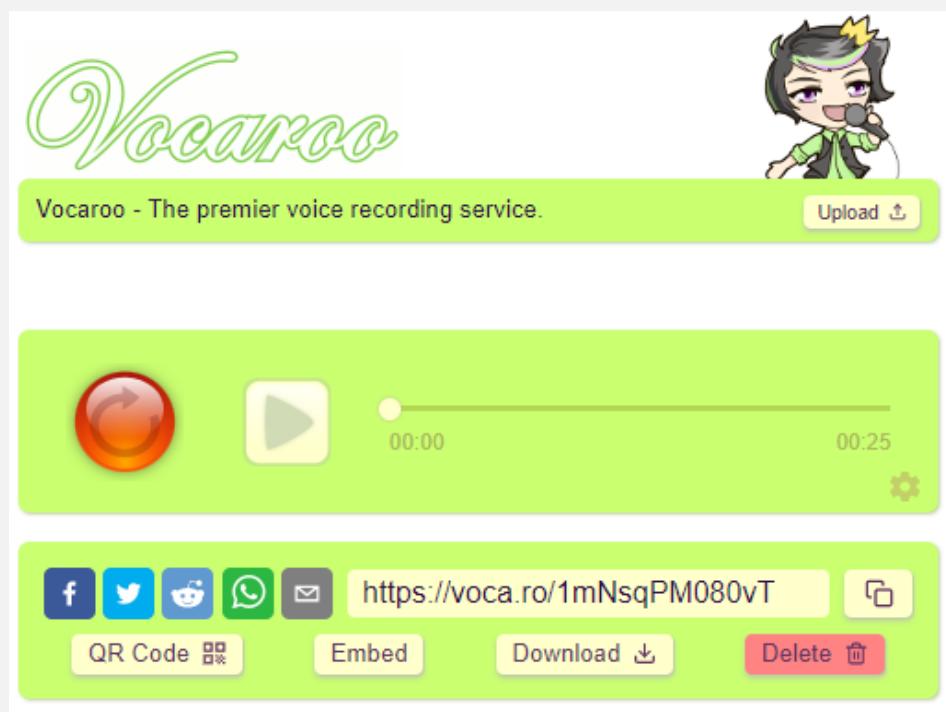


- b) When you have finished recording the message, click on the red square



- c) Click on 'Save & Share'.





3. You can now:

- a) delete the file if you don't like the recording and start again
- b) download the file as a MP3 file to your device
- c) embed the recording in another file – like a PowerPoint presentation
- d) create a QR code for the file and share the code with a friend who can listen to the recording
- e) post (share) your recording on social media as a MP3 file.

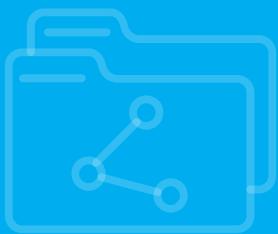
Knowledge and skill checklist



I can use advanced features of several communication tools (e.g., using Voice over IP and sharing files).

2

Sharing through digital technologies



Learning outcomes



By the end of this unit, you should be able to:

- use collaboration tools and contribute to shared documents/files someone else has created.

Sharing through Digital Technologies

Digital technologies:

- These are tools, systems, devices, and resources that generate, store or process data.
- The most common digital technologies are social media, online games, multimedia, and mobile devices.
- Digital technologies are present online as ‘the cloud’, e.g., the internet.

The cloud has two distinct components: cloud computing and cloud storage.

Cloud computing:

- The online service provider hosts applications that users run on their own computers without installing those applications.
- You can create documents, spreadsheets, presentations without having to download and install the software on your own device.
- Cloud computing saves space on your computer, the applications are always up to date, and you can run the applications from any device using your registered account.

Cloud storage:

- Your files are stored in a secure and private location online.
- It offers a reliable backup of information that is always current.
- It allows for sharing of files, which allows a group of collaborators to work on the same document at the same time.
- It is updated with the latest files on your computer, if you are online.

There are two cloud computing sites that have free services:

- Microsoft® 365, which hosts Microsoft® Word, Microsoft® Excel, Microsoft® PowerPoint, as well as a storage space called Microsoft® OneDrive.
- Google® Workspace, which hosts Google® Docs, Google® Sheets, Google® Slides, as well as a storage space called Google® Drive.

Work in Google® Drive

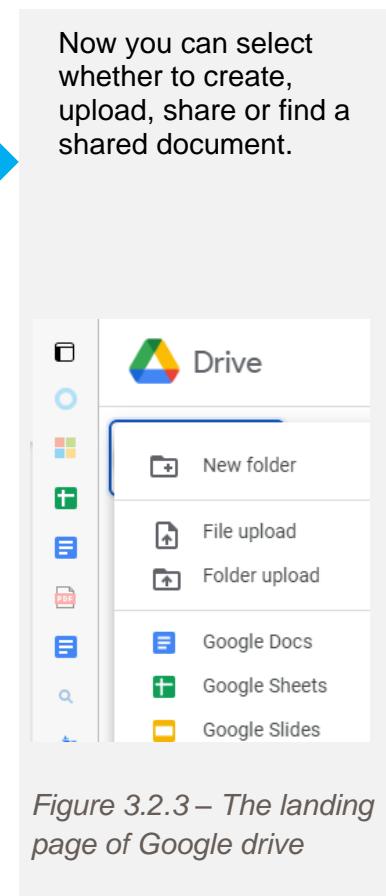
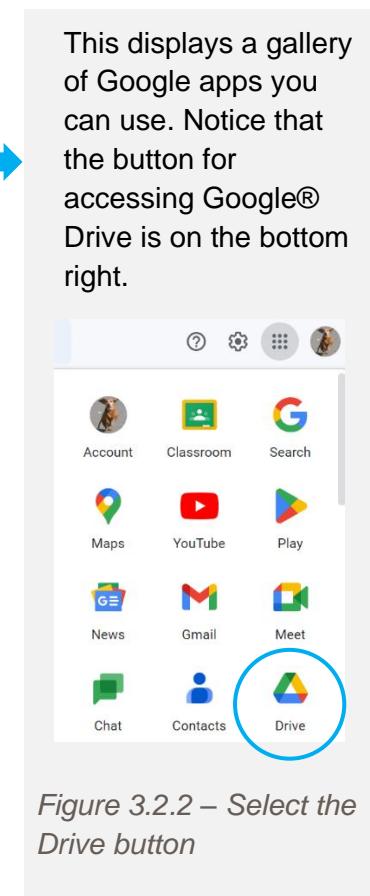
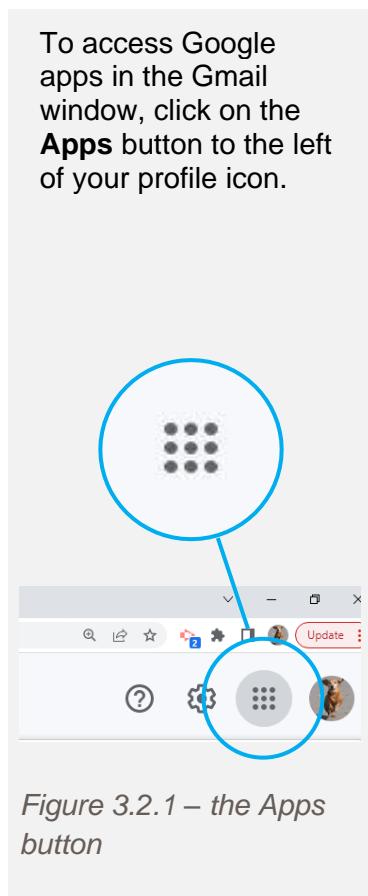


Figure 3.2.1 – the Apps button

Figure 3.2.2 – Select the Drive button

Figure 3.2.3 – The landing page of Google drive

Skills to practise

Use collaboration tools

1. Open your Google Drive as explained.
 - a) Create a document called 'class birthday list'.
 - b) Share the file with your class and invite everyone to add their birthday to the list.
2. Work in pairs.
 - a) Complete your Mathematics homework in a MS Word document.
 - b) Share your homework with your partner via the Google Drive.
 - c) Open your partner's homework and correct and mistakes made in a different colour font.

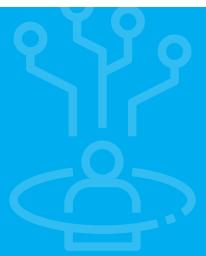
Knowledge and skill checklist



I can use collaboration tools and contribute to, for example, shared documents/files someone else has created.

3

Engaging in citizenship through digital technologies



Learning outcomes

By the end of this unit, you should be able to:



- use some features of online services (e.g., public services, digital finance, online shopping)
- use digital technology to create solutions to problems in my school, town, or community
- get involved online in social issues.

Basic concepts of digital citizenship

A digital citizen is a person who has the knowledge and skills to effectively use digital technologies to communicate with others, participate in society, and create and consume content through digital tools.

So, digital citizenship refers to how users behave when they collaborate and engage online.



SAFETY



REPUTATION



RELATIONSHIPS



ETHICS

E-Safety:

- Includes an individual's knowledge about internet privacy and how an individual's behaviour can add to healthy interactions when using the internet.

- Common dangers: phishing, malware, cyberbullying, accessing, and posting private information.

Reputation:

- How we are perceived online.
- Shaped by the way you present yourself and the information other individuals post about them.
- Has become more permanent since we have placed more trust in search results than any other source.

Relationships:

- Involve using technologies to develop a more interactive and relevant interaction between individuals.
- Can contribute both positively and negatively depending on how individuals use technology.

Ethics:

- The study of how to manage yourself in an ethical and professional way online.
- Some examples of ethical behaviour:
 - you ask for permission to collect and store data about users
 - you ask for permission to sell any personal data that has been stored
 - you delete data about others when requested
 - you are provided with access to your own personal data that has been collected and stored.

Digital footprints:

- Records of your searches and visits.
- Includes what you have created, shared, posted, and installed through digital tools on a laptop, tablet, or mobile phone.

A good citizen	A good digital citizen
Advocates for equal human rights	Advocates for equal digital rights for all
Treats others with respect	Seeks to understand all perspectives
Does not steal or damage others' property	Respects digital privacy, intellectual property, and other rights of people online
Communicates clearly respectfully and with empathy	Communicates and acts with empathy for others' humanity via digital channels
Speaks honestly and does not repeat unsubstantiated rumours	Applies critical thinking to all online sources, including fake news
Protects self and others from harm	Is mindful of physical, emotional, and mental health while using digital tools.
Projects a positive self-image	Understands the permanence of the digital world and proactively manages their digital identity

The rights of a digital citizen

- A digital citizen is entitled to enjoy the rights of privacy, security, access and inclusion, and freedom of expression.
- A citizen has responsibilities, such as ethics and empathy, and to guarantee a safe and responsible digital environment for all digital citizens.

Online training and e-learning

To use a computer with confidence, you need to be able to:

- use a mouse to open and work in applications
- find and use control keys, such as Alt, Ctrl and Esc, on a computer keyboard
- do touch typing so that you can concentrate on the screen.

Free online learning courses in IT-related subjects, such as Computer Science, Coding, Mathematics, Science, Engineering and Art include:

- Create and Learn (<https://www.create-learn.us/>)
- Khan Academy (<https://www.khanacademy.org/>)

- National Geographic Kids (<https://kids.nationalgeographic.com/>)
- iRobot Education (<https://edu.irobot.com/>)
- The Harvard University free online Introduction to Computer Science. (<https://www.awin1.com/cread.php?awinmid=6798&awinaffid=787739&ued=https%3A%2F%2Fwww.edx.org%2Fcourse%2Fcs50s-introduction-to-computer-science>)
- The Allison website (www.allison.com) has online courses:
 - Global Digital Literacy 101
 - Communication Essentials
 - Basics of Computer Networking
 - Introduction to Mobile and Cloud Computing

International outreach and government resources

- International outreach programmes, such as the UN Refugee Agency supports continued access to education. (See page 4 of this downloadable article for information on their work in Uganda: <https://www.unhcr.org/5ea7eb134.pdf>)
- The UNICEF outreach programme can be accessed via this website: <https://www.unicef.org/uganda/what-we-do/education>

Features of online services

Online public services

The Ugandan government has a portal called ecitizen.go.ug that gives you links to all public services nationwide.

Example: The Ministry of Public Service advertises job vacancies online, which include application forms and help with the application process (<https://psc.go.ug/>).

The Ministry of Local Government website provides information (<https://molg.go.ug/>)

Online banking

Online banking allows you to log onto their bank's website securely to:

- check the balances in your accounts
- transfer funds from one account to another
- manage your banking profile

- add beneficiaries whom you pay via electronic funds transfer (EFT)
- pay accounts
- buy airtime, data, and electricity
- send instant money to someone who doesn't have a bank account.

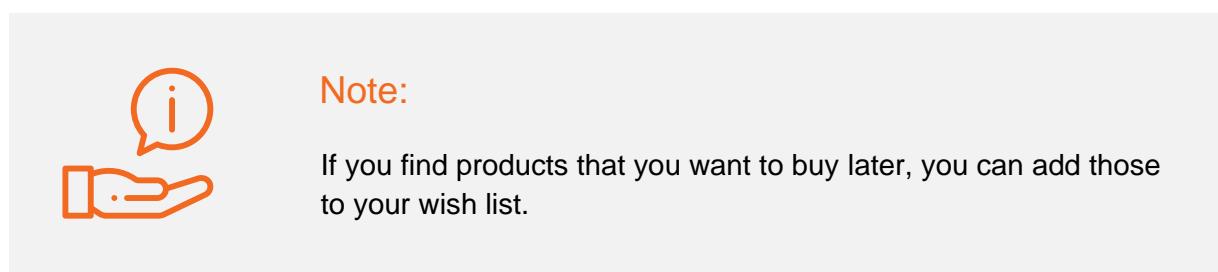
Banks build security measures into the login process and when clients make payments to someone who is not a registered beneficiary. These security measures include checking that bank accounts exist, using One-Time-Pins (OTPs) or Quick Response (QR) codes to secure the transfer of funds.

Online shopping

Good online shopping sites have categories of products, and their search engine accurately finds the product you are looking for. When it comes time to pay for a product, the online shop uses the most secure payment method between themselves and your bank.

How online shopping works:

1. You decide on the products you want to buy.
2. You find an online store that sells the products you want.
3. You register for an account on the site using a secure username and password.
4. You select the category and navigate to your product.



1. You place the products you want to buy in the shopping cart and opt to Checkout.
2. You enter your delivery address, choose a payment method, and enter your payment details (e.g., credit card or PayPal details).
3. Finish the transaction, including the delivery fee.

Guidelines for interacting with online services

Ensure that:

- the site is safe, check that there is a padlock next to the address line and that the address starts with https:
- the payment methods on the site are authentic
- you find out about the online services before you register.

Skills to practise

1. Use features of online services

- a) Open National Geographic Kids (<https://kids.nationalgeographic.com/>).
- b) Select a topic that you would like to learn about.
- c) Follow the lessons.
- d) Play one of the games.

2. Use digital technology to create a solution

- a) Assume that your school does not have enough drinking water for students.
- b) Use the internet to research and propose a solution to the problem.
- c) Use your digital skills to set out a proposal.

3. Become involved online in social issues

- a) Do a Google search or social media search for groups in your area that are involved in solving social issues.
- b) Choose one group that you are interested in.
- c) If the group uses social media, follow the group, and post your opinion on an issue.
- d) Find out if the group is active in a project that helps others, join the project if you can.

Knowledge and skill checklist



I can use some features of online services (e.g., public services, digital finance, online shopping).

I can use digital technology to create solutions to problems in my school, town or community.

I am involved online in social issues.

4

Collaborating through digital technologies



Learning outcomes



By the end of this unit, you should be able to:

- actively pass on or share knowledge with others online (e.g., through social networking tools or in online communities).

Main concepts of digital collaboration

Definition of collaborating through digital technologies

Collaborating through digital technologies means: “to use digital tools and technologies for collaborative processes and for co-construction and co-creation of resources and knowledge.”

The importance of collaboration through digital technologies

We use digital technologies to:

- interact with colleagues, friends, and family
- exchange documents, photos, and information
- organize work or study (manage tasks or organize meetings).

What are the most useful tools for collaborating in an online environment?

Tools that help us to collaborate online with others:

- Conferencing and online meeting tools: Skype; GoToMeeting; Zoom Meetings; Google® Meet; Microsoft® Teams
- Saving and sharing files: Google Drive; Dropbox; WeTransfer

- Schedules and calendars: Google® Calendar; Teamup
- Project management: Trello; Redbooth; Asana
- Testing opinion: Google® Form

Security and privacy

Your personal information can be protected by using:

- virtual private networks (VPNs)
- antivirus programs
- strong Passwords

Privacy refers to your right to preserve and protect your identity and maintain a safe and protected space around your integrity, physical presence, thoughts, feelings, and intimate activities.

Skills to practise

Pass on or share knowledge online

1. Work with a partner and create a series of mini lessons (microblogs) about a topic that interests you. It can be a section of difficult work at school or a solution to a problem in your community.
2. Use a tablet or smartphone and join a social media app of your choice – remember to choose one that is popular with young people in your area.
3. Over a period of one week, post a message each day on your topic.

Knowledge and skill checklist

I can actively pass on or share knowledge with others online
(e.g., through social networking tools or in online communities)



5

Netiquette



Learning outcomes



By the end of this unit, you should be able to:

- discuss behavioural norms and knowledge while using digital technologies and interacting in digital environments

What does netiquette mean?

Netiquette is the online equivalent of etiquette. It is a way of behaving that respects and upholds the dignity and humanity of the people you are interacting with online.

What to avoid when applying netiquette

Bad netiquette includes all online behaviours that are disrespectful towards others.

Disrespecting intellectual property

- Sharing content, photos, materials of others without citing the source.

Not respecting other people's opinions

- Not respecting other people's opinions.
- Adopting hostile and insulting attitudes.
- Try to establish a conversation with others without offending them.

Expressing ourselves in a disrespectful way

- When writing a message, an email, or a post, be careful how you write and express yourself.
- People cannot see your expressions or hear your tone of voice.
- This can lead to misunderstandings.
- Bad netiquette includes using unclear or hostile language, using capital letters (which implies shouting), not signing off on a message or email, and not contextualizing the content of your message.
- Use formal or informal language depending on the person you are dealing with.

Disrespecting the privacy of others

- When sharing photographs or private information, be careful to respect the privacy of others.
- Never share sensitive data without the other person's permission.

Skills to practise

Use digital technologies to interact about behavioural norms

1. Work in a group and create a list of 10 true/false questions about acceptable or unacceptable online behaviour.
2. Use Google Forms or SurveyMonkey (<https://help.surveymonkey.com/en/create/creating-a-survey/>) to create a survey.
3. Create the survey and send it to your classmates to respond.

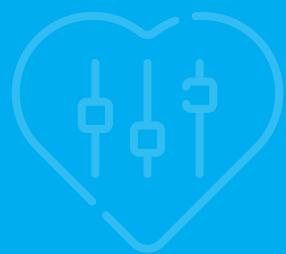
Knowledge and skill checklist



I can discuss behavioural norms and knowledge while using digital technologies and interacting in digital environments.

6

Digital emotional intelligence



Learning outcomes

By the end of this unit, you should be able to:



- know how to resolve the conflicts that arise when interacting with people from diverse backgrounds on the internet
- communicate comfortably with people who have different backgrounds, appearances, and opinions on the internet
- help other people feel better when they are not feeling well on the Internet (e.g., when they read negative comments or see awful pictures of themselves posted by others).

What is digital emotional intelligence?

- How we feel affects the way that we navigate the digital world.
- Social media and other digital platforms bring us together, but if we don't communicate well, it can also divide us and do harm.
- When we are with people, it is easy to judge their mood and their intention by watching body language and tone of voice. When we communicate digitally, we can only interpret what we see on the screen of our device.
- Our digital actions have real-world consequences.
- We need to develop awareness and skills that help us navigate the digital world so that we can manage the positive and negative impact of interacting digitally.

Physical versus digital emotion indicators and tools

We need to learn how to interpret or read digital emotions. This table compares digital emotion indicators to physical ones.

Digital	Physical
likes/shares/ratings	eye contact
emotions/emojis	smile
emotions/emojis	facial expression
device (mobile phone, tv, laptop, tablet, social media platform or channel)	body language
views	touch
CAPS/stickers/abbreviations	tone of voice
language/image used	language used
silence/no reply	silence
questions	questions
journey (geolocation, website, social media, apps visited) device (mobile phone, tv, laptop, tablet) time (hour, day, week, month, season, year)	journey (where/how/when)
pattern disruption (unusual behaviour)	pattern disruption (unusual behaviour)

Digital emotions are more contagious

Digital emotions spread faster than physical emotion because of the speed of digital communications.

Online communities allow messages to travel further and faster than they do in the physical world.

This is known as “going viral”.

Digital Emotion Communication Tools

Here are some emojis used to communicate digitally.

	Emoticons and emojis represent facial expressions and feelings.
	Hand signals or actions, such as digital gestures (poking, nudging by clicking), can represent intimate interpersonal/emotional actions face-to-face.
	Labels that evaluate, liking, loving, disliking, on sites such as Facebook and Instagram show approval or disapproval.
	Text, the number of words used, the use of punctuation, as well as things like a delay in responding, all carry meaning.
	Strong language or using CAPS refers to stating how you are feeling.
	Voice and video tools like GIFS convey emotions that replace body language.
	Emojis and GIFS can send virtual emotions, like hearts, to replace in-person emotional communication.

Communication styles

The tone you use when communicating can affect the way others respond to you. This is true of face-to-face communication, as well as digital communication.

What type of communicator are you?

- **Passive:** “It really doesn’t matter that much.”
- **Aggressive:** “I’m right and you’re wrong.”
- **Passive-aggressive:** “That’s fine with me, but don’t be surprised if someone else gets mad.”
- **Assertive:** “I respect the rights of others.”

Interpersonal digital interaction

Showing respect for others and making a good impression when communicating on the internet includes many aspects of netiquette.

- Whatever you write or post online, whether in a WhatsApp chat, email or on social media, can be found by others. This includes items that you’ve deleted, and the websites you’ve visited.
- You have a digital footprint that people can track.
- Being polite shows respect.
- Being grateful for compliments, help, or advice shows respect.
- Avoid gossip!
- Write clear, simple sentences that are easy for the person to read and understand.
- Don’t swear, gossip, criticize, judge, or condemn anyone online.
- Use emoticons only when you know exactly what they mean and only when you know a person well.

These principles allow you to communicate your thoughts and feelings freely without fear of offending someone.

It is easy for misunderstandings, prejudices, and a lack of awareness and understanding to occur online.

Communicating comfortably with people who have different backgrounds, appearances, and opinions on the internet means accepting that everyone is different.

The internet, and most especially social media, are places where people with similar interests can get together and share their thoughts and feelings. However, these spaces also allow bullies an opportunity to make others feel bad about themselves. It is acceptable to report and block anyone who makes you feel uncomfortable on social media platforms.

Chat rooms and forums are usually monitored by moderators who look out for conflicts and shut them down. These conflicts can be political, religious, gender, race, sexual orientation, abuse of any kind and negative activism.

It is important to remember that your digital identity is not your entire identity.

Skills to practise

1. Resolve conflicts and communicate comfortably

- a) Set up a Zoom or Skype meeting with everyone in your class.
- b) Choose a topic that is very controversial or problematic in your community.
- c) Start the meeting by setting out the netiquette rules that should be followed during the meeting.
- d) Agree on how you will resolve conflicting opinions without allowing the situation to become unpleasant.
- e) Agree how you will allow others to express their opinions freely, even if you do not agree with them.

2. Help others feel better

Agree how you will support those who feel uncomfortable.

Knowledge and skill checklist



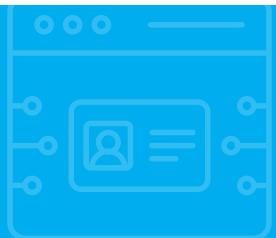
I know how to resolve the conflicts that arise when I interact with people from diverse backgrounds on the internet.

I can communicate comfortably with people who have different backgrounds, appearances, and opinions on the internet.

I can help other people feel better when they are not feeling well on the internet (e.g., when they read negative comments or see awful pictures of themselves posted by others).

7

Managing digital identity



Learning outcomes



By the end of this unit, you should be able to:

- display a variety of specific digital identities
- discuss specific ways to protect my reputation online
- manipulate data I produce through digital tools, environments or services.

Definitions and protecting identity

- The information we leave online about ourselves represents our digital identity. For example, when we use a username and password to authenticate ourselves on a website, we are using our digital identity.
- Many services require us to log in from devices. E-commerce, banking, health services, tax services are just a few examples.
- Our private data is taken and recorded, often without you even realizing it.

Definition of managing digital identity

Managing digital identity means:

- to create and manage one or multiple digital identities
- to be able to protect one's own reputation
- to deal with the data that one produces through different digital tools, environments and services.

Why do we have to worry about our data?

- Every time we use the internet, we are generating data.
- This data is relevant to many companies because it reveals consumer behaviour.
- We leave very important private information online that, if used by others, can be very damaging to us.

Identity theft

- Cybercriminals hack and steal our personal or financial data.
- They are people who specialize in online theft.
- They hack into our systems or use tricks to make victims believe that they can give them information while using secure sites or apps, when in fact they are stealing personal data from the victims.

How to defend ourselves against cybercriminals

Knowing how cybercriminals operate and how they can steal your digital identity is a factor key to preventing them.

Be very careful when using the internet. Never open suspicious emails or messages. You need to be able to recognize whether the information you receive is true or not. Ask:

- Is it written correctly in your language?
- Are there any strange signs?
- Does it talk about operations of which you are not aware?

If you have the slightest suspicion, do not click on links, or download anything. Never click on suspicious links. This is called a phishing attack.

Ways to protect our digital identity

- **Use two-factor authentication:** Authentication of your identity is not only done through one step (e.g., password), but also through additional steps such as entering a code or authorization via the telephone.
- **Change and diversify passwords:** Do not use the same passwords for all your accounts and try to change them often.
- **Avoid sharing sensitive information:** Be careful about the kind of data you share. Try to share only the essentials online.

Skills to practise

1. Display a variety of specific digital identities

Create a list of the different ways that you interact using the internet. The list could include:

- a) online searches
- b) use of google drive
- c) social media apps
- d) email.

2. Discuss ways to protect your reputation

- a) Each of the digital identities listed above will create a digital footprint.
- b) Create a list of what to avoid if you would like to have a positive digital footprint.

3. Manipulate data

- a) Open your internet browser and delete your search history.
- b) Change your password used to login on any app you use.

Knowledge and skill checklist



I can display a variety of specific digital identities

I can discuss specific ways to protect my reputation online

I can manipulate data I produce through digital tools, environments, or services.



Module 4

Content

This module includes the following units:

Unit 1	Developing digital content
Unit 2	Integrating and editing digital content
Unit 3	Copyright and licenses
Unit 4	Programming

1

Developing digital content



Learning outcomes



By the end of this unit, you should be able to:

- produce complex digital content in different formats (e.g., text, tables, images, audio files)
- use tools/editors for creating web page or blog using templates (e.g., WordPress).

Developing digital content

- Digital content is any content you create on a computer, tablet, or mobile phone.
- The content can be:
 - text
 - sound (audio) recorded using a tablet or smartphone
 - videos created using a tablet or smartphone.
 - Some digital content is created for personal use only and is not shared online.
- Examples of local digital content that is not shared:
 - a to-do list created in a plain text editor, such as Windows® Notepad
 - notes, research and website addresses in a Microsoft® Word or Google® Docs document a learner uses to write an assignment
 - a personal budget created on an electronic spreadsheet, such as Microsoft® Excel or Google® Sheets
 - a photo taken on smartphone

- a drawing created with graphics software, such as Adobe® Illustrator
- a voice note recorded on a smartphone
- a video of children playing recorded on a camcorder.

Try this:

- Take a photograph
- Record a voice message
- Create a simple document in a plain text editor or word processor
- Create a table in a document
- Copy web addresses into a document while doing research on the internet
- Record a simple video using a smartphone or tablet.

Using installed applications to create digital content

Try this:

- Design, create, and edit content
- Upload content to an online publication
- Create multimedia articles that contain spreadsheets, graphs and charts, audio, video, and links to external resources found on the web
- Create links to other files that automatically update when the original file is updated.



Tip:

Use Microsoft® Publisher templates with design and multimedia layout before moving on to using a web-building template, such as WordPress.

File formats for digital content

- There are various types of media.
- Within each media type, there are various formats.

- The format of a digital file depends on the formats supported by the hardware and software used to create the file.

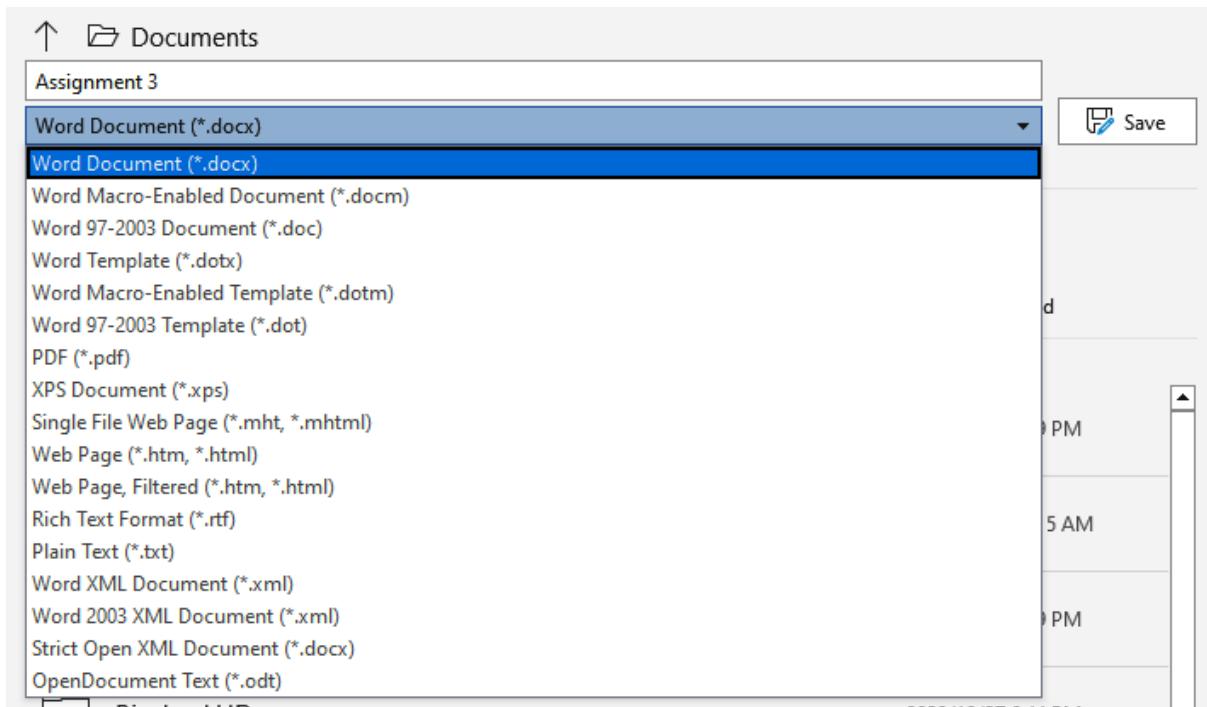


Figure 4.1.1 – File format options

- It's important to select the correct file format when uploading content to the internet.
- Large files upload slowly and use more storage space.
- This will make the user experience frustrating for those who don't have powerful computers with large storage space, or unreliable, slow internet connections.
- Every webpage that a user accesses is downloaded onto their device for display. Downloads of webpages with high-definition video and high-resolution images often fail (the download freezes or fails to open with a time-out error).

Common file formats

Use the most suitable formats for images, videos and audio files when posting digital content to the web:

- Images:** JPG, PNG, and GIF
- Audio:** MP3, WMA, and FLAC
- Video:** AVI, MP4, and MKV



Additional online resources

- This PDF document gives more information on multimedia files:
<http://www.cathkin.s-lanark.sch.uk/faculties/technologies/computing/n3-5/downloads/Media%20Types.pdf>

Web browser support

Most web browsers support the common multimedia file formats. These browsers are:

- Microsoft® Edge
- Google® Chrome
- Mozilla® Firefox
- Apple® Safari

Common types of online digital content

Blogging

- Blog posts are a way of creating engaging content.
- Blogs allow you to present information in an informal way.
- It's time consuming to maintain a successful blog so plan and create a bank of materials for your first two to three months of content.
- Implement a schedule for uploading new episodes or blog posts.



Additional online resources

- If you are inspired to start your own blog, you can find more information here:
https://www.wix.com/blog/2021/02/how-to-start-a-blog/?utm_source=google&utm_medium=cpc&utm_campaign=9852964004^122617225367&experiment_id=^b^504114447774^^DSA&qclid=CjwKCAjwh5qLBhALEiwAiods-cyIXXhYEWcT_ZrqTbAelxQDqSkTV_pdkfnoxlptSsbyI02lw87MxoC6dwQAvD_BwE



By GUILLAUME DECUGIS published JULY 13, 2016
 Content Marketing Strategy / Content Marketing Tools and Technology / SEO

7 Ways Technology Can Make You a Smarter Content Marketer

Marketers have high expectations of technology's effect. We recently surveyed 300 marketers and at least two-thirds said it's likely or very likely that technology will make content marketing significantly more efficient in the various tasks of the life cycle.



They're right. When used appropriately, technology can bring more efficiencies — a tactical benefit. However, I prefer to emphasize that when used strategically, technology helps

Figure 4.1.2 – An example of an attractive blog design

Longform content

- Most people like to receive their information in short, bite sized chunks.
- Some people define longform content as articles longer than 700 words, while others think it must exceed 1,800 words.
- Longform content articles appeal to enthusiastic readers; it engages them and provides them with an escape.
- This type of content works well with Search Engine Optimization (SEO).
- Using SEO effectively can help to ensure that your content lands on readers' screens.



Additional online resources

Tips for making your content readable and valuable:
<https://medium.com/swlh/10-tips-to-make-long-form-content-readable-and-valuable-5b6e117965ae>

Infographics

- Infographics are very useful because they catch the eye of the user and draw them in.
- Infographics provide lots of information in a quick snapshot.



Figure 4.1.3 – An example of an infographic

- Use Canva or Visme to create brief imagery, to share with your audience.

Click here to try out Canva: <https://www.canva.com/>

Podcasts

- Podcasts are the new and innovative way to consume information of all kinds.
- Podcasts allow people to listen to digital content while they are busy doing other physical tasks.

Click here for a how to get started with your podcast:

<https://www.thepodcasthost.com/planning/how-to-start-a-podcast/>

Video and vlogs

- Video is the ideal way to get in touch with your audience.
- Video content is diverse and can be captivating to the user.
- Short explainer videos can be much more effective in engaging your users, taking up a little of their time but leaving them with lots of information in return.
- The term ‘vlog’ is a combination of the words ‘blog’ and ‘video’.
- A vlog is a personal blog on which a vlogger regularly posts short videos of interest to their audience.
- Vlogs usually include text and other content that support or explain each video.
- Many vloggers record themselves talking about a specific subject.
- Videos and vlogs can be published on a website created by the blogger or vlogger, or using an existing platform like YouTube, or to a platform such as TikTok.

Click to try out Powtoons, which is an online tool you can use to create simple animation for explainer videos: <https://www.powtoon.com/>

Create a website

- Websites connect businesses, professionals, groups, and individuals to one another.
- Websites are used for a wide variety of reasons.

Reasons for creating a website

Businesses, groups, schools, and other organizations create websites for the following reasons:

- Professionalism and increased trust
- To increase the number of customers (increase profit)
- To supply contact information to potential customers and clients
- To do live chats to provide customer support.

Create a website using a template and existing platform

- There are many excellent free website platforms with varying features.
- Here are some free website builders you can use to create your own website based on a design template.
- You don't need to know how to code the website and you don't need to design the layout.
 - About.me
 - Google® Workspace (formerly Google® Sites)
 - Wix
 - WordPress

Skills to practise

1. Produce complex digital content

- a) Create a list of the birthdate of everyone in your class.
- b) Open Excel or any other programme and create a pie chart showing the number of birthdays in each month of the year.
- c) Use this website to help: <https://www.wikihow.com/Make-a-Pie-Chart-in-Excel>

2. Use a template

Follow the steps in this website and create a blog:
<https://websitesetup.org/how-to-start-a-blog-guide/>

How to Start a Blog in 5 Easy Steps

- **Step 1:** Choose your blog topic and name
- **Step 2:** Find the right blogging platform
- **Step 3:** Set up web hosting
- **Step 4:** Configure your blog
- **Step 5:** Design and customize it

Time to set up a blog: 30–40 minutes

Time to customize a blog: 1–2 hours

Guide difficulty: Beginners

Knowledge and skill checklist



I can produce complex digital content in different formats (e.g., text, tables, images, audio files).

I can use tools/editors for creating web page or blog using templates (e.g., WordPress).

2

Integrating and re-elaborating digital content



Learning outcomes

By the end of this unit, you should be able to:

- apply basic formatting (e.g., insert footnotes, charts, tables) to the content you or others have produced.

Content creation

- Content creation and integration is to modify, refine and integrate new information and content into an existing content and resources to create new, original and relevant content and knowledge.
- You should ask: Who am I trying to reach?
- Start by carrying out research to ensure you are making the right choice.

Storing your content

- You should know the safest way save your content for ease of access but also security.
- Cloud file sharing can be a useful platform, which allows you to access content from any device.
- Discover Dropbox, Google Drive, and One Drive and change the way you share your materials.

Practise these skills:

- Use the Home tab in Word to practise basic text formatting.

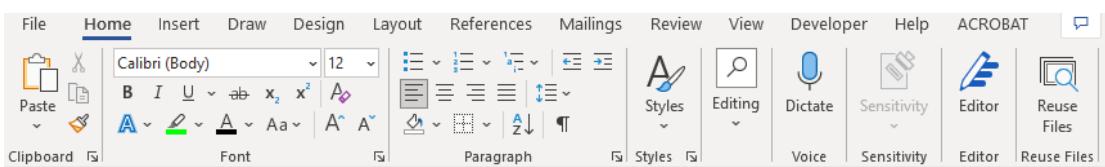


Figure 4.2.1 – The home tab

- Practise using the Insert tab to add or insert new features or content to your document.

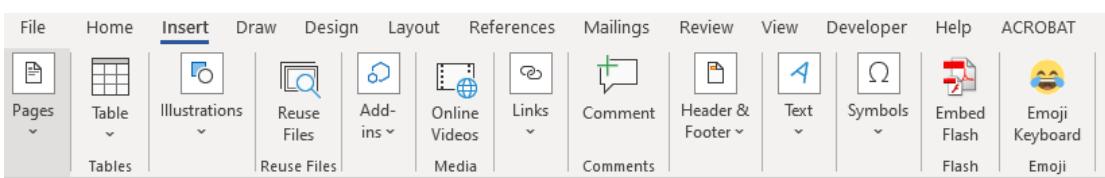


Figure 4.2.2 – The insert tab

- Practise using the design tab for using built-in themes and effects.

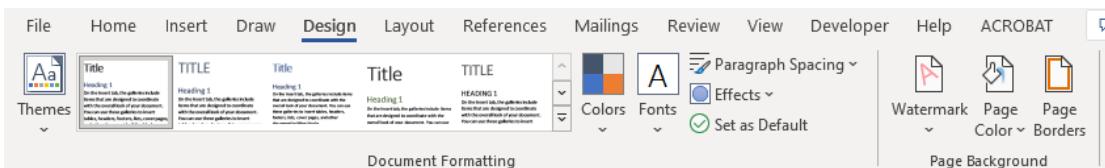


Figure 4.2.3 – The design tab

- Practise using the layout tab to set up a page sizes, orientation and margins.

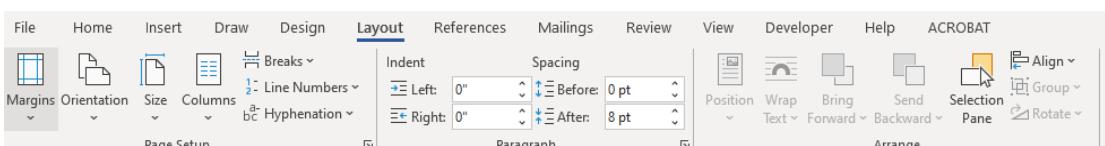


Figure 4.2.4 – The layout tab

Skills to practise

Apply basic formatting

Watch the video about footnotes: <https://support.microsoft.com/en-us/office/insert-footnotes-and-endnotes-61f3fb1a-4717-414c-9a8f-015a5f3ff4cb>

Watch this video about content tables: <https://support.microsoft.com/en-au/office/insert-a-table-of-contents-882e8564-0edb-435e-84b5-1d8552ccf0c0>

Your facilitator will give you a text document.

1. Change the font style and size.
2. Create headings in the document.
3. Add a contents table at the start of the document.
4. Insert a footnote at the bottom of each page.

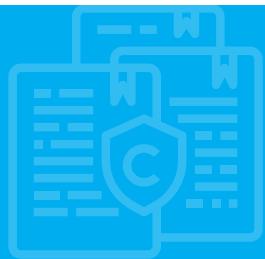
Knowledge and skill checklist

I can apply basic formatting (e.g., insert footnotes, charts, tables) to the content I or others have produced.



3

Copyright and licenses



Learning outcomes

By the end of this unit, you should be able to:

- know how to reference and reuse content covered by copyright.

What is copyright?

- Copyright ownership gives the owner exclusive rights to use the work, with some exceptions.
- When a person creates an original work, fixed in a physical form (electronic or hardcopy), they automatically own copyright to the work. Many types of works qualify for copyright protection, for example:
 - Audiovisual works, such as TV programmes, films and online videos
 - Sound recordings and musical compositions
 - Written works, such as lectures, articles, books and musical compositions
 - Visual works, such as paintings, posters and advertisements
 - Video games and computer software
 - Dramatic works, such as plays and musicals.

Using a copyright-protected work without infringing

- It's possible to use a copyright-protected work without breaking the owner's copyright.

- Some content owners make their work available for reuse with some limitations under a *Creative Commons* license.
- There are six Creative Commons (CC) licenses.

LICENSES	TERMS
	 Attribution Others can copy, distribute, display, perform and remix your work if they credit your name as requested by you
	 No Derivative Works Others can only copy, distribute, display or perform verbatim copies of your work
	 Share Alike Others can distribute your work only under a license identical to the one you have chosen for your work
	 Non-Commercial Others can copy, distribute, display, perform or remix your work but for non-commercial purposes only.
	

Figure 4.3.1 – Creative Commons content may be licensed in different categories

Copyright law

- Copyright law exists in all countries.
- Work created in a country is subject to the copyright laws of that country and the copyright laws of the country in which it may be used.

Copyright law and the internet

- The internet makes it very easy to copy other people's work directly into your own document.
- It's **illegal** if you do not acknowledge the person who created it.
- The creator is the owner of that content, so copying it and letting people think it is your own work is plagiarism, which is a form of **theft**.

- This applies to all types of content, such as written content, images, videos, and audio recordings.
- You can reuse any content you if:
 - you don't sell it for profit
 - if you write a reference to the owner below it or next to it.
- Plagiarism 'hunters' copy and paste suspicious content into a search engine. For example:

"There are 11 top emerging technology trends to watch."

And this popped up at the top of the results:

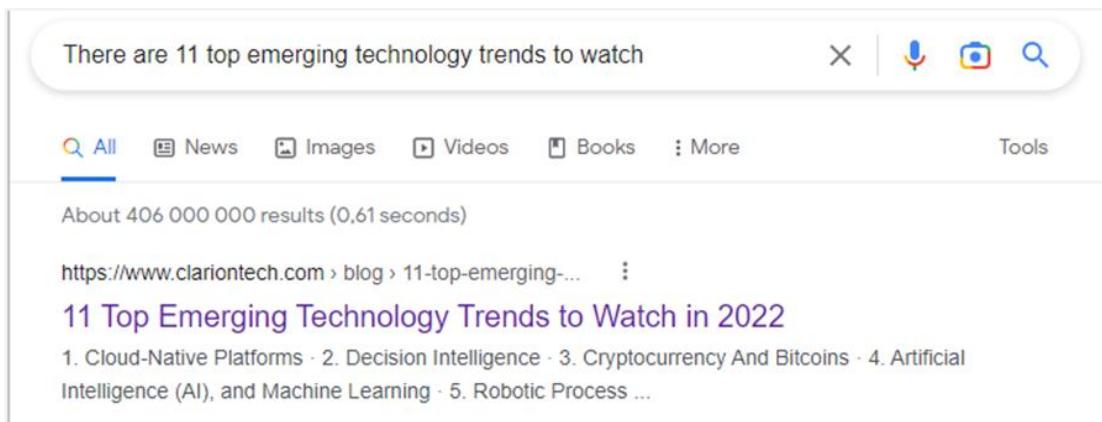


Figure 4.3.1 – The webpage, scroll to the bottom

If you had scrolled to the bottom of the landing page, you would have seen that the material on the site is copyright.

Copyright 2022 Clarion. All Rights Reserved.

Figure 4.3.2 – Highlight the copyright at the bottom of the site

If you choose to use the information from the article, you add this as a footnote:

Adapted from: *11 Top Emerging Technology Trends to Watch in 2022* on <https://www.clariontech.com/blog/>. Information accessed on 13 March 2022.

Online plagiarism checkers

- Free plagiarism checker apps allow people to upload suspicious content for checking.
- The checker compares the suspicious content with content in hundreds of similar or related documents.
- It is very difficult to get past these checkers as they check and compare word for word and line by line.

Skills to practise

Reference content in your blog

1. In Unit 4.1, you created a blog. While writing content for your blog, you may use content that is copyrighted.
2. Read the guidelines in this website to make sure that you cite other sources correctly: <https://makersaid.com/blog/how-to-cite-sources-in-a-blog/>

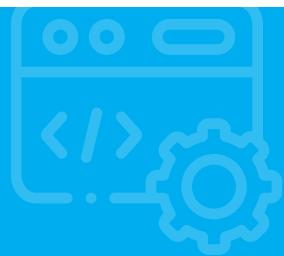
Knowledge and skill checklist

I know how to reference and reuse content covered by copyright.



4

Programming



Learning outcomes

By the end of this unit, you should be able to:

- know the basics of one programming language.

Programming and coding basics

- The operating system in a computer is the bridge between the hardware and the user. Without an operating system, the computer would not start up or run.
- Software consists of programs that let the user speak to the operating system. A program is a list of instructions that are passed to the operating system for execution in the processor.
- Without software, the operating system would have nothing to do other than keep the computer up and running.

Writing a program

- All programs go through set stages, where the programmer follows this process:
 - Decides how to program a solution to solve a problem.
 - Draws a flow diagram to show input, processing and output of each module or section in the program.
 - Writes an algorithm or pseudocode, setting out all the instructions in human language, thus creating a program structure.
 - Codes the algorithm using a suitable programming language.
 - Tests and debugs the program until it is functioning correctly.

- Documents the program for handover to the client.

What are basic programming languages?

- Basic programming languages include a set of vocabularies coders use in software development to create and maintain applications, queries, and scripts for different applications.
- Computers use various languages to communicate. These programming languages translate human input into machine-readable code.
- Programming languages have rules and set structures.
- Some programming languages are used for specific applications, while others are compatible with many systems.
- Coding is a key element in the software development cycle.
- Software developers understand how to use a language, write the source code in a text editor, execute it on an interpreter, or compile it for execution.

The importance of learning how to code

- The main benefits of learning basic programming languages are that it can:
 - increase the number of job opportunities
 - lead to career promotions within your department or organization
 - increase the number of approaches you can use to solve a problem or requirement
 - lead to contracts or opportunities as a freelancer
 - teach you how to combine technical skills and creativity
 - equip you with knowledge of how software systems work
 - teach you persistence, organizational flexibility, and problem-solving skills.

Most popular programming languages to learn

- Each language has advantages and areas of application. Identifying them can help you decide which language to learn.

- Here are five basic programming languages to explore:
 - Python
 - Java
 - JavaScript
 - C and C++
 - Structured Query Language (SQL)

Skills to practise

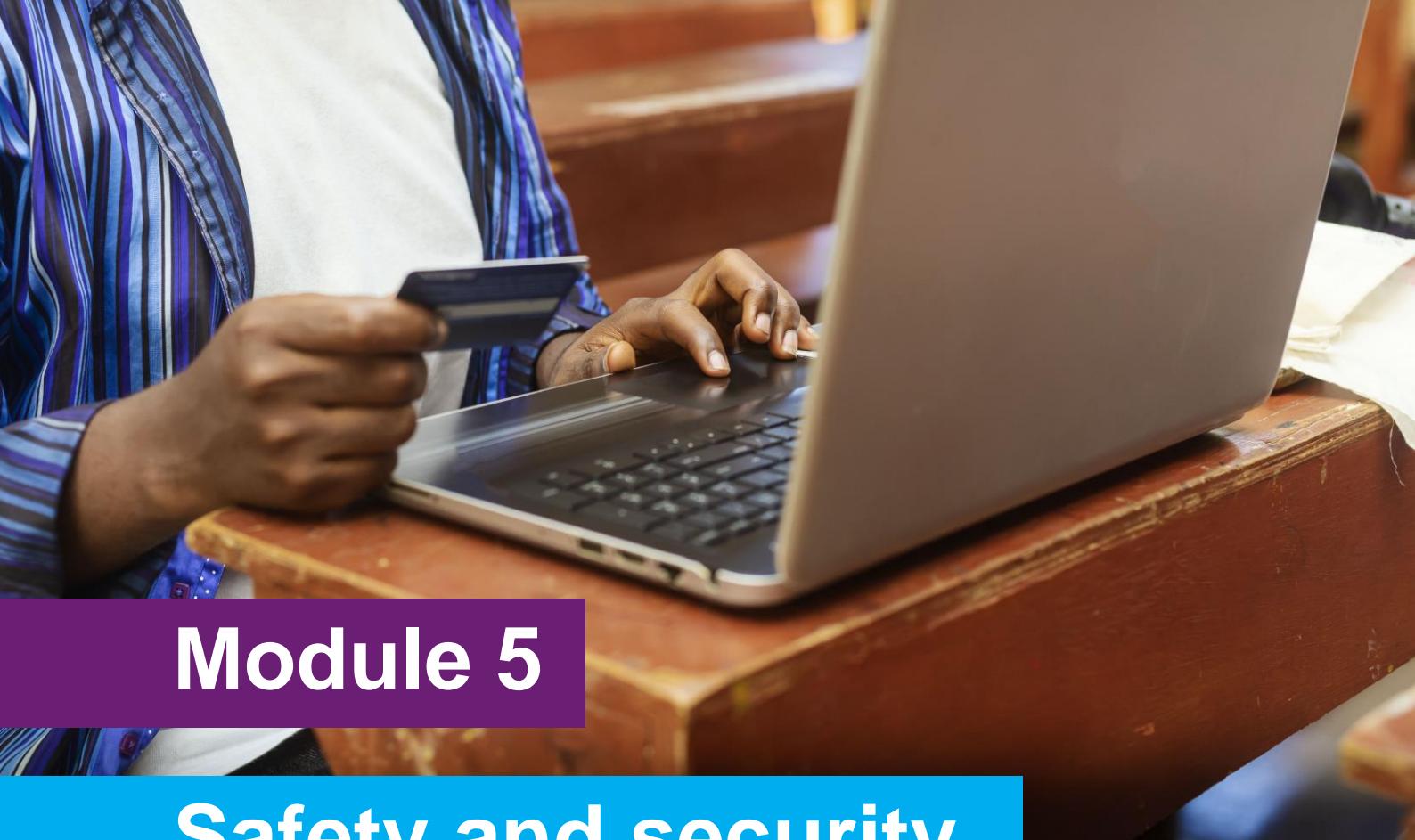
Learn about several programming languages

1. Read this article about programming languages:
<https://www.idtech.com/blog/choose-best-programming-language-your-child>
2. Based on what you have read in this article, choose one programming language that you would like to learn more about.
3. Use your browser and search YouTube for simple “How to...” videos to get you started on your learning journey.

Knowledge and skill checklist

I know the basics of one programming language.





Module 5

Safety and security

This module includes the following units:

Unit 1	Protecting devices
Unit 2	Protecting personal data and privacy
Unit 3	Protecting health, well-being and building digital resilience
Unit 4	Protecting the environment

1

Protecting devices



Learning outcomes



By the end of this unit, you should be able to:

- install security programmes on the device(s) that you use to access the internet (e.g., antivirus, firewall)
- run these programmes on a regular basis and update them regularly.

Take note:

Remind learners of these security basics

When you purchase a new laptop, it will have no software installed. You will need to purchase or download free software including antivirus software.



When you purchase a tablet or a smartphone, it will have software installed or you will need to download free or pay for software from the App Store.

Remember that if you use any of these devices at your school or community centre, you are not allowed to change default settings or download software. This included antivirus software or firewalls. Only the Network Administrator will have access to do this.

Security and passwords

Change default log-in passwords and usernames

- Devices come with default passwords.
- If you leave these unchanged, you create opportunities for unauthorized access.

Use strong and unique passwords

- Choose strong passwords to help secure your devices.
- Don't use the same password with multiple accounts.

Why do you need strong passwords?

- Tracking all your personal identification numbers (PINs), passwords, or passphrases can be difficult.
- Different number, letter, and word combinations is important.
- Hackers are a threat to your information.
- If someone has access to your password, they could also pretend to be you.
- Protect information by ensuring that only authorized people have access to it. Authenticate anyone who requests access.
- Passwords only work if they are complex and private.

Avoid common mistakes

People use passwords based on personal information and are easy to remember. This makes it easier for an attacker to crack them.

- Consider a four-digit PIN.
- Ask yourself the following questions. If you answer 'yes' to any of these questions, consider changing your password or passcode:
 - Is it a combination of the month, day, or year of your birthday?
 - Does it contain your address or phone number?
 - Does it contain your birthdate, birth year, or the birthday of a close friend or family member?
 - Is it a word that can be found in the dictionary?

- Intentionally misspelling a word ("daytt" instead of "date") offers protection against dictionary attacks, a better method is to rely on a series of words and use memory techniques remember how to decode it.

Length and complexity

- Use a password or passphrase longer than the minimum allowed characters.
- Include upper and lowercase letters, numbers, and special characters.
- Avoid common phrases, famous quotations, and song lyrics.

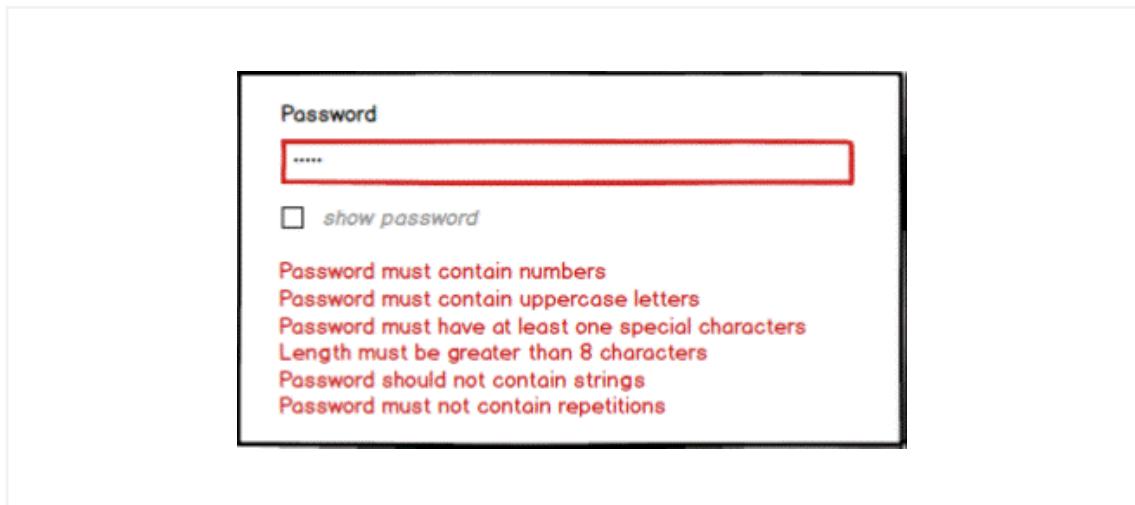


Figure 5.1.1 – Some apps provide guidelines on how to create a strong password

Dos and don'ts

- Don't reuse passwords.
- Reusing a password endangers accounts just as much as using a weak password.
- Use these techniques to develop unique passwords for each of your accounts:
 - Use different passwords on different systems and accounts.
 - Use a password or passphrase longer than the minimum allowed password.
 - Develop ways to remember complex passwords.
 - Consider using a password manager program to keep track of your passwords (see more information below).
 - Do not use passwords that are based on personal information that can be easily accessed or guessed.
 - Do not use words that can be found in any dictionary of any language.

Protect your passwords

- Don't write passwords and leave them where others can find them.
- Do not tell anyone your passwords.
- If you write them down, keep them in a safe place.
- Programs called password managers can randomly create passwords.
- Web browsers save passwords, always log out when you are using a public computer. Avoid using public computers and public Wi-Fi to access bank accounts and email.

Tip:

Don't forget security basics



- Keep your operating system, browser, and other software up to date.
- Use and maintain antivirus software and a firewall.
- Regularly scan your computer for spyware. (Some antivirus programs incorporate spyware detection.)
- Use caution with email attachments and untrusted links.

Protecting devices

The importance of computer security

- We view and upload personally identifiable information on our computers.
- It's important to implement and maintain computer security.
- Strong computer security ensures safe processing and storage of our information.

Improving computer security

Follow these steps to make your computer more secure.

Step 1 Secure your home network

Secure your router – the first device that receives information from the internet.

Step 2 Home network security

Home network security is the protection of a network that connects devices – such as routers, computers, smartphones – to each other and to the internet within a home.

Follow effective techniques to reduce the attack surface of your home network and make it difficult for a malicious cybercriminal to launch an attack.

Threats can be from viruses or from a specific person hacking into your system.

Antivirus software is a protective measure against known malicious threats. It can automatically detect, quarantine, and remove malware, such as viruses, worms, and ransomware.

Step 3 Regular software updates

Update software regularly.

Besides adding new features and functions, software updates include patches and security fixes for newly discovered threats and weaknesses.

Most modern software applications (apps) will automatically check for newly released updates. If automated updates are not available, consider purchasing a software program that identifies and centrally manages all installed software updates.

Patches are software and operating system (OS) updates that address security weaknesses within a program or product.

Software updates

Find software updates to install

- Software updates are advertised for users to download and install.
- Install updates as soon as possible.
- Some devices have software that will automatically check for updates, and suppliers offer the option to receive updates automatically.

When using a computer in a classroom or work setting, you cannot download and install software as the device does not belong to you.

- If it is your own device, make sure that you only download software updates from trusted supplier websites.
- Do not trust a link in an email message.
- Distrust email messages that claim to have a software update file attached.
- Only apply automatic updates from trusted network locations.
- Avoid updating software (automatically or manually) while connected to public networks.

- If updates must be installed over a public network, use a Virtual Private Network (VPN) connection.

Manual and automatic updates

- Users can install updates manually or automatically.
- Manual updates require the user or administrator to visit the supplier's website to download and install software files.
- Automatic updates require user or administrator consent when installing or configuring the software.

Best practices for software updates

Follow these guidelines about software updates:

- Enable automatic software updates whenever possible.
- Do not use unsupported EOL software.
- Always visit supplier sites directly.
- Avoid software updates while using public networks.

End-of-life software

- Suppliers will discontinue support for a software program when they launch a new version of the software.
- When updates are discontinued for a software program, it is known as end-of-life (EOL) software.
- Continued use of EOL software is a risk to your system.
- The use of unsupported software can cause software compatibility issues, as well as decreased system performance and productivity.

Remove unnecessary services and software

- Disable all unnecessary services to reduce the chance of attack on your devices.
- Unused or unwanted services and software can create security holes on a device's system.



Tip:

Remember that you should not remove any software from a device that you do not own.

Adjust factory-default configurations on software and hardware

- Many products come with factory-default settings.
- These default settings are not secure.
- Take steps to harden the default settings to protect against intrusions.

Increasing security

Run up-to-date antivirus software

As previously mentioned, running an up-to-date antivirus program is essential.

Install a network firewall

- A firewall is a type of program that blocks malicious traffic from entering your network and warns you of any dangerous activity.
- It serves as a barrier for internal threats, preventing unwanted or malicious software from reaching out to the internet.
- Some firewall features may be turned off by default.
- Ensure that the firewall is on, and all the settings are properly configured.



Tip:

Your Internet service provider (ISP) may be able to help you determine whether your firewall has the correct settings for your equipment and needs.

Skills to practise

1. Install security programs

- a) Remember that you may not install security programs onto a device that you do not own. But you should know how to install one should you purchase a device.
- b) Complete an internet search to find out which are the most reliable antivirus software programmes available and the cost.
- c) Investigate the steps needed to install your chosen software should you purchase it.

2. Update your security program

- a) If you are using a device at your school or community centre, only the network administrator will have access to update software.
- b) Go to the settings of the device you are using and check if all software is up to date. If not, notify your facilitator or the network administrator.
- c) Complete research on the internet so ensure that you know how to update software should you own a device.

Knowledge and skill checklist

I have checked that security programs are installed on the device(s) that I use to access the internet (e.g., antivirus, firewall).



I can run these programs on a regular basis and update them regularly.

2

Protecting personal data and privacy



Learning outcomes



By the end of this unit, you should be able to:

- take more complex steps and a range of approaches to protect your data and privacy
- be able to take concrete action if your data and privacy is compromised
- understand and describe privacy policies.

Protecting yourself online

How can you protect yourself?

- Limit the amount of personal information you share.
- Remember that the internet is a public resource.
- Be wary of strangers.
- Be sceptical.
- Evaluate your settings.
- Be wary of third-party applications.
- Check privacy policies.

The threats that social networking sites present

- Many sites have age restrictions; children may misrepresent their ages so that they can join.
- Be aware that not everyone may be the age and the person they are pretending to be.

Guidelines for sharing personal information

View the internet as a novel, not a diary

- Make sure you are comfortable with anyone seeing the information you put on blogs, social networking sites, and personal websites.
- If you want the information to be private or restricted to a small, select group of people, the internet is not the best place for this.

Limit the amount of personal information you post

- Do not post information that could make you vulnerable, such as your address, phone number, email, or information about your schedule or routine.
- Supplying your email address may increase the amount of spam you receive.
- Providing details about your hobbies, your job, your family and friends, or your past may give attackers enough information to perform a successful social engineering attack.

Realize that you cannot take it back

- Once you publish something online, it is available to other people and to search engines.
- You can change or remove information, but it is possible that someone has already seen the original version.
- Think about these possible results before publishing information: once something is out there, you cannot guarantee that you can completely remove it.
- Before you publish something on the internet, determine what value it provides and consider the implications of having the information available to the public.

How anonymous are you?

- You are never anonymous as you browse websites, pieces of information are always left behind.
- You can reduce the amount of information by visiting legitimate sites, checking privacy policies, and providing as little personal information as possible.

What information is collected?

When you visit a website, a certain amount of information is automatically sent to the site. This information may include the following:

- IP address
- Domain name
- Software details
- Page visits

Reduce email threats

- Phishing emails are the most common attack routes used for malware delivery and credential harvesting.
- A phishing email is an email that is sent to you pretending to be for a certain purpose, to get a response from you and your personal details.
- It relies on you making a mistake and answering the email or clicking on a link in the email.
- There are many indicators that can help you to identify a phishing email.
 - Banks will never send an email with a link to update something on your account.
 - Check for spelling mistakes or strange addresses.
 - Do not click on links from emails.

Avoiding social engineering and phishing attacks

Do not give sensitive information unless you are sure the sender is who they say they are.

Social engineering attacks

- In a social engineering attack, an attacker uses human interaction (social skills) to get information about an organization or its computer systems.
- By asking questions, they may get information to cause damage.
- They may use multiple sources within the same company and rely on the information from the first source to add to their credibility.

Phishing attacks

- Phishing is a form of social engineering.
- Phishing attacks use email or malicious websites to find out personal information by posing as a trustworthy organization.
- Attackers often take advantage of current events and certain times of the year.

Vishing attacks

- Vishing is a similar concept but occurs over the phone – the person will call pretending to be from a certain company and may ask personal questions.
- Attacks could use Voice-over Internet Protocol (VoIP) solutions and broadcasting services.

Smishing attacks

- Smishing is a similar concept, but the person uses SMS, or text, messages.
- Text messages can contain links to webpages, email addresses or phone numbers that when clicked may automatically open a browser window or email message or dial a number.

Skills to practise

Investigate data protection and privacy

1. Complete an internet search to find out the type of privacy settings that are necessary for a laptop, tablet, and smartphone.
2. Extend your search to find out how to change the privacy settings of a laptop, tablet, and smart phone.
3. Look at and take note of the privacy setting on the device you are using. If it is in the computer centre at your school or community centre, only the network administrator will have access to change the settings.
4. If you feel that the privacy of the device has been compromised, notify your facilitator.
5. Ask the facilitator to help you change your password if you do not have access to do this yourself.

Knowledge and skill checklist



I can take more complex steps and a range of approaches to protect my data and privacy.

I can be able to take concrete action if my data and privacy is compromised.

I understand and describe privacy policies.

3

Protecting health, well-being and building digital resilience



Learning outcomes

By the end of this unit, you should be able to:



- understand the health risks associated with the use of digital technology (e.g., ergonomic, risk of addiction).
- take more complex steps and a range of approaches to protect myself from risks
- be able to take concrete action if you face risks online
- take more complex actions to not put others at risk
- be able to help others with any issues they may face online.

Negative effects of technology: what to know

- Some forms of technology may have made positive changes in the world, there is also evidence for the negative effects of technology and its overuse.
- Social media and mobile devices may lead to psychological and physical issues.

Physical health effects

Technology use may also increase the risk of physical issues.

Eyestrain

- Using technologies for long periods may lead to eyestrain.
- Symptoms of digital eyestrain can include blurred vision and dry eyes.
- Eyestrain may also lead to pains in other areas of the body, such as the head, neck, or shoulders.

- Several technological factors may lead to eyestrain, such as:
 - screen time
 - screen glare
 - screen brightness
 - viewing too close or too far away
 - poor sitting posture
 - underlying vision issues.
- Take regular breaks away from the screen.

The 20-20-20 rule for digital viewing

- When using any digital screen for long periods of time, use the 20-20-20 rule.
- After every 20 minutes of screen time, take a 20-second break to look at something at least 20 metres away.

Poor posture

- Often computer users have a “down and forward” position, meaning the person is hunched forward and looking down at the screen.

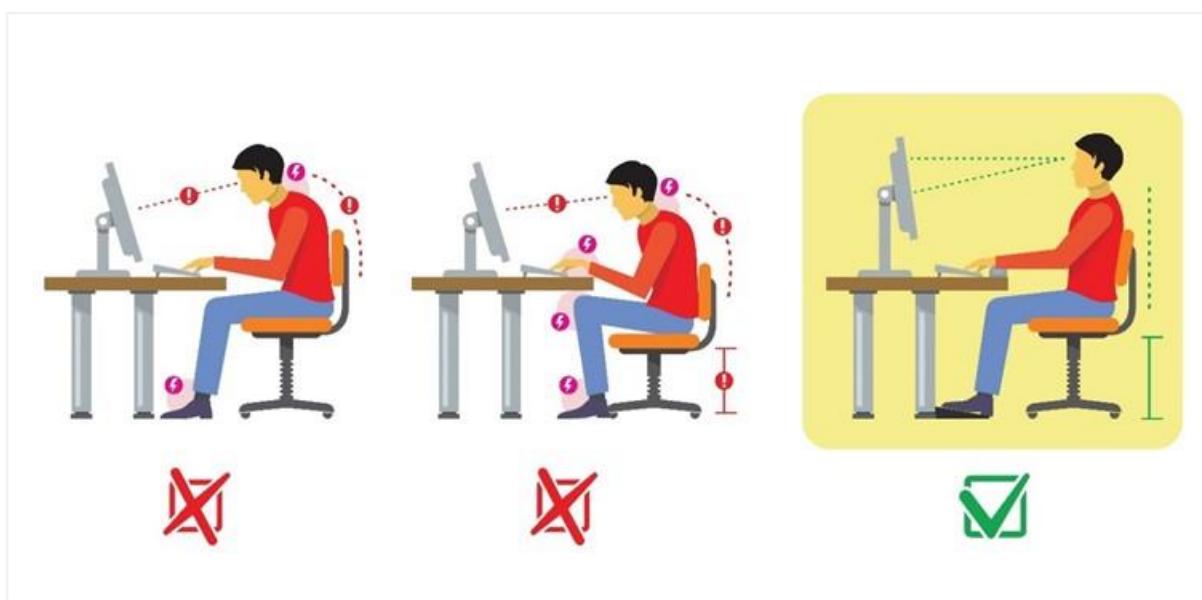


Figure 5.3.1 – Correct posture while working is vital for health

- This can put pressure on the neck and spine and can cause neck and shoulder pain or stiffness.

- Corrections:
 - Strengthen the core, neck, and back muscles
 - Face the computer directly
 - Take regular breaks and move your body/change positions.

Sleep problems

- Using technology too close to bedtime may cause issues with sleep.
- This is because blue light, such as the light from cell phones, tablets and computers, stimulates the brain.
- It makes it harder to fall asleep or lead to a person feeling less alert the next day.
- To avoid the impact:
 - stop using electronic devices an hour or two before bedtime.
 - wind down by reading a book, doing gentle stretches.

Reduced physical activity

- Using devices for long time periods leads to a less active lifestyle, which has negative health effects, such as contributing to:
 - obesity
 - cardiovascular disease
 - type 2 diabetes
 - premature death.
- Stand up and stretch or walk a little at regular intervals.

Cyberbullying

- Cyberbullying is using technology to harass or bully someone else.
- Devices offer bullies opportunities such as email, instant messaging, webpages, and digital photos.
- Cyberbullying can range from cruel or embarrassing rumours to threats, harassment, or stalking.
- It can affect any age group; however, teenagers and young adults are common victims, and cyberbullying is a growing problem in schools.

How can you protect yourself?

- Learn good online habits. Learn the risks of technology and how to be responsible online. Reduce the risk of becoming cyberbullied by setting guidelines for and monitoring use of the Internet and other electronic media.
- Watch for warning signs in the language used online, and if you start to feel uncomfortable with a situation, cut off contact immediately.
- Limit availability of personal information.
- If the situation escalates to cyberbullying, communicate this to someone who can help.
- Avoid escalating the situation. Responding with hostility is likely to provoke a bully and escalate the situation.
- Document the activity. Keep a record of any online.
- Report cyberbullying to the appropriate authorities. Many schools have instituted anti-bullying programs, so school officials may have established policies for dealing with activity that involves learners. If necessary, contact your local law enforcement.

Psychological effects

- Overuse or dependence on technology may have adverse psychological effects, including isolation.
- Finding ways to reduce social media use, such as setting time limits for social apps, may help reduce feelings of isolation in some people.

Depression and anxiety

- People who had more positive interactions and social support on these platforms appeared to have lower levels of depression and anxiety.
- People who perceived that they had more negative social interactions online and who were more prone to social comparison experienced higher levels of depression and anxiety.
- There does appear to be a link between social media and mental health – a significant determining factor is the types of interactions people feel they are having on these platforms.

Skills to practise

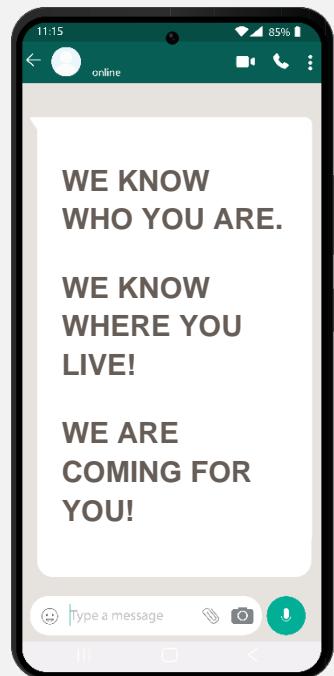
1. Protect your health

- a) Keep a calendar of the amount of time that you spend on a digital device per day.
- b) Complete an internet search to find out the maximum time a teenager should spend on a device, especially playing games or on social media.
- c) If you are spending more time than is considered healthy, design a strategy to reduce your screen time.

2. Protect yourself and others

Look at the message on the phone screen that you or one of your friends have received:

- a) Receiving a message like this can be a threat to your safety. Report such a message to a responsible adult immediately.
- b) Consider switching off the GEO location of your device.
- c) If the message is received via social media – change your profile and leave the group.
- d) You may need to delete the app.
- e) Do the same for your friend.



Knowledge and skill checklist

I understand the health risks associated with the use of digital technology (e.g., ergonomic, risk of addiction).



4

Protecting the environment



Learning outcomes

By the end of this unit, you should be able to:

- understand the positive and negative impact of technology on the environment.

Proper disposal of electronic devices

Computers and other electronic devices contain different metals, plastics, raw materials and chemicals, and need to be disposed of correctly.

Types of electronic devices include:

- computers, smartphones, and tablets
- digital media
- external hardware and peripheral devices
- gaming consoles.

Safely disposing of out-of-date electronic devices

- Electronic waste, or e-waste, is a term used to describe electronics that are nearing the end of their useful life and are donated or recycled.
- Dispose of e-waste by contacting a business that specializes in e-waste disposal and requesting a designated e-waste drop off location.
- Be aware that, although there are many options for disposal, it is your responsibility to ensure that the location chosen is reputable and certified.

Skills to practise

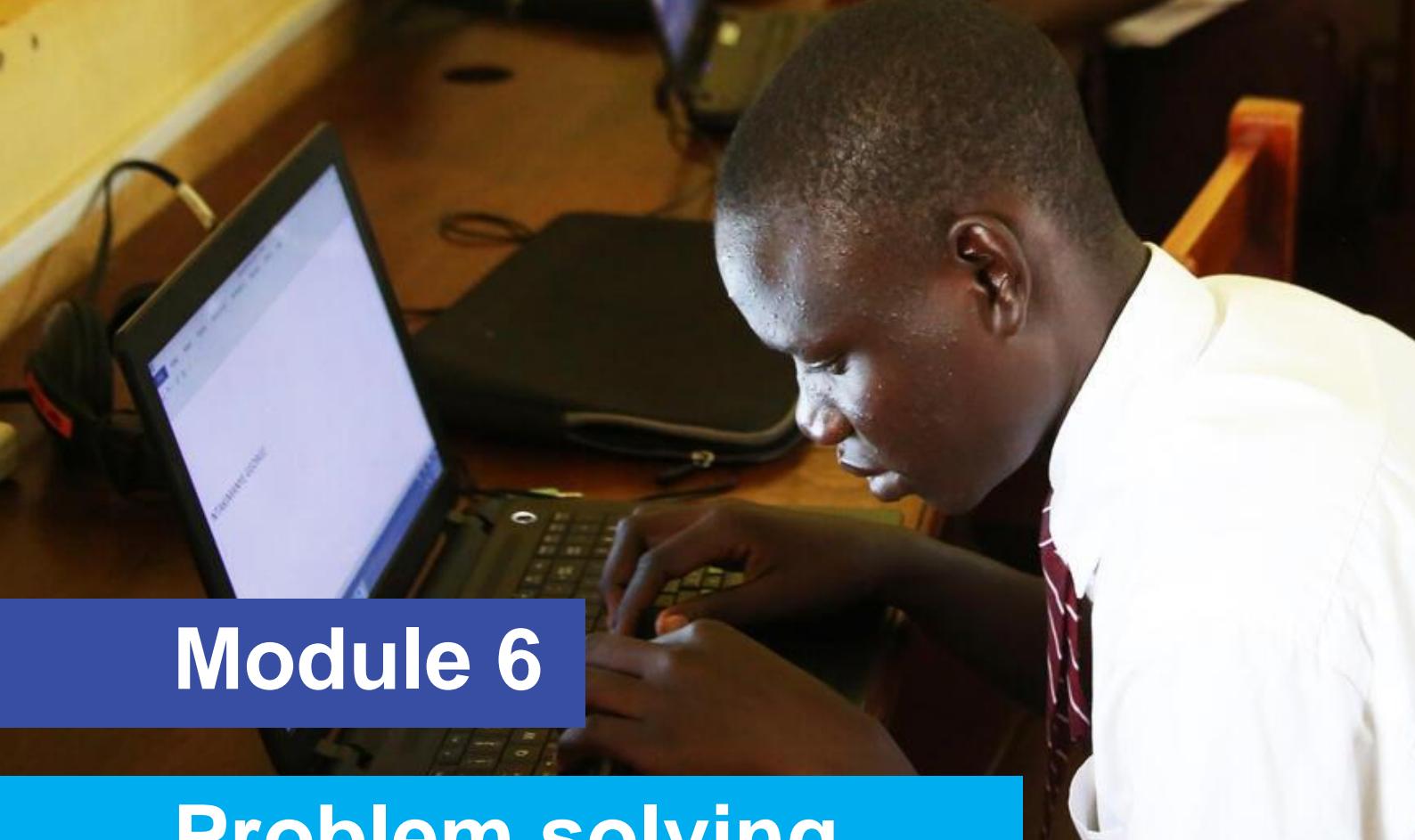
Research the impact of technology on the environment

1. Make a list of the electric machines found in your home and community.
2. Complete an internet search on each to find out the amount of electricity each consumes.
3. Research alternative ways to complete the tasks that the machines do, while reducing the amount of electricity used. Note that some machines are essential, and the aim is not to get rid of the machines, but to rather use them more efficiently.
4. Complete an internet search on ‘electronic waste’ and electronic recycling’. Create a strategy on how to encourage recycling and reduce waste.

Knowledge and skill checklist

I know that old electronic devices must be disposed of correctly, as they can be harmful to the environment.





Module 6

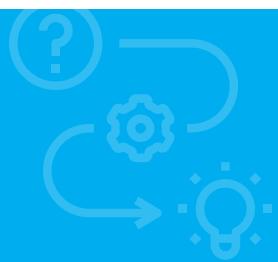
Problem solving

This module includes the following units:

Unit 1	Solving technical problems
Unit 2	Identifying needs and technological responses
Unit 3	Creatively using digital technologies
Unit 4	Identifying digital competence gaps

1

Solving technical problems



Learning outcomes

By the end of this unit, you should be able to:

- solve most of the more frequent problems that arise when using digital technologies

Hardware vs software

Hardware

any part of a computer that has a physical structure – the keyboard, mouse or internal parts.

Software

the instructions that tells the hardware what to do and how to do it.

Operating systems (OS)

- An operating system is the software that runs on a computer.
- It manages the computer's memory and processes.

Most common technical problems

The computer won't start	<ul style="list-style-type: none">• Could have a failing power supply.	Check <ul style="list-style-type: none">• that the computer is plugged into the power point properly• that the computer is switched on. Try <ul style="list-style-type: none">• using a different power supply• testing the power plug (in the wall).
The screen is blank	<ul style="list-style-type: none">• The computer is on, but the screen is blank.• There may be an issue with the connection between the computer and the screen.	Check <ul style="list-style-type: none">• whether the monitor is plugged into a power point• the connection between the monitor and computer hard drive is secure.
Abnormally functioning operating system or software		Try <ul style="list-style-type: none">• restarting the computer: switch it off, wait a few minutes, then switch it back on• running a virus scan.
Windows won't boot		Try <ul style="list-style-type: none">• reinstalling it using the recovery disk.
The screen is frozen	<ul style="list-style-type: none">• Can be a sign of insufficient RAM.• Too many things are open at once.	Try: <ul style="list-style-type: none">• rebooting the computer• running a computer cleanup tool that will delete temporary and unnecessary files.

A program on the computer is frozen

Try:

- pressing the ‘Ctrl’ ‘Alt’ and ‘Del’ buttons at the same time
- closing the program that is giving the problem in Task Manager.

Computer is slow

- Can be a sign of insufficient RAM.
- Too many things are open at once.

Try:

- deleting unwanted files
- using an external hard drive to store files externally.

Storage space

Try:

- deleting the cache
- using apps like cache cleaner, which lets you clean the cache for a specific app
- uninstalling apps that you don't need from the phone
- using cloud storage to free up the space on your device.

Dropped internet connections	<ul style="list-style-type: none"> Dropped internet connections may be caused by a bad cable or patchy phone line. More serious problems include viruses, a bad network card or modem, or a problem with the driver. The location of the is important to your Wi-Fi coverage and a stable Wi-Fi connection. Place the modem in a central location within the house or office. Place the modem central to where the internet is most often used. 	<p>Try:</p> <ul style="list-style-type: none"> placing the modem in a central location within the house or office placing the modem central to where the internet is most often used. <p>More tips:</p> <p>Ensure you are placing your modem:</p> <ul style="list-style-type: none"> ✓ out in the open ✓ raised off the ground. <p>Avoid placing your modem:</p> <ul style="list-style-type: none"> ✗ in basements ✗ in cabinets ✗ behind other objects. <p>To avoid interference, try to keep your modem away from:</p> <ul style="list-style-type: none"> ✗ household appliances ✗ metal objects ✗ electrical equipment.
Strange noises	<ul style="list-style-type: none"> Noise from a computer is a sign of hardware malfunction or a noisy fan. Hard drives often make noise just before they fail. 	<p>Try:</p> <ul style="list-style-type: none"> taking it to a technician.
Computer overheating	<ul style="list-style-type: none"> The computer may burn out if left to overheat. The main reason for overheating is a defective fan. 	<p>Try:</p> <ul style="list-style-type: none"> turning it off and letting it rest.

Slow internet		Try: <ul style="list-style-type: none"> • clearing cookies and internet temporary files to improve internet browser performance.
Smartphone is running slowly	<p>Often occurs with:</p> <ul style="list-style-type: none"> • older phones • too many unnecessary apps installed. 	Try: <ul style="list-style-type: none"> • deleting the unnecessary apps and files • cleaning up cache data by using a diagnostic app or restoring the smartphone to factory settings.
Storage space		Try: <ul style="list-style-type: none"> • deleting the cache first. • using a cache cleaner app, which lets you clean cache for a specific app • uninstalling apps you don't need from the phone • using cloud storage to free up the space on your device.
Phone or app crashes	<p>This happens when:</p> <ul style="list-style-type: none"> • there is a bug in an app • the phone is running out of space. 	Try: <ul style="list-style-type: none"> • to avoid using multiple apps at the same time • restarting the device and removing the battery for five minutes • restoring it to factory settings.
Smartphone overheating	<ul style="list-style-type: none"> • Excess usage of a smartphone can cause it to overheat. 	Try: <ul style="list-style-type: none"> • not to use the phone while it is charging • not to use apps that use high CPU.

Problems connecting with Bluetooth, Wi-Fi, cellular network

Try:

- keeping the phone on airplane mode for 30 to 60 seconds and then reconnecting
- repairing or changing the settings of Bluetooth and Wi-Fi again. (Go to ‘forget network’, then let your phone find networks again and re-enter the password.)

Skills to practise

Solve problems

1. Create a separate list for each type of device that you use.
2. For each device, list the trouble shooting steps that you will go through when you encounter a problem.
3. Search the internet and list websites you can visit that can help you solve unexpected problems you are not familiar with.
4. Complete research in your local community and list people or businesses that offer repair or technical support services.

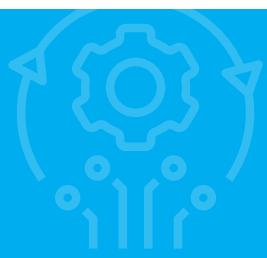
Knowledge and skill checklist

I can solve most of the more frequent problems that arise when using digital technologies.



2

Identifying needs and technological responses



Learning outcomes



By the end of this unit, you should be able to:

- use digital technologies to solve (non-technical) problems
- select a digital tool that suits your needs and assess its effectiveness.

Identifying needs and technological responses

- The first step is to find out which component is not working correctly.
- Pay attention to the clues that the computer gives us.
- Troubleshooting is a process of trial and error. You may need to use several different approaches before you can find a solution.

Follow these steps:

- Write down your steps.
- Take notes about error messages.
- Always check the cables.
- Restart the computer.
- Using the process of elimination.
- Use online sources.

Examples of software

File extensions

- File extensions are a way of labelling the names of files.
- The last part of the file name is used to indicate the type of file so the computer can open the correct program.
- Windows uses file extensions to determine how it opens different types of files (for example, a document with the file extension **.docx** will open in MS Word).
- The Windows system configuration keeps a list of applications and their file extensions. These are called ‘default programs’.

Update software

- Software updates are important because they include patches to fix issues that have been found with earlier versions of that software.
- They can also improve the stability of your software and remove outdated features.

Antivirus software

- Antivirus software helps protect your computer against computer viruses and cybercriminals.
- Antivirus software looks at data, web pages, files, software and applications and tries to block or remove any viruses as quickly as possible.

Display setting

- A computer has several display settings that can be customized.

Skills to practise

Choose tools to solve problems

Use the lists that you created for Unit 6.1 and to each item on your list, add the tool, application, software, or service that you will use to solve the problem.

Knowledge and skill checklist



I can use digital technologies to solve (non-technical) problems.

I can select a digital tool that suits my needs and assess its effectiveness.

3

Creatively using digital technologies



Learning outcomes

By the end of this unit, you should be able to:

- solve technological problems by exploring the settings and options of programmes or tools.

Digital creativity

- Creativity is one of the most highly valued traits of the 21st century.
- Digital creativity is a rapidly growing field.
- Digital creativity is more than the sum of digital + creativity.

Examples of digital creativity

You use digital creativity to process text and emails.

Digital creativity tools

Text editing app

- A text editor edits plain text.
- Text editing apps offer templates.
- Edit the template and produce a very professional looking document without spending hours designing and styling.

Photo editing app

Smartphones, tablets, and laptops have image editing apps used to:

- crop and touch up photos
- organize them into albums and slide shows.

These apps do not have as many filters and features as a more professional image editors, such as Adobe's Photoshop or Corel's Paint Shop Pro.

Calendars

A digital calendar allows you to:

- see the recurring events
- schedule new events.

Computers, tablets and smartphones all have calendar apps that are linked to your email.

Skills to practise

Explore settings

1. When you use a software or app often, you encounter problems that you are unable to solve.
2. Create a list of these issues as they arise
3. Use the internet and find vlogs or websites that offer step-by-step solutions to your problem.

Remember that you cannot change default settings if you do not own the device that you are using.

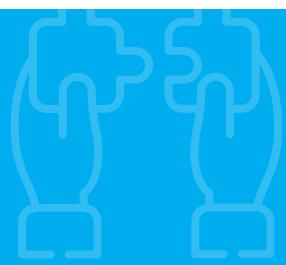
Knowledge and skill checklist



I can solve technological problems by exploring the settings and options of programs or tools.

4

Identifying digital competence gaps



Learning outcomes

By the end of this unit, you should be able to:

- regularly update your digital skills
- know your limits and try to fill the gaps.

The digital skills gap

- Digital technologies are used in many sectors, such as farming, healthcare, transport, education, retail, automatics, energy, shipping, logistics, teaching, and the information and communications technology industry.
- The demand for information and communications technology specialists is growing fast.
- In the future, 9 out of 10 jobs will require digital skills.

Invest in education

- There are many internet sites with brilliant courses on many different digital topics.
- Find something in the area you want to learn more about.
- Check the reviews before buying a course and have a look at how long it will take to do.
- There are many free courses available on the internet, as well as many free video tutorials on a variety of subjects.

Hit subscribe

- When you find a useful article, subscribe on the website to receive future newsletters.

- Do this selectively so that you do not become overwhelmed with emails.
- By filtering out the best content, you will know that, when an email lands in your inbox, it is worth reading.

Join groups

- Communities, forums, and online groups can be a great way of staying up to date with your interests.
- Learn from others and share your experience in ongoing conversations.
- Be careful as some groups can contain a lot of spam and irrelevant information.
- Search Facebook and LinkedIn for groups that interest you.

Get on board with Google Alerts

- This useful tool is a great way of staying up to date with trends and tips.
- Simply let Google know the keywords you would like to be told about when they appear in search results, and you will be alerted with an email.

Head to YouTube

- There is a video on just about anything on YouTube.

Skills to practise

1. Update your digital skills

- a) When you use a software or app often, you become aware of the different functions of the software or app that you do not know how to use, for example, how to create a pie chart using Excel.
- b) Search the internet and identify numerous vlogs and websites that discuss functions of the software that you often use.
- c) Bookmark your selected sites and add them to your favourites list.
- d) If it is a vlog, subscribe to the channel so that you receive updates.
- e) Post a question about a problem that you do not know how to solve.

2. Practise your new skill

- a) Identify a tool or function on your device that you need help with.
- b) Search the internet for vlogs or websites that demonstrate how to complete certain functions.
- c) Practise your new skill.

Knowledge and skill checklist



I regularly update my digital skills.

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

I am aware of my limits and try to fill my gaps.

The Digital Skills Facilitator Training Guide and Learner Handout is a product of UNICEF and the Uganda Ministry of Education and Sports with generous support from the Netherlands Ministry of Foreign Affairs. The Guide and Handout is developed to enhance the acquisition of digital skills and literacy under an initiative involving UNICEF, UNHCR, ILO, and the Ministry of Education and Sports.



The Republic of Uganda