Subject content Key stage 3

Pupils should be taught to:

* design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
* understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching];
* use logical reasoning to compare the utility of alternative algorithms for the same problem
* use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;
* make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions
* understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming;
* understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]
* understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
* understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits
* undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
* create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
* understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy;
* recognise inappropriate content, contact and conduct and know how to report concerns.

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# Key Stage 3 Overview

|  |  |  |  |
| --- | --- | --- | --- |
| Term | Weeks | Topic | Resource Provider |
| [Year 7](#_Year_7) | | | |
| 1 | 7 | Using computers safely effectively and responsibly | PG Online |
| 2 | 7 | Digital Literacy Project | OCR Nationals Level 1 “Find the Sun” |
| 3 | 6 | Digital Creativity (Faking It) | Teach-ICT |
| 4 | 5 | Games Programming in Scratch | PG Online |
| 5 | 7 | Computers, the basics | Teach-ICT |
| 6 | 7 | 3D design and Google Sketchup | Teach-ICT |
| [Year 8](#_Year_8) | | | |
| 1 | 7 | Understanding computers | PG Online |
| 2 | 7 | Digital Literacy Project | OCR Nationals Level 1 “Find the Sun” |
| 3 | 6 | HTML and Website Development | PG Online |
| 4 | 5 | Introduction to Python | PG Online |
| 5 | 7 | Animation in Flash | PG Online |
| 6 | 7 | Mythbusters | Teach-ICT |
| [Year 9](#_Year_9) | | | |
| 1 | 7 | Computer Crime and Cyber Security | PG Online |
| 2 | 7 | Digital Literacy Project | OCR Nationals Level 1 “Find the Sun” |
| 3 | 6 | Game Maker | PG Online |
| 4 | 5 | Python Next Steps | PG Online |
| 5 | 7 | Databases | PG Online |
| 6 | 7 | Communication & Networks | PG Online |

# Year 7

| Module | Theme | | Week | | Topic | Learning Objectives |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | Using computers safely, effectively and responsibly. Resources purchased from www.pgonline.co.uk | | 1  5/9/16 | | File Management | * Logging on/school policies * To learn to manage files in File Explorer * To understand the importance of backup |
| 2  12/9/16 | | Social networking | * Learn about the possible dangers of social networking sites * Learn how to respond to threats on the Internet * Learn how to keep your identity secure on the Internet |
| 3  19/9/16 | | Keeping your data safe | * Learn how to create a secure, memorable password * Learn how to protect your identity online * Learn how to avoid being a victim of an email scam |
| 4  26/9/16 | | Using Email | * To learn how to   + Send, respond to and forward emails   + Search your old emails for a sender, subject, etc.   + Resize large image files before sending   + Manage a contacts list * Be aware of the advantages and disadvantages of email |
| 5  3/10/16 | | Searching the Web | * Define the term “search engine” and name examples * Learn techniques to use a search engine efficiently * Appreciate that there is no guarantee that the information on the Internet is accurate |
| 6  10/10/16 | | Assessment | * To revise the content of the unit * To sit the assessment test |
| 7  17/10/16 | | DIRT (Dedicated Improvement and Reflection Time) | To respond to feedback on assessment |
| **2** | Digital Literacy OCR National Unit 1: ICT skills for business (LEVEL 1)  Assessment will be the model assignment as homework to completed over the term | | 1  31/10/16  PC1 Opens | | Produce a presentation using presentation software | Produce a presentation:   * create new slides * select templates * master slides * headers and footers * add background * add text and graphics * format text * resize graphics * check layout of slides * run the presentation |
| 27/11/16 | | Produce a presentation using presentation software | Produce a presentation:   * create new slides * select templates * add background * add text and graphics * format text * resize graphics * check layout of slides * run the presentation |
| 3  14/11/16 | | Select and use tools and facilities in word processing software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * memo * letter |
| 4  21/11/16 | | Select and use tools and facilities in word processing software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * memo * letter |
| 5  28/11/16 | | Select and use tools and facilities DTP software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * business card * poster * flyer |
| 6  5/12/16  Assessment hand in week | | Select and use tools and facilities DTP software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * business card * poster * flyer |
| 7  12/12/16 | | DIRT (Dedicated Improvement and Reflection Time) | To respond to feedback on assessment |
| **3** | Faking It Resources purchased via subscription from www.teach-ict.com | | | 1  2/1/17 (Bank Holiday Monday) | What is Airbrushing? | To understand the term ‘airbrushing’  To be able to identify the reasons why images are airbrushed  To be able to identify some of the issues surrounding the airbrushing of images |
| 2  9/1/17  PC2 Opens | Photo Enhancing Techniques | To find out about different techniques that are used to enhance photographs of people  To practise some of the image manipulation techniques using graphics editing software |
| 3  16/1/17 | Photo Editing Techniques | To find at a photograph and be able to identify improvements which could be made.  To use graphics editing software and make the improvements which have been identified by the student.  To practise image manipulation techniques introduced during the previous couple of lessons |
| 4  23/1/17 | Image Manipulation | To find out about different techniques that can be used to ‘fake’ photographs  To practise some of the image manipulation techniques using graphics editing software |
| 5  30/1/17 | Assessment Week | To revise the content of the unit  To produce a portfolio evidencing your skills knowledge |
| 6  6/2/17 | DIRT (Dedicated Improvement and Reflection Time) | To respond to feedback on assessment |
| **4** | | Games Programming in Scratch Resources purchased from www.pgonline.co.uk | | 1  20/2/17 | Movement | * Understand that Scratch is a programming environment that allows you to create games, animations and other simulations * Understand what is meant by an algorithm * Create a sprite and write code to make it move and bounce * Load and use an existing Scratch file * Produce design ideas for a Scratch project |
| 2  27/2/17 | Lives and Scoring | * Define a variable * Write algorithms which use variables to hold values such as Number of Lives Left or Score in a computer game * Understand the purpose of comments in a program * Annotate a program with comments |
| 3  6/3/17 | Adding a new level | * Understand the purpose of repeat loops and procedures (“broadcasts”) * Use a broadcast in your own Scratch program |
| 4  13/3/17  PC3 Opens | Randomising the behaviour of sprites | * Learn what each of the operators in the Scratch Green block menu does * Use the Pick Random block to position objects randomly on the screen * Understand the use of the operators <, =, >, and, or, not. * Use some of these in a Scratch game |
| 5  20/3/17 | Shooting, jumping and adding sound  (lessons 5 and 6 from PG Online together) | * Learn programming techniques to add shooting at a target into a game * Learn how to adjust x and y coordinates to control the position of a sprite * Learn how to make a sprite jump * Learn how to add sound to a Scratch game |
| 6  27/3/17 | Testing, assessment and evaluation | * Understand the purpose of testing * Understand what makes a specific and measurable test * Carry out testing on the Scratch project * Make corrections where necessary and test again |
| **5** | Computers – the basics Subscription from www.teach-ict.com | | | 1  17/4/17  (Bank holiday Monday) | Computers – an introduction | * To understand the function and purpose of a computer * To understand that not every computer looks like a PC and that many everyday devices contain computers * To explain what is meant by binary data and to understand why a computer uses binary data |
| 2  24/4/17 | Computers – a history | * To be able to identify the first electronic computer * To gain a basic understanding of the role of Colossus in World War II * To gain a basic understanding of how Colossus made use of valves, rewiring and paper tape * To recognise how computers have changed over the decades in their looks, function and purpose |
| 3  1/5/17  (Bank Holiday Monday) | Moore’s Law | * To explain the purpose and use of a transistor in computing terms * To understand that computers are getting faster all the time (Moore’s Law) |
| 4  8/5/17 | Computer Components | * To be able to identify the main component parts of a computer * To be able to explain the role of the main components within a computer |
| 5  15/5/17 | Computers as processors | * To understand that although computers can only do one thing at a time they can switch between tasks very quickly |
| 6  22/5/17 | Assessment | * To revise the content of the unit * To sit the assessment test |
| **6** | 3D Design using Google Sketchup From [www.teach-ict.com](http://www.teach-ict.com) subscription | | 1  5/6/17 | | 3D Design Applications | * *Know:* Why 3D design applications are used in the real world * *Understand:* Some of the advantages and disadvantages of 3D design packages * *Be able to*: Use a simple 3D design application in order to create a 3D design of a chair |
| 2  12/6/17 | | 3D Design software basics | * *Know:* How to create a basic house design using 3D design software * *Understand:* Some of the different stages used during the development of a product such as a car or house * *Be able to*: Use the tools in Google Sketchup in order to create a realistic looking house design. |
| 3  19/6/17 | | 3D Design tools | * *Know:* how to use an increasingly wide range of tools within a 3D design application * *Understand:* how to translate a 2D sketch on paper into a 3D design on the computer * *Be able to*: become more confident in their use of a 3D design application |
| 4  26/6/17 | | 3D Design Tools | * *Know:* how to use an increasingly wide range of tools within a 3D design application * *Understand:* how to translate a 2D sketch on paper into a 3D design on the computer * *Be able to*: become more confident in their use of a 3D design application |
| 5  3/7/17  PC4 Opens – grades needed here | | Importing from Google Earth to Sketchup | * *Know:* How to import an image from Google Earth into Google Sketchup * *Understand:* How to add textures from photographs onto the sides of a building designed in Sketchup * *Be able to*: Identify how they could apply the skills they have learned during this lesson to other subjects which they study |
| 6  10/7/17 | | Assessment | * To revise the content of the unit * To sit the assessment test |
| 7  17/7/17 | | Seasonal Lessons |  |

# Year 8

| Module | Theme | | Week | | Topic | Learning Objectives |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | Understanding Computers Resources purchased from www.pgonline.co.uk | | 1  5/9/16 | | Input – Process – Output | * Distinguish between hardware and software * Identify input, output and storage devices * Name at least five pieces of software * Understand what happens at the “Process” stage * Suggest appropriate input and output devices for a given scenario |
| 2  12/9/16 | | The CPU | * Draw a block diagram of the main components of a computer: input, processor, output and storage * Explain what main memory is used for * Distinguish between main memory and permanent storage devices * Name the three stages in the Fetch Execute Cycle * Define Hz, MHz and GHz and state how these relate to the speed of the processor * Understand the difference between RAM and ROM and what ROM is used for |
| 3  19/9/16 | | Understanding Binary | * State why all data is represented in binary in a computer * Understand that a particular bit pattern may represent, for example, an instruction to do something, a letter, a number or a tiny piece of a graphical image * Define a Bit, Byte, Kb, Mb and Gb * Convert integers to binary numbers * Convert binary numbers to integers * Look up from a table the bit pattern for a given character * State how many different characters can be represented using 8 bits * Give examples of alphanumeric characters and special symbols that can be represented in ASCII * Show that a bit pattern can represent either a character or a decimal number |
| 4  26/9/16 | | Binary Addition | * Add two binary numbers (each less than 7 binary digits) * Multiply a binary number by 2 * Identify a binary number as being odd or even |
| 5  3/10/16 | | Storage Devices | * State the typical capacities, strengths and weaknesses of different storage devices * Describe how data is stored on a CD * Describe how 0s and 1s are represented by pits and lands on a CD * Name three types of optical storage device |
| 6  10/10/16 | | Assessment | * Be able to apply their knowledge in answers to a range of questions * Be able to highlight areas of strength and any gaps in their understanding of computers |
| 7  17/10/16 | | DIRT (Dedicated Improvement and Reflection Time) | * To respond to feedback on assessment |
| **2** | Digital Literacy OCR National Unit 1: ICT skills for business (LEVEL 1)  Assessment will be the model assignment as homework to completed over the term | | 1  31/10/16  PC1 Opens | | Produce a presentation using presentation software | Produce a presentation:   * create new slides * select templates * master slides * headers and footers * add background * add text and graphics * format text * resize graphics * check layout of slides * run the presentation |
| 27/11/16 | | Select and use tools and facilities in word processing software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * memo * letter |
| 3  14/11/16 | | Select and use tools and facilities DTP software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * business card * poster * flyer |
| 4  21/11/16 | | Select and use tools and facilities DTP software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * business card * poster * flyer |
| 5  28/11/16 | | Use a simple business spreadsheet | Use a simple spreadsheet with formulas:   * enter text and numeric data * format cells using a range of formatting features:   + font (face, emphasis, size, colour)   + alignment   + number (decimal places, percentage, currency)   + borders and shading * change data and note results * create simple charts * print data from spreadsheets |
| 6  5/12/16  Assessment hand in week | | Use a simple business spreadsheet | Use a simple spreadsheet with formulas:   * enter text and numeric data * format cells using a range of formatting features:   + font (face, emphasis, size, colour)   + alignment   + number (decimal places, percentage, currency)   + borders and shading * change data and note results * create simple charts * print data from spreadsheets |
| 7  12/12/16 | | DIRT (Dedicated Improvement and Reflection Time) | To respond to feedback on assessment |
| **3** | HTML & Website Development | | | 1  2/1/17 (Bank Holiday Monday) | HTML | * Understand that the WWW is a huge collection of websites all over the world * Learn what HTML is and what it is used for * Type basic HTML tags using a text editor to create a page that can be viewed in a browser * Edit the HTML code and view the changes in a browser |
| 2  9/1/17  PC2 Opens | CSS | * Learn how CSS is used to set the styles in web pages and websites * Write CSS code to set styles, e.g. background colour of sections of the page; size, font, colour and alignment of text * Learn what is meant by responsive design, and create a responsive web page * Learn the main principles of good website design |
| 3  16/1/17 | Design & Development | * Complete website designs and gather content * Use an HTML template to create consistent web pages * Use float to position elements on a page * Learn how to create a consistent look and feel throughout a website * Add well-formatted content, including text and images, to each page * Create internal and external links and make sure they all work |
| 4  23/1/17 | Web forms | * Learn how to create a web form * Learn what happens to the input data once it has been submitted |
| 5  30/1/17 | Assessment | * Carry out final tests * Perform a self-evaluation of level of skills and understanding achieved for the unit * Complete the Assessment Portfolio |
| 6  6/2/17 | DIRT (Dedicated Improvement and Reflection Time) | * To respond to feedback on assessment |
| **4** | | Introduction to Python Resources purchased from [www.pgonline.co.uk](http://www.pgonline.co.uk)  Assessment – ongoing porfolio | | 1  20/2/17 | Introduction to Python | * Learn what Python is and some of the applications it is used for * Run a simple Python program in Interactive mode using the input and print functions * Write, save and run a program in Script mode * Understand what a syntax error is and how to interpret an error message * Know the rules for variable names and use variables in a program * Understand the use and value of comments in a program |
| 2  27/2/17 | Numbers & Arithmetic | * Understand the importance of using correct data types string, integer, float * Understand how to use assignment statements correctly * Perform arithmetic using the BIDMAS rule * Use the int, float and round functions * Write a program involving input, calculation and output |
| 3  6/3/17 | Selection & Algorithms | * Use selection statements if, else and elif in a program * Use indentation correctly to define a block of code * Learn to write algorithms in pseudocode * Review the difference between syntax errors, run-time errors and logic errors * Learn techniques for debugging programs |
| 4  13/3/17  PC3 Opens | While loops | * Use a while loop in a program * Use an if statement within a while loop * Use a function to generate a random number * Understand and apply the principle of a binary search * Compare the efficiency of a binary search with a linear search |
| 5  20/3/17  Assessment hand in | Searching | * Compare alternative algorithms for a given problem * Use a linear search to find a number * Understand how a binary search works |
| 6  27/3/17 | DIRT (Dedicated Improvement and Reflection Time) | * Test a program * Complete the assessment |
| **5** | Animation There are two bank holiday Mondays in this term. If your lesson falls on a Monday, please set weeks 4 as a homework and combine lessons 3 & 5 | | | 1  17/4/17  (Bank holiday Monday) | Frame by frame animation | * Use Flash drawing tools to draw, add, subtract and distort shapes * Animate a shape using frame-by-frame techniques * Understand the role that frame rate and keyframes play in speed and smoothness of animation * Create a shape tween |
| 2  24/4/17 | Motion tweening | * Import graphics to the library * Make use of symbols and instances * Create a simple motion tween * Animate a symbol along a motion path * Animate within symbols |
| 3  1/5/17  (Bank Holiday Monday) | Text, buttons and ActionScript | * Animate text * Create an interactive button * Understand how ActionScript can make an animation interactive |
| 4  8/5/17 | Planning an animation | * Identify techniques used in animations * Plan a simple animation for a specific purpose (e.g. advert/web banner against bullying, smoking or similar) * Create a storyboard showing techniques and timings |
| 5  15/5/17 | Adding sound effects | * Create a simple animation using skills learned * Use drawing tools and animation techniques appropriately * Add sound effects * Ensure work is suitable for purpose and for the target audience |
| 6  22/5/17 | Publishing an animation | * Complete an animation and export it as a finished file * Evaluate finished work * Complete the Assessment portfolio |
| **6** | Mythbusters | | 1  5/6/17 | | DIRT (Dedicated Improvement and Reflection Time) | * Complete the assessment |
| 2  12/6/17 | | Accuracy and the Internet Searching the internet | * Understand that information on the internet could be inaccurate, biased, or untrustworthy * Understand the methods used to judge whether a website is reliable * Be able to check and comment on the accuracy of the information found on the internet * To understand that searching the internet **efficiently** leads to better results * To be able to use efficient web searching methods * To be able to use the **advanced search facilities** of **search engines** |
| 3  19/6/17 | | Suitability of Information  Purpose & Audience | * To use search engines to locate information **suitable** for creating a podcast * To be able to use a range of **efficient** web searching methods in order to find quality of information * To be able to make judgements regarding the **suitability** of the information found * To **plan** a podcast using information gained from internet research * To ensure that the plan has been **structured** and **sequenced** appropriately * To be able to explain why your plan is **fit for purpose** |
| 4  26/6/17 | | Storyboarding and Recording Podcasts | * To understand how to use Audacity to create a Podcast * To use your storyboard and the Audacity software to create your podcast * Create a summarising handout to accompany the podcast |
| 5  3/7/17  PC4 Opens – grades needed here | | Assessment | * To complete all outstanding work on this project * To consider how your work could be developed and improved further * Make improvements to your podcast/factsheet based on feedback |
| 6  10/7/17 | | DIRT (Dedicated Improvement and Reflection Time) | * Complete the assessment |
| 7  17/7/17 | | Seasonal Lesson |  |

# Year 9

| Module | Theme | | Week | | Topic | Learning Objectives |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | Computer Crime and Cyber Security Resources purchased from [www.pgonline.co.uk](http://www.pgonline.co.uk) | | 1  5/9/16 | | Email Scams | * Identify common types of computer crime * Look at examples of computer crime on the Internet * Learn about different types of email scam * Recognise the signs of fraudulent emails |
| 2  12/9/16 | | Hacking | * Learn about the Computer Misuse Act – which makes certain activities illegal * Look at examples of computer misuse * Understand what is meant by hacking * Understand what is meant by malware * Learn ways to protect yourself from malware & hacking |
| 3  19/9/16 | | Protecting Personal Data | * Be aware of who might hold personal data about you * Discuss the need for various organisations to hold data about you * Be aware of the possibility of identity theft * Know how to minimize the chance of identity theft |
| 4  26/9/16 | | Copyright Protection | * Learn about Copyright law, what it says and what it means * Look at examples of copyright infringement * Understand the damage that illegal copying does to individuals, companies and society * Compare copyright infringement with plagiarism |
| 5  3/10/16 | | Health and Safety | * Learn about some of the common health and safety problems associated with computer use * Learn ways of avoiding these problems * Learn about Health and Safety law |
| 6  10/10/16 | | Assessment | * Be able to apply their knowledge in answers to a range of questions * Be able to highlight areas of strength and any gaps in their understanding of the topic |
| 7  17/10/16 | | DIRT (Dedicated Improvement and Reflection Time) | * To respond to feedback on assessment |
| **2** | Digital Literacy OCR National Unit 1: ICT skills for business (LEVEL 1)  Assessment will be the model assignment as homework to completed over the term | | 1  31/10/16  PC1 Opens | | Produce a presentation using presentation software | Produce a presentation:   * create new slides * select templates * master slides * headers and footers * add background * add text and graphics * format text * resize graphics * check layout of slides * run the presentation |
| 27/11/16 | | Select and use tools and facilities in word processing software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * memo * letter |
| 3  14/11/16 | | Select and use tools and facilities DTP software to produce business documents | Tools and facilities:   * insert and arrange text and images * format text, including font (face, emphasis, size, colour) and alignment, * bulleted or numbered lists * edit documents using insert, delete, cut, copy and paste functions * headers, footers and page numbers * use spell check * check layout of documents   Document types e.g.:   * business card * poster * flyer |
| 4  21/11/16 | | Use a simple business spreadsheet | Use a simple spreadsheet with formulas:   * enter text and numeric data * format cells using a range of formatting features:   + font (face, emphasis, size, colour)   + alignment   + number (decimal places, percentage, currency)   + borders and shading * change data and note results * create simple charts * print data from spreadsheets |
| 5  28/11/16 | | Use database software to enter and search for information for business purposes | Use a business database such as a client database:   * enter new records * edit records * delete records * search for data using queries |
| 6  5/12/16  Assessment hand in week | | Use database software to enter and search for information for business purposes | Use a business database such as a client database:   * enter new records * edit records * delete records * search for data using queries |
| 7  12/12/16 | | DIRT (Dedicated Improvement and Reflection Time) | To respond to feedback on assessment   * Please set lesson 1 from the Game Maker scheme from PG Online as holiday homework |
| **3** | Game Maker Lesson 1 “Game Analysis” should have been set for holiday homework  If your lesson falls on a Monday, you will need to combine 2 lessons to fit the scheme of work in to the term | | | 1  2/1/17 (Bank Holiday Monday) | Sprites and objects | * Create a sprite and object * Understand that GameMaker programming is based on Events and Actions * Program basic instructions |
| 2  9/1/17  PC2 Opens | Enemies and collision detection | * Create and program obstacles * Create and program enemies * Learn the basic concepts of object oriented programming (OOP) |
| 3  16/1/17 | Firing projectiles | * Create a projectile * Program your player to fire projectiles when the Space bar is pressed * Use variables and IF statements in GameMaker |
| 4  23/1/17 | Capturing the flag | * Program the player to pick up the flag when it touches it * Program the game to end when the flag is returned to the base * Use Boolean variables and IF statements in GameMaker |
| 5  30/1/17 | Testing and Assessment | * Test your game * Improve your game * Evaluate your game * Complete the Assessment Portfolio |
| 6  6/2/17 | DIRT (Dedicated Improvement and Reflection Time) | * To respond to feedback on assessment |
| **4** | | Python next steps Resources purchased from [www.pgonline.co.uk](http://www.pgonline.co.uk) | | 1  20/2/17 | Python Recap  Loops | * Correctly read and understand an existing Python program * Recall different data types * Use the int(), float() and str() functions to convert data types * Write an if-else statement * Use a while loop to repeat a section of code * Use a for loop to repeat a section of code * Make a choice about which loop to use, and why |
| 2  27/2/17 | Lists | * Be able to store and update values in a list * Be able to append data to a list * Be able to use a for() loop to step through a list * Understand why using a list can be more efficient than using single variables |
| 3  6/3/17 | Procedures | * Understand what a procedure is * Be able to define and call a procedure * Understand why procedures are useful * Be able to use parameters in a procedure |
| 4  13/3/17  PC3 Opens | Functions | * Understand what a function is * Be able to define a function * Be able to call a function and capture the return value |
| 5  20/3/17 | Assessment | * Read through a program * Complete the assessment |
| 6  27/3/17 | DIRT (Dedicated Improvement and Reflection Time) | * Test a program * Complete the assessment |
| **5** | Databases GCSE work Resources purchased from [www.pgonline.co.uk](http://www.pgonline.co.uk)  There are two bank holidays in this term. If you have a lesson on a Monday, please omit lessons 2 and 4 | | | 1  17/4/17  (Bank holiday Monday) | Tables, records and fields | * To discuss some of the many computer systems which may hold data about you or your family on a database * To learn how this data is held so that information can be quickly retrieved * To learn some database terms and guidelines * To set up a simple table in Access and enter some records |
| 2  24/4/17 | Entities and relationships | * Understand the relationship between entities and tables * Learn the three possible relationships that can exist between entities * Understand the use of key fields to connect tables and avoid data redundancy * Understand that one of the consequences of data redundancy is inconsistencies in the data |
| 3  1/5/17  (Bank Holiday Monday) | Queries | * Learn how to query a database * Understand the use of logical operators in framing database queries * Learn how to combine data from two linked tables by means of a query |
| 4  8/5/17 | Program-data independence | * Understand the importance of program-data independence, or separation of data * Understand why an input form is useful for entering data * Create an input form to enter details about pupils * Create an input form to enter details of sports events which allows entry of pupil data from the linked table |
| 5  15/5/17 | The DBMS | * Be able to describe the role, features and advantages of a DBMS * Create a report based on a query * Understand what is meant by a database module |
| 6  22/5/17 | Assessment | * Sit the end-of-unit test |
| **6** | Communication & Networking | | 1  5/6/17 | | DIRT (Dedicated Improvement and Reflection Time) | * Complete the assessment |
| 2  12/6/17 | | The Internet | * Describe the nature of the Internet as a worldwide collection of computer networks * Describe the hardware needed to connect to the Internet including modems and routers * Explain the terms IP addressing, MAC addressing, packet and protocols |
| 3  19/6/17 | | Network Topologies | * Describe the differences between a local area network and a wide area network such as the Internet * Describe the advantages of networking standalone computers into a local area network * Describe the hardware needed to connect standalone computers into a local area network * Describe ring, star and bus network topologies * Describe advantages and disadvantages of each of these topologies |
| 4  26/6/17 | | Compression | * Explain the importance of compressing files that are transmitted on the Internet * Describe the difference between lossy and lossless compression |
| 5  3/7/17  PC4 Opens – grades needed here | | Assessment | * To complete all outstanding work on this project * To consider how your work could be developed and improved further * Make improvements to your podcast/factsheet based on feedback |
| 6  10/7/17 | | DIRT (Dedicated Improvement and Reflection Time) | * Complete the assessment |
| 7  17/7/17 | | Seasonal Lesson |  |