Subject – Computing

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
7	**Impact of technology: collaborating online respectfully** Identifying how to use online collaboration tools respectfully. An introduction to the computing lab. Creating a presentation to a given audience. Online communication and the risks of cyberbullying ***The Big Question:*** ***To what extent is the online world more dangerous than the offline world?***	**Using media: gaining support for a cause** creating a digital product for a real-world cause using a range of software. Word processing, creating a blog, licensing and creative commons, the use of images and copyright ***The Big Question:*** ***How can you respectfully use online digital content?***	**Networks: from semaphores to the internet** Recognising networking hardware and explaining how networking components are used for communication. Network hardware, protocols, bandwidth, explain how data travels across the internet ***The Big Question:*** ***How can you guarantee that a data packet will reach its destination?***	**Programming essentials in Scratch part 1** Applying the programming constructs of sequence, selection and iteration in Scratch. Write simple programs using Scratch and test these programs ***The Big Question:*** ***Can a computer be more intelligent than the human who programmed it?***		**Modelling data: spreadsheets** Sorting and filtering data and using formulas and functions in spreadsheet software ***The Big Question:*** ***Can we accurately model the world using computer software?***
	Skill development Rules of the computing lab, creating secure and memorable passwords, navigate around the computer, plan presentations, construct an email, explain and describe the effects of cyberbullying.	**Skill development** Select the most appropriate software to use to complete a task. Identify the key features of a word processor, apply the key features of a word processor to a document, select images for a given context, create digital content applying credibility and evaluating online sources, construct a blog.	**Skill development** Define networks and protocols, list examples of hardware, compare wired to wireless networks, define bandwidth, define what the internet is, describe how services are provided over the internet and describe the context in which they are used. Identify and describe components of a web page	**Skill development** Write simple programs in Scratch using programming skills including sequences, variables, selection, operators, count controlled iteration.		**Skill development** Identify cell references, use basic formulas, identify the difference between primary or secondary sources of data, use functions, analyse data, use conditional formatting and model data in a spreadsheet
	Assessment MCQ Google Form on online safety, password security and emails.	**Assessment** MCQ Google Form on networking and the internet	**Assessment** Creating and sharing a blog	**Assessment** Scratch problem solving assessment.		**Assessment** Spreadsheet assessment using the skills that have been covered during the unit.
8	**Developing for the web** Using HTML and CSS to create webpages. Website building blocks, how to use HTML to create simple web pages, searching the web, creating a web page to summarise their learning of search techniques ***The Big Question:*** ***Will the internet slow down as it grows bigger and gets older?***	**Representations: from clay to silicon** Representing numbers and text using binary digits, list examples of representations, convert between different units of representation size, measure the size of a bit sequence as the number of binary digits that it contains ***The Big Question:*** ***How can computers store and process everything in 1's and 0's?***	**Mobile App Development** Identify the main stages in the systems life cycle, design a mobile app, create a prototype design for a mobile app in PPT. **Media: vector graphics** Draw basic shapes, manipulate individual objects and groups of objects, combine paths by applying operations, convert objects to paths, edit paths, ***The Big Question:*** ***How do media companies use computers to construct their products?***	**Computing Systems** Types of computing systems, inputs, outputs, operating systems, software and hardware, CPU, the role of artificial intelligence ***The Big Question:*** ***How is the technology we use created?***		**Introduction to Python Programming** Describe what algorithms are and the difference between algorithms and programs, use an IDE to write and execute a Python program using key programming constructs (selection, iteration, operators, logical operators) ***The Big Question:*** ***How to get a computer to follow human instructions?***
	Skill development Searching, threats, HTML and CSS	**Skill development** Data representations, how to convert numbers	**Skill development** How to design and create prototypes, Image editing, manipulation and image design	**Skill development** Identify the main types of computing systems		**Skill development** Python Program
	Assessment Developing a web page to summarise how to use / search information online	**Assessment** Representations assessment including conversion and binary	**Assessment** Mobile App prototype and mobile app logo	**Assessment** G-Forms assessment		**Assessment** Python Programming Mid-Point Assessment

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9	**Python programming with sequences of data** Use an IDE to write and execute Python program, use variables to keep track of information, describes what lists are, trace through programs that are manipulate lists, use iteration, access strings, combine features to develop solutions to meaningful problems ***The Big Question:*** ***How to get a computer to follow human instructions?***	**Media animations** Add, delete and move objects, make basic animations, use ethic mode and loop out and face editing, add and edit sub lighting, create a 3 – 10 second animation ***The Big Question:*** ***How to make a picture a move?***	**Data Science** Using data manipulation tools to manipulate data in a spreadsheet, using data manipulation tools to draw conclusions and make recommendations ***The Big Question:*** ***How to spot and utilise patterns and trends in data?***	**Representations: going audio-visual** Describe how digital images are composed out of individual elements, describe how images can be represented ***The Big Question:*** ***How are audio and image files stored digitally on a computer?***	**Cybersecurity** Explain the difference between data and information, identify what happens to data when entered online, explain the need for the DPA, recognise how human errors pose security risks to data, define hacking, explain the need for the Computer Misuse act, identify common malware threats, compare security threats and explain how networks can be protected from common security threats ***The Big Question:*** ***What are the threats to data and systems?***	**Physical computing** Use variables and data structures to keep track of information, use selection and interaction to control program execution flow, locate and correct common syntax errors, describe what a micro bit is, write programs that use the micro bits, test and review the program ***The Big Question:*** ***How to code a physical object?***
	Skill development Python programming with sequences of data	**Skill development** How to create animations	**Skill development** How to analyse data, data cleansing, how to visualise data sets	**Skill development** Image representation as a series of bits, calculate how images and sounds can be represented as bits	**Skill development** Cybersecurity, DPA, Computer Misuse Act, knowing the risks of hacking, identify malware threats and the way to reduce these risks	**Skill development** How to create, run and execute programs for a Micro bit using the programming skills gathered in KS3
	Assessment Programming constructs assessment	**Assessment** Finished project	**Assessment** G-Form Assessment on data visualisation	**Assessment** Data representation assessment	**Assessment** End of unit assessment – cybersecurity	**Assessment** Microbit project self-review
10 Option Pathway	**Component 1 – Exploring user interface design principles and project planning techniques** **Learning Aim A:** Types of user interfaces, basic user interfaces, complex user interfaces, choosing a user interface, hardware and software influences, user accessibility needs, user skill, demographics, design principles. **Learning Aim B:** Basic planning project tools, project methodologies, creating a project plan.	**Component 1 – Exploring user interface design principles and project planning techniques** **Learning Aim B:** Creating a project plan, defining the project requirements, project risk and constraints, project timescales, storyboard and sketches, hardware, software and testing strategies. **Learning Aim C:** Develop a functional user interface, reviewing and refining a user interface	**Component 1 – Exploring user interface design principles and project planning techniques** Practice Comp 1 – complete a practice assignment for Comp 1.	**Component 1 – Exploring user interface design principles and project planning techniques** Complete external Component 1 Summative assessment	**Component 2: Collecting, presenting and interpreting data** **Learning Aim A:** Data v Information, data formats, preparing data for processing, data collection methods, data quality, data privacy. **Learning Aim B:** Importing data, formatting of data, using formulas, using functions, absolute cell referencing, sorting information, decision making functions	**Component 2: Collecting, presenting and interpreting data** **Learning Aim B:** VLOOKUP, HLOOKUP, logical operators, filtering data, macros, data validation, graphs and charts, count functions, data summaries, creating the dashboard. **Learning Aim C:** Drawing conclusions and making recommendations
	Skill development Identifying types of user interface and analysing the effectiveness of these. How to justify design choices	**Skill development** How to plan projects using a range of planning techniques, how to design and create an interactive user interface	**Skill development** How to complete the Pearson set assignment for Comp 1 by completing a mock up	**Skill development** Completing component 1 – summative assessment	**Skill development** Identifying and explaining the role of information for different stakeholders, how to analyse and manipulate data using a spreadsheet	**Skill development** How to use a range of manipulation tools to analyse data within a spreadsheet. How to draw conclusions and make recommendations using data manipulation tools

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	Assessment User interfaces, project planning tools.	**Assessment** Project planning tools, designing, reviewing and refining user interfaces	**Assessment** Mock Component 1 assignment in preparation for summative Comp 1	**Assessment** Complete component 1	**Assessment** Data and information, use of spreadsheet skills to manipulate data	**Assessment** Data manipulation tools, drawing conclusions and making recommendations

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10 Core Pathway	**PowerPoint Unit:** Skills in PPT – how to set up slides, hyperlinks, images, master sliders, animations, transitions, charts and tables, create a PPT plan, creating and using a sources table, PPT designs, setting up a master slide, collecting and gathering sources and information **Graphics Unit:** Identify design needs, identify copyright licence constraints on resources, find images to support designs, originate information that meets design needs, use a range of techniques to manipulate design components	**PPT Unit:** Creation of the PPT using designs, creating a testing plan and testing the interactivity of the PPT, gathering feedback and revising the PPT based on feedback. **Graphics Unit:** Use a range of techniques to manipulate design components, use space and colour effectively, use appropriate precision in design, use appropriate scale in design, export vector graphics to raster graphics, scale images, evaluate copyright licence on images	**Graphics Unit:** Copyrights and patents, completion of graphics unit **Cybersecurity:** Online safety skills and cybersecurity measures. Legislation around cybersecurity **Spreadsheet Unit:** Cells, cell referencing, purposes and uses of spreadsheets, how to format a spreadsheet, formulas and functions, how to create tables and charts.	**Spreadsheet Unit:** Using data to produce graphs and charts, planning the coursework and creating the spreadsheet using a range of formatting skills, functions and formula, graphics and charts, evaluating and presenting the range of skills that have been used in the completion of the spreadsheet unit. **Exam Unit:** Audiences, accessibility, purpose of IT,	**Spreadsheet Unit:** Using data to produce graphs and charts, planning the coursework and creating the spreadsheet using a range of formatting skills, functions and formula, graphics and charts, evaluating and presenting the range of skills that have been used in the completion of the spreadsheet unit. **Exam Unit:** strengths and weaknesses, specific characteristics	**Exam Unit:** System of information flow, direct and indirect costs, target setting and SMART targets, acceptable use policies.
	Skill development How to use sources tables and source information and images adhering to copyright, designing IT projects, including images designs and PPT designs	**Skill development** Image editing and manipulation of images, saving images as different file types, creating an interactive PowerPoint, how to test, review and gather user feedback	**Skill development** Graphics editing and final hand in of graphics, use of formatting features in a spreadsheet, functions and formulas, graphs and charts	**Skill development** Creating a dashboard in Excel using a range of presentation skills, how to develop knowledge of key terms in preparation for the exam unit.	**Skill development** Creating a dashboard in Excel using a range of presentation skills, how to develop knowledge of key terms in preparation for the exam unit.	**Skill development** Practice keywords and exam style questions.
	Assessment PPT skills, sources tables, graphics planning and image editing	**Assessment** Editing of images, creation of PPT, testing and reviewing multimedia creations	**Assessment** Final hand in of graphics unit, spreadsheet skills	**Assessment** Final spreadsheet hand in and completion of coursework unit.	**Assessment** Final spreadsheet hand in and completion of coursework unit.	**Assessment** Mock exam, exam style questions

1	**A1 Modern Technologies:** Features and uses of cloud storage, how cloud and traditional systems are used together, implications for organisations when choosing cloud technologies, **A2 Impact of modern technologies:** changes to modern technologies to communicate with its stakeholders, how modern technology can be used to manage modern teams, communicate with stakeholders, aid inclusivity and accessibility. Positive and negative impacts of modern technology on organisations and individuals **B1 Threats to data:** Why systems are attacked, external threats, internal threats, impact of security breaches	**B2 Prevention and management of threats to data**: User access restrictions, data level protection, finding weaknesses and improving security systems **B3 Policy:** Defining responsibilities, defining security parameters, disaster recovery policy, actions to take after an attack **D1 Forms of Notation:** Understand how organisations use different forms of notation to explain systems, data and information. Interpret information using different forms of notation including flow charts and data flow diagrams	**C3 Responsible Use:** Shared stat, environmental actions **C2 Legal and Ethical:** Importance of providing equal access to services and information, net neutrality and its impact on organisations, the purpose and use of acceptable use policies, data protection principles, data and the use of the internet, dealing with intellectual property, the criminal use of computer systems. **Component 3 External Exam**	**IT User Skills** **Possible Revision for Component 3 Resit exam**	**IT User Skills** **Possible Revision for Component 3 Resit exam**	
	Skill development Compare and contrast of systems, impact of changes to technology on different areas of society, how to access exam style questions	**Skill development** how to recommend and justify questions. How to draw, label and interpret different forms of notation	**Skill development** How to approach exam style questions. Preparation for the Comp 3 External exam	**Skill development** Basic IT skills, reviewing exam grade and improving areas if resit is needed	**Skill development**	**Skill development**
	Assessment Modern technologies, impact of modern technologies, threats to data	**Assessment** Prevention and management of threats to data, policy, forms of notation	**Assessment** Responsible use, legal and ethical, component 3 external exam	**Assessment**	**Assessment**	**Assessment**