

Concept

Algorithms
 Programming & Development
 Data & Data Representation
 Hardware & Processing
 Communication & Networks
 Information Technology

Explanation of concept

Understands what an algorithm is and is able to express simple linear (non-branching) algorithms symbolically. Understands that computers need precise instructions. Demonstrates care and precision to avoid errors.
 Knows that users can develop their own programs, and can demonstrate this by creating a simple program in an environment that does not rely on text e.g. programmable robots etc. Executes, checks and changes programs. Understands that programs execute by following precise instructions.
 Recognises that digital content can be represented in many forms. Distinguishes between some of these forms and can explain the different ways that they communicate information.
 Understands that computers have no intelligence and that computers can do nothing unless a program is executed. Recognises that all software executed on digital devices is programmed.
 Obtains content from the world wide web using a web browser. Understands the importance of communicating safely and respectfully online, and the need for keeping personal information private. Knows what to do when concerned about content or being contacted.
 Uses software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. Understands that people interact with computers. Shares their use of technology in school. Knows common uses of information technology beyond the classroom. Talks about their work and makes changes to improve it.

September 2022 - July 2023						
	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 7						
Learning	Scratch An introduction to programming using variables, IF statements and operators. Resulting in programming a calculator.	Computer Hardware Learning a computer is, the internal components, the CPU and how it all works.	Introduction to HTML An introduction to HTML creating web pages containing formatting, images and hyperlinks.	Scratch Game Maker An introduction to design and development - programming skills, levels and a scoring system.	Microbit Madness An introduction to the MicorBit programming a digital dice, digital compass and a handheld console.	Event Driven Scratch Programming skills including variables, random IFs and events, the magic 8 ball and a conversion calculator.
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Sticking Points Common Misconceptions	Purpose of an algorithm An algorithm is a plan for a computer program An IF statement allows the programmer to have a number of outcomes using loops Flowcharts shapes and purpose	Hardware is the physical - the equipment you use Software - the programs that run on the computer The difference between a wired and wireless connection	HTML is the most common programming language used for building websites All lines of code have to be placed in tags <> Purpose of a hyperlink Use of different file formats Has to be saved as .html to run as a webpage in a browser	Variables are data vaules that change when the user asks a question and there is an input e.g. The program asks the user their age	The events/blocks have to be in the correct sequence and attached for the program to function The program must be compiled for it to run	The program needs a start and end to be complete - the program will not initiate without these blocks
AOs	AO1 AO2 AO3	AO1 AO2	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3
Year 8						
Learning	My Digital World What to trust online, how to search smart, copyrights and copywrongs, staying safe online and evidencing cyber abuse.	Binary Bits & Bobs The binary number system, adding binary numbers, ASCII and codebreaking, bitmap images and how computers represent sound.	Introduction to Python Outputs, inputs and variables, data types and maths and selection.	HTML & CSS Introduc ing HTML and CSS, CSS backgrounds and images, DIV tags, page sections and CSS, CSS DIVs and layouts.	Shooter Game Maker Skills - understanding gravity, programming shooter, baddies and scoring, remembering levels and game development.	Microbit Madness An introduction to the MicorBit programming a digital dice, digital compass and a handheld console.
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Sticking Points Common Misconceptions	That you leave a digital footprint That when you delete some media it may not have deleted permanently Who you can speak to about cyber abuse/bullying	That the binary system uses a base 2 system compared to the denary/decimal base 10 system used in Maths Numbers are represented using 0's and 1's	Syntax erros are errors with langauge and/or punctuation Part of programming is debugging	The HTML is the content of the web page whereas the CSS is the styling of the web page The CSS must be saved as .style and be saved in the same folder as the webpage to fuction	The for loop is used when we know the number of iterations - the while loop is used when we don't know the number of iterations	The events/blocks have to be in the correct sequence and attached for the program to function The program must be compiled for it to run
AOs	AO1 AO2	AO1 AO2	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3
Year 9						
Learning	Back to the future Alan Turing and code breaking, Sir Tim Berners Lee and the WWW, George Boole and Logic Gates and Charles Babbage and sorting algorithms.	Computer Networks Introduction to networks and LANs, network hardware, introduction to the internet and WANs, internet connections and data packets.	Python Programming Remembering Python, IF statements, while and for loops.	HTML, CSS & JavaScript Remembering HTML, CSS and introducing JavaScript, JavaScript inputs and outputs, IF statements and coded solution.	Scrolling Game Maker Understanding scrolling backgrounds, the flying object and shooter, the baddle object and scoring, programming levels, design and build.	Cyber Security Social media - public v private, identity theft, malware, hacking, encryption, cryptography and protection.
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<p>Sticking Points Common Misconceptions</p>	<p>That encryption was used in the WW11 Encrypted messages were sent between armies and any intercepted would need to be decrypted using a key The internet was given away for free - we pay a provider</p>	<p>The difference between a wired and wireless connection That you have to be connected to a network to use the internet, communicate, share software and access peripherals</p>	<p>Python is an open source software used by companies such as Twitter, Facebook and the BBC. The program has to be perfect in syntax and spacing - if not the program will run with errors and therefore need debugging.</p>	<p>HTML - content, CSS - styling and JavaScript is the behaviour of the webpage</p>	<p>Scrolling backgrounds can use different canvases - need to be coded in a loop</p>	<p>Hacking is not always for financial gain or unauthorised access - it can be used to test organisations' defence systems - it can be a highly skilled job.</p>
<p>AOs</p>	<p>AO1 AO2</p>	<p>AO1 AO2</p>	<p>AO1 AO2 AO3</p>	<p>AO1 AO2 AO3</p>	<p>AO1 AO2 AO3</p>	<p>AO1 AO2</p>

Concept	Explanation of concept	Year 11
Analyse	To understand the purpose, properties and content of digital products and pre-production.	
Plan	To be able to plan the creation of digital products and pre-production.	
Create	To be able to create digital products and pre-production.	
Review	To be able review digital products and pre-production.	

Concept	Explanation of concept	Year 10
Develop	To be able to develop a visual identity for a digital graphic highlighting purpose, elements and design.	
Plan	To be able to plan digital graphics for products using graphic design and conventions.	
Create	To be able to create visual identity and digital graphics using tools and techniques of imaging editing software.	
Review	To be able to review the merits, drawbacks and potential improvements of a product.	

September 2022 - July 2023		Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 10							
Learning	R094: Visual identity and digital graphics - Develop visual identity - 1.1 Purpose, elements and design of visual identity. Purpose - recognition/familiarity, establish a brand, develop a brand loyalty and visual communication with audiences/consumers. Components features - name, logo and slogan/strapline. Elements - graphics, typography, colour palette and layout. Visual identity - business type, values and positioning.	Plan digital graphics for products - 2.1 Graphic design and conventions. Concepts of graphic design - application of visual identity, alignment, typography, use of colours/systems and use of white space, Layout conventions for different graphics products and purposes - additional information, headlines and copy, image, content, titles and mastheads. 2.2 Properties of digital graphics and use of assets. Technical properties of images and graphics - bitmap and raster properties and vector graphic properties. Licenses and permission to use assets sourced from client images, internet, logos, photographs and stock library.	2.3 Techniques to plan visual identity and digital graphics. Pre-production and planning documentation used to generate ideas and concepts for visual identity and digital graphics - mood board, mind map, concept sketch and visualisation diagram.	3.1 Tools and techniques used to create digital graphics. Software tools and techniques used to create digital graphics - image/canvas size, layout tools, drawing tools, adjustments to brightness/contrast and colour, use of selections, use of layers and layer styles, retouching, typography and filters and effects. 3.2 Technical skills to source, create and prepare assets for use within digital graphics - source/create assets for use in digital graphics, modify images and other assets to ensure technical compatibility for use within print graphics. 3.3 Techniques to save and export visual identity and digital graphics - save and export.	R099: Digital games - Plan digital games - 1.1 Types, characteristics and conventions of digital games. Types of digital game and their characteristics, conventions and styles of digital games, game objectives and creativity in digital games. 1.2 Resources required to create digital games. Hardware, peripherals and software. 1.3 Pre-production and planning documentation and techniques for digital games - game concepts and game planning .	Create digital games - 2.1 Techniques to explain game concepts. Game Design Documents (GDD) - audience, purpose, format, layout and templates and content of GDDs. 2.2 Technical skills to create and/or edit and manage assets for use within digital games. Preparation of assets and asset management within game creation software. 2.3 Technical skills to create digital games. Techniques used to create digital games. 2.4 Techniques to save and export digital games. Saving digital games during creation and exporting finished digital games.	
Concepts	Develop	Plan	Plan	Create	Plan	Create	

Sticking Points Common Misconceptions	Typography is the style of text used, similar to when we use fonts previously. When we use the term graphics it includes photos, images, illustrations, shapes and symbols.	Layout conventions are about the composition of a digital graphic and the placement of the different elements . We can use assets in our work as long as we log information in an asset table - licenses and permissions are needed for any assets.	Concept sketches may be used to develop ideas before creating a final visualisation diagram. These will have less detail, and be faster to produce, than the visualisation diagram itself.	When creating a new document to meet a client brief, it is important to set up the size and resolution at the start. If you create a document that is the wrong size it will not fully meet the client requirements.	Hardware is the immediate equipment needed for a computer system such as the keyboard, mouse and monitor whereas Peripherals is the equipment needed to play the game on the edge of the system such as controllers and microphones.	Game Desgn Documents (GDDs) - support the process of turning an idea for a game into a finished product. It is a pre-production planning resource written for a target audience - developers, clients, customers and investors. Its purpose is to inform and to promote.
AOs	AO1	AO2	AO2	AO3	AO2	AO3

Year 11

Learning	R081 Pre-production skills. LO1 - the purposes, uses and content of pre production. R081 LO2 - planning pre-production, interpret client requirements, identify timescales based on target audience and end user requirements, conduct and analyse research, produce a work plan and production scehdule, identify target audience, hardware and software, health and safety and legislation.	R081 LO3 - produce pre-production documents, analyse pre-production, file formats and version control. R081 LO4 - review pre-production documents and identify areas for improvement re-production documents. JAN exam	JAN exam Contingency - R082 and R085	R087 Creating interactive multimedia products. LO1 - understand where different interactive multimedia products are used and their purpose, key design elements, hardware, software, peripherals, ternet connections and file formats. R087 LO2 - interpret client requirements, understand target audience, produce a work plan, planning structure and features, produce visualisation diagrams, identify assets and resources, produce a test plan and legislation on assets - whether	R087 LO3 - source assets to be used in product, create and re-purpose assets, store assets, create a product structure, set up interaction and playbackcontrols, save and export in appropriate file format to the software being used and the client requirements.	R087 LO4 - review interactive multimedia product against specific brief and identify areas for improvement and further development. Contingency - R082, R085 and R087 JUNE exam
Concepts	Analyse Plan	Create Review	Analyse Plan Create Review	Analyse Plan	Create	Review
Sticking Points Common Misconceptions	A storyboard and a script are the same pre-production document Understanding the purpose of a work plan - gantt chart and how to create one The difference between hardware and software The hazards associated with IT/environment Copyright covers a range of media	Version control allows us to save a document a number of times as different versions showing progress - versions are tracked with date and time	Exam is based on R081 although there are links to other units	Accessibility - can refer to the platform the product can be used on but also the individuals physical access such as visual or hearing impairments The design of products is influenced by the user and user requirements - data gathering ofetn takes place before designing such products	If we create the asset ourselves there is no legislation attached Some assets can be used in an educational setting without seeking permissions A logo can be used a home button - internal hyperlink	If you state there areas to improve and develop in your product you will not lose marks and it will not impact on your overall grade
AOs	AO1 AO2	AO3 AO4	AO1 AO2 AO3 AO4	AO1 AO2	AO3	AO1 AO2 AO3 AO4