Year 10 – iMedia – Knowledge Map

<table>
<tr><td rowspan="3">Autumn 1 (Yr10)</td><td colspan="2">Topic(s):
Creating Digital Graphics- Purpose & Properties</td><td colspan="2">Key Concepts Explored:</td></tr>
<tr><td colspan="2">Explicit Knowledge (Working knowledge to be explicitly taught within the topic)
• How digital graphics are used e.g. magazine covers, CD/DVD covers, adverts, web images & graphic, multimedia products and games.
• Why digital graphics are used (e.g. to entertain, to inform, to advertise, to promote, to educate)
• Types of digital graphics, i.e.:
- bitmap/raster
- vector
• File formats, i.e.:
- .tiff
- .jpg
- .png
- .bmp
- .gif
- .pdf
• The properties of digital graphics and their suitability for use in creating images, i.e.:
- pixel dimensions
- dpi resolution
- quality
- compression settings
• How different purposes and audiences influence the design and layout of digital graphics (e.g. the use of colour, composition, white space and styles).</td><td>Remembered Knowledge (knowledge that must be retained and remembered over time)
• Definition of the terms target audience, purpose, genre, house style.
• Difference between bitmap and vector images.
• Advantages & disadvantages of bitmap and vector.
• Properties of each file type, advantages and disadvantages and type of compression.
• Difference between lossy and lossless compression and what it is used for.
• Explain the terms pixel dimensions, DPI resolution, quality and compression.</td><td>Ref.</td></tr>
<tr><td colspan="4">Big Questions
What features are included to appeal to a target audience?
How are my different files saved?
Small Questions:
1. What is a target audience and what can we include to appeal to them?</td></tr>
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	2. What is a bitmap and vector image and what are the advantages & disadvantages of using them? 3. What is compression and how does a computer use it? 4. What is a file format and how are they used? 5. What is resolution?
	Key Vocabulary (that must be explicitly taught to help students to *understand*) House style Genre Target audience Purpose Bitmap Vector File type Compression Quali5y DPI Resolution Pixel

Year 11 – Computer Science – Knowledge Map

Autumn 2 (Yr11)	**Topic(s):** Programming Fundamentals	**Key Concepts Explored:**	
	Explicit Knowledge (Working knowledge to be explicitly taught within the topic) • The use of variables, constants, operators, inputs, outputs and assignments • The use of the three basic programming constructs used to control the flow of a program: - Sequence - Selection - Iteration (count- and condition-controlled loops) • The common arithmetic operators • The common Boolean operators AND, OR and NOT • The use of data types: - Integer - Real - Boolean - Character and string - Casting • The use of basic string manipulation • The use of basic file handling operations: - Open - Read - Write - Close • The use of records to store data • The use of SQL to search for data • The use of arrays (or equivalent) when solving problems, including both one-dimensional (1D) and two-dimensional arrays (2D) • How to use sub programs (functions and procedures) to produce structured code • Random number generation	**Remembered Knowledge** (knowledge that must be retained and remembered over time) • Practical use of the techniques in a high-level language within the classroom • Understanding of each technique • Recognise and use the following operators: - == Equal to - != Not equal to - < Less than - <= Less than or equal to - > Greater than - >= Greater than or equal to - + Addition - - Subtraction - * Multiplication - / Division - MOD Modulus - DIV Quotient - ^ Exponentiation (to the power of) • Practical use of the data types in a high-level language within the classroom • Ability to choose suitable data types for data in a given scenario	Ref.

		• Understand that data types may be temporarily changed through casting, and where this may be useful.
		• Practical use of the additional programming techniques in a high-level language within the classroom
		• Ability to manipulate strings, including:
		  - Concatenation
		  - Slicing
		  - Arrays as fixed length or static structures
		• Use of 2D arrays to emulate database tables of a collection of fields, and records
		• The use of functions
		• The use of procedures
		• Where to use functions and procedures effectively
		• The use of the following within functions and procedures:
		  - local variables/constants
		  - global variables/constants
		  - arrays (passing and returning)
		• SQL commands:
		  - SELECT
		  - FROM
		  - WHERE
		• Be able to create and use random numbers in a program	

	Big Questions How can I make use of a range of different operators and expressions within my programs?		

	How can I assess and justify a suitable solution for a program? What skills do I require to test and evaluate programs in order to improve their performance? **Small Questions:** 1. How can I deconstruct a scenario to help me to create a program? 2. How can I incorporate variables, inputs and outputs into my programs? 3. What errors may I encounter when I code and what do they mean? 4. What do I need in my program to make it successful and why? 5. What is a string and how can I store a string as a variable? 6. What is concatenation and how can I use it within my programs? 7. What is an operator and what are the different types? How can I make use of them in my programs? 8. How can I make use of programming skills to create an efficient program?
	Key Vocabulary (that must be explicitly taught to help students to *understand*) Variable Constant Operator Input Output Assignment Sequence Selection Iteration Boolean Data Type Integer Real Boolean Character String Casting High-level language Concatenation Slicing

	Array Function Procedure Local variable Global variable SQL

Year 11 – iMedia – Knowledge Map

Autumn 1 (Yr11)	**Topic(s): Creating Interactive Multimedia Products- Understanding the uses and properties & Planning**	**Key Concepts Explored:**	
	Explicit Knowledge (Working knowledge to be explicitly taught within the topic) • Where different interactive multimedia products are used and their purpose, i.e.: - websites - information kiosks - mobile phone applications - e-learning products • Key elements to consider when designing interactive multimedia products, i.e.: - colour scheme - house style - layout - GUI (graphical user interface) - accessibility • The required hardware, software and peripherals to create and view interactive multimedia products • The type of limitations caused by connections, bandwidth and data transfer when accessing interactive multimedia products • File formats supported by different platforms (e.g. computer, smartphone) • Interpret client requirements for interactive multimedia products (e.g. for informative, educational, testing or entertainment purposes) based on a specific brief (e.g. by client discussion, reviewing a written brief, or specification) • Understand target audience requirements for interactive multimedia products • Produce a work plan for an original interactive multimedia product, to include: - tasks - activities - workflow - timescales - resources	**Remembered Knowledge** (knowledge that must be retained and remembered over time) • Definition of the terms target audience, purpose, genre, house style. • Features of interactive multimedia products and how to apply to own tasks. • Methods of internet connection. • Discuss target audience following categories • How to produce a workplan • How to produce a site map with navigation links • How to produce a visualisation diagram discussing house style • Understanding of hardware, software and peripherals for a n interactive multimedia product. • What is a test plan, what is it used for and how can it be applied to creating an interactive multimedia product. • How legislation applies to creation of an interactive multimedia product.	Ref.

	- milestones - contingencies • plan the structure and features of an interactive multimedia product (e.g. non-linear navigation, screen size, interaction, rollovers) • Produce a series of visualisation diagrams to include: - screen design (e.g. colour scheme, text, layout) - navigation features (e.g. GUI, menus, buttons, links) - assets (e.g. images, graphics, sound, video, animation) • Identify the assets and resources needed to create an interactive multimedia product • • Create and maintain a test plan to test an interactive multimedia product during production. • How legislation (e.g. copyright, trademarks, logos, intellectual property use, permissions and implications of use) applies to assets (e.g. sound, video) to be used when creating interactive multimedia products, whether sourced or created.		
	Big Questions What skills do I need to create an interactive multimedia product? How can we plan and prepare for the creation of an interactive multimedia product? **Small Questions:** 1. What is an asset and where can I get an asset from? 2. What is a sitemap and how can I use it to plan my interactive multimedia product? 3. What is a visualisation diagram and how can I use it to plan my interactive multimedia product? 4. What tools do I need to create a professional interactive multimedia product? 5. What techniques can I use to create a professional interactive multimedia product? 6. What are the different ways I can save my work and which is most appropriate for my task? 7. How can I export my interactive multimedia product and which format is most appropriate? 8. What is version control and how can I apply it to my work?		
	Key Vocabulary (that must be explicitly taught to help students to *understand*) Multimedia Website Kiosk Mobile Phone Application		

	E-Learning Product Colour Scheme House style Layout GUI Accessibility Hardware Software Bandwidth Data Transfer Speed Screen Design Legislation Visualisation Diagram Asset Copyright Trademark