PARKSIDE COMMUNITY SCHOOL

EMBARK FEDERATION

Computer Science & I Media Learning Journey

Computer Science

&

Creative I Media

Learning Journey

Intent · Implementation · Impact

Computer Science & I Media Learning Journey

Curriculum Intent

At Parkside, our Computer Science curriculum is designed to inspire and equip students with the knowledge, creativity, and critical thinking skills necessary to thrive in a digitally interconnected world. We recognise that computing is not only a foundational discipline for future careers but a vital element of modern citizenship. Our intent is to ensure all students become confident, informed, and responsible users and creators of digital technology.

We aim to deliver a broad, balanced, and ambitious curriculum that interleaves three core pillars of computing—**Computer Science**, **Digital Literacy**, and **Information Technology**—through a coherent and structured learning journey. From Year 7 onwards, students progressively build secure foundational knowledge in areas such as e-safety, programming, data handling, computer systems, and digital creativity.

Our curriculum seeks to:

- **Foster computational thinking** by introducing programming through visual and text-based languages such as Flowol, HTML, Python, and Edublocks.
- **Build digital fluency** by enabling students to navigate modern digital tools including spreadsheets, cloud platforms, and presentation software.
- **Demystify technology** by exploring how hardware and software work together, from binary logic to real-world data networks.
- **Promote creativity** through engaging units in animation, 2D/3D graphics, and interactive multimedia products.
- **Support diversity and inclusion** by highlighting a broad range of digital career pathways and representing diverse contributions within the tech sector.
- **Embed cross-curricular links** with subjects such as Maths, English, Science, and MFL to reinforce key concepts like logical reasoning, syntax, and problem-solving.
- **Develop digital responsibility** by teaching students how to interact safely, ethically, and legally in online environments.

Ultimately, we intend for students to leave Key Stage 3 as competent digital citizens who can think algorithmically, communicate their ideas effectively, and confidently navigate digital systems. Our long-term aim is to nurture the next generation of digital innovators, informed decision-makers, and ethical participants in an ever-evolving digital society.

K Flowers – Teacher of Computer Science and Creative Imedia

Computer Science & I Media Learning Journey

Curriculum Implementation

The Computer Science curriculum at Parkside is implemented through a three-year structured learning journey in Key Stage 3 (Years 7–9), with Creative iMedia as an option in Key Stage 4. Our curriculum is deliberately sequenced to progressively develop students' knowledge, digital skills, and computational thinking, while interleaving key strands of Computer Science, Information Technology, and Digital Literacy to build a rich, connected understanding of computing.

We begin in Year 7 by establishing foundational digital literacy and introducing control systems and programming using visual tools such as Flowol and Micro:bits. Students learn about safe and effective use of digital tools, cloud storage, and spreadsheet modelling in practical, context-driven units. This early grounding supports future learning by embedding core concepts such as inputs/outputs, logical flow, and responsible online behaviour.

In Year 8, students revisit and extend key knowledge areas through more challenging and abstract concepts. They deepen their programming understanding via Edublocks and Python, develop more advanced spreadsheet models using IF and VLOOKUP functions, and explore hardware components, memory, and binary systems. Creativity and computational fluency are reinforced through units in 2D animation and digital art.

By Year 9, students engage in specialised and vocationally aligned units designed to prepare them for Key Stage 4. These include web development with HTML and CSS, 3D modelling using Blender, and business-focused projects such as "Jen & Berry's Marketing". These units mirror real-world applications of computing and support transition into Creative iMedia or future GCSE Business studies.

Key features of our implementation include:

- **Progressive Skills Development:** From block-based coding to text-based programming, from basic file handling to interactive multimedia and website creation.
- **Interleaving of Core Themes:** Concepts such as algorithms, data handling, digital safety, and user interface design are revisited and developed across multiple units and year groups.
- **Disciplinary Literacy:** Technical vocabulary is explicitly taught and regularly revisited to ensure students can articulate computing concepts with accuracy and confidence.
- **Practical, Project-Based Learning:** Each unit contains real-world contexts and practical applications, allowing students to produce purposeful outcomes, e.g., working apps, websites, and animations.
- **Cross-Curricular Integration:** Links to maths (binary, logic), science (systems thinking), design (digital graphics), and languages (syntax and grammar rules) strengthen conceptual understanding.
- **Inclusivity and Cultural Capital:** The curriculum reflects the diversity of the computing world, promotes a wide range of progression routes, and helps all learners understand the societal impact and opportunity within the digital sector.

Assessment is embedded throughout through regular retrieval practice, low-stakes quizzes, project evaluation, and practical demonstrations. This informs responsive teaching, ensuring students are supported to achieve mastery at each stage before progressing further.

The implementation approach ensures that every student develops into a confident digital user, creative problem solver, and critical thinker—well prepared for future study and the demands of a technology-driven society.

Curriculum Impact

The impact of our Computer Science curriculum is reflected in the development of digitally fluent, confident, and responsible learners who are equipped for both academic progression and real-world digital demands.

Through carefully sequenced units, embedded assessment, and inclusive teaching practices, students acquire not only the core knowledge of computing systems, but also the transferable skills to thrive in a digitally connected world. Over the course of their learning journey, students:

- Develop deep subject knowledge across key computing domains—including programming, data, hardware, multimedia, and networks—and can articulate this using accurate disciplinary language.
- Demonstrate practical digital competence, producing purposeful outcomes such as working animations, websites, spreadsheets, and 3D models that mirror industry standards and vocational expectations.
- Apply computational thinking through problem-solving activities that develop logic, reasoning, and structured thinking—skills that are vital across the wider curriculum and future careers.
- Exhibit independence and creativity in their digital work, planning and producing unique projects that demonstrate critical evaluation and iterative design processes.
- Understand their digital responsibilities, demonstrating awareness of online safety, cyber ethics, and the legal implications of digital interaction.

Assessment of Impact

We measure the effectiveness of our curriculum through a combination of formative and summative strategies:

- Formative assessment occurs continuously through questioning, retrieval practice, interactive tasks, and verbal feedback within lessons. This ensures misconceptions are addressed and learning is consolidated.
- Summative assessments are built into each unit through end-of-topic tests and evaluated digital artefacts, measuring not only theoretical understanding but also practical application.
- Pupil voice, work scrutiny, and engagement data (e.g. behaviour logs, reward systems, and attendance) provide ongoing insight into learner experience and curriculum accessibility.

- **Progress tracking** allows for tailored intervention, and regular reports to parents communicate student strengths, gaps, and next steps.

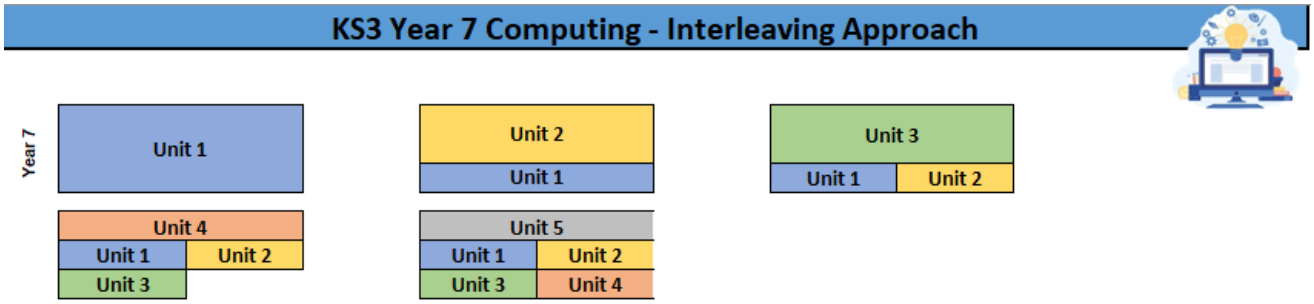
As a result, students leave Key Stage 3 with the foundational knowledge and skills to successfully transition to KS4 options such as Creative iMedia, and ultimately, into further study or employment pathways that require digital competence.

Furthermore, students' understanding of the broad career opportunities in computing—including creative, technical, and entrepreneurial roles—ensures they can make informed and aspirational decisions about their future. The Computer Science curriculum at Parkside therefore not only equips students for academic success, but also empowers them as capable, informed contributors in the ever-evolving digital world.

Learning Journey overview

Year 7: Topic summary

How we interleave topics to enable pupils to build and recall knowledge.



Year 7

Unit 1	Unit 1 Introduction to Computing								
	Unit 1 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6	L1 L2 L3 L4 L5 L6 L7
	Lesson Content	L1. Folder & file management	L2. Email	L3. Phishing	L4. Office 365	L5. E-safety	L6. Cyber Bullying	L7. Searching the WWW	L8. Assessment
Unit 2	Unit 2 Flowol								
	Unit 2 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L2 L3	L1 L2 L3 L4 L5 L6 L8 Unit 1
	Lesson Content	L1 Introduction to Flow Charts	L2. Pelican crossing	L3. Robots	L4. School bus	L5. Cat mobile	L6. Variables	L7. trainset 1	L.8 Assessment
Unit 3	Unit 3 Introduction to Presententation								
	Unit 3 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5		
	Lesson Content	L1. Aim and Audience	L2. Master Slide	L3. Adding Content	L4. Adding Hyperlinks	L5. Interactive Quiz	L6. Evaluation/Assessment		
Unit 4	Unit 4 Spreadsheet Modelling								
	Unit 1 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6	L1 L2 L3 L4 L5 L6 L7
	Lesson Content	L1. Spreadsheet Basics	L2. Football Formula	L3. Revenue and Cost	L4. Vlookups	L5. Sales Costs	L6. Weekly Sales	L7. Spreadsheet functions	L8. Assessment
Unit 5	Unit 5 Micro Bits								
	Memory recall						Unit 1 & 2		
	Unit 5 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5		
	Lesson Content	L1. Micro Bit introduction	L2. Dice Roll	L3. Compass	L4. Gamer (rock paper scissors)	L5. Virtual Pet	L6. Assessment		

Computer Science & I Media Learning Journey

Computing Topic Descriptors

Year 7

Unit 1 Introduction to Computing

The **Year 7 Introduction to Computing** unit focuses on building foundational digital literacy skills. Students begin by learning the differences between folders and files, exploring how to name and organise digital content efficiently. They are introduced to **email communication**, understanding its structure, advantages, and disadvantages. The dangers of **phishing emails** are highlighted through interactive tasks, teaching students how to identify suspicious messages using clues like urgency, poor grammar (SPAG), and mismatched links. The unit progresses into **cloud computing**, where students explore the benefits and limitations of tools like **Office 365** and **OneDrive**. They learn how cloud storage supports remote access, data backup, and collaboration, while also discussing issues like internet dependency and online security. Through practical tasks, students navigate cloud platforms and reflect on how digital tools enhance productivity. **E-safety and cyberbullying** are central themes, with students examining real-world scenarios and discussing responsible behaviour online. Activities help them recognise unacceptable conduct, understand relevant laws, and explore the impact of digital actions on others. Finally, the unit develops **research and internet searching skills**, guiding students to refine search results using keywords and evaluate the credibility of sources. Tasks involve analysing websites, using search engines effectively, and gathering information for creative projects. Throughout, emphasis is placed on safe, efficient, and critical use of technology. Students demonstrate learning through screen captures, reflections, quizzes, and retrieval activities, supported by regular feedback. The unit builds a strong foundation for responsible and informed digital citizens.

Unit 2 Flowol

Flowol 4

The **Year 7 Flowol unit** introduces students to control systems and programming through flowchart-based simulations. Students begin by learning to identify and define key terms such as input, output, variable, loop, and subroutine. They explore how control systems are used in real life through projects like simulating zebra and pelican crossings. These projects require students to create flowcharts that control lights, delays, and pedestrian signals, promoting understanding of sequencing and decision-making. As the unit progresses, students work with increasingly complex mimics, including **robots**, **school buses**, and **cot mobiles**, where they must program realistic actions using flowchart commands. Tasks involve adding decisions, delays, and loops to mimic how real-world devices respond to different inputs. Students develop systems where buttons trigger outputs, such as lights or motors, and refine their programs for more realistic behaviours.

Later lessons introduce **subroutines**, reusable blocks of code that simplify flowcharts and make them more efficient. In the **Big Wheel** and **Train Set** tasks, students manage more advanced challenges like tracking variable counts, avoiding collisions, and syncing lights with sensor inputs. These projects help students understand how automation and feedback systems work.

Throughout the unit, students are encouraged to problem-solve, justify their design choices, and reflect on improvements. Retrieval activities help reinforce vocabulary and concepts, while final tasks allow for creativity and technical independence. By the end, students gain practical experience in designing, simulating, and debugging control systems—skills that form the foundation for more advanced computing and robotics topics.

Unit 3 Introduction to Presentations

This introduction to creating interactive multimedia presentations is for Year 7 students. The central task is to design a professional-quality multimedia product focused on a chosen subject, tailored to a specific aim and target audience. The product must include a variety of multimedia elements such as text, images, sound, and animation, along with a quiz to assess user understanding. Interactivity is key—users should be able to navigate the content and access information based on their interests or needs.

The lessons are structured progressively. Lesson 1 guides students to define the product's aim and audience using Microsoft Word. Lesson 2 introduces the Slide Master feature in PowerPoint, allowing students to create a consistent and professional layout, including themes, logos, navigation buttons, and designated content areas. Lessons 3 and 4 focus on adding and linking content through slides and hyperlinks.

Lesson 5 centres on creating a functional quiz with at least five questions, using separate text boxes for responses and feedback visuals (images for correct or incorrect answers). Lesson 6 involves assessment and evaluation, where students complete an online assessment and write a reflective evaluation. This includes discussing how the product meets its original aims, its suitability for the audience, design choices like colour scheme, peer feedback, strengths, and areas for improvement.

Overall, the unit develops essential ICT skills including planning, designing, and evaluating multimedia content, with an emphasis on creativity, user engagement, and purposeful design.

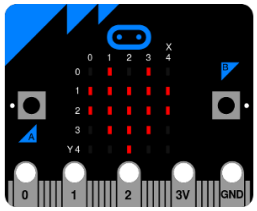
Computer Science & I Media Learning Journey

Unit 4 Spreadsheet Modelling

The **Year 7 Spreadsheet Modelling unit** introduces students to the fundamentals of using spreadsheets for practical and real-life applications. Students begin by learning the parts of a spreadsheet—such as cells, rows, columns, formulas, and functions—and how to enter and format data accurately. They practise basic arithmetic operations using formulas for addition, subtraction, multiplication, and division, along with formatting tools to improve spreadsheet readability. The unit includes scenario-based projects, such as managing a football league table, planning a party, and running a bumper car business. Through these tasks, students explore how to create models that calculate revenue, expenditure, and profit using formulas like SUM, and how to apply **absolute cell referencing** for consistent calculations. They also learn to **sort data**, use **conditional formatting**, and model "what-if" scenarios to explore different outcomes.

Students expand their skills by working across multiple worksheets and linking them together to create summary sheets. Tasks such as tracking ticket sales across days and summarising totals teach them to use functions and formula linking effectively. Throughout the unit, students reflect on questions about decision-making and spreadsheet design, applying logical reasoning and problem-solving skills. Practical assessments and retrieval tasks reinforce understanding of terms like macro, model, and function. By the end of the unit, students are able to create and manage structured spreadsheets to model real-world scenarios, use mathematical functions confidently, and explain how spreadsheets help make informed decisions. The unit builds strong foundational skills in digital numeracy and applied computing.

Unit 5 Micro bits



The Year 7 Micro:bit unit introduces students to physical computing and block-based programming through hands-on activities using Microsoft MakeCode. The unit begins with simple input/output tasks where students display text or images on the Micro:bit when pressing buttons A, B, or both. Students then enhance their code by adding loops, LED patterns, and different outputs for each input combination. As the lessons progress, students create interactive projects such as a dice simulator, where shaking the Micro:bit generates a random number or displays matching LED dots. They learn to use variables and expand functionality by modifying dice to show higher values and track results visually. Students also develop a digital compass, exploring how the Micro:bit's built-in sensors work to detect direction and adjust outputs accordingly.

In the Rock, Paper, Scissors project, students use random number generation to assign symbols and expand the game with custom icons and new rules. This strengthens their understanding of selection and condition-based responses in code. In the Virtual Pet challenge, students build simulations that react to inputs like button presses and sound, while managing variables like hunger or cleanliness.

Computer Science & I Media Learning Journey

Key programming concepts such as sequence, selection, iteration, and input/output interaction are emphasised throughout. Students reflect on digital safety and responsible technology use while building technical confidence. Retrieval tasks and assessments reinforce understanding of terms like “variable”, “input”, and “loop”. By the end of the unit, students have developed creativity, logical thinking, and practical coding skills in a fun, interactive environment.

Year 8: Topic summary

How we interleave topics to enable pupils to build and recall knowledge.

KS3 Year 8 Computing - Interleaving Approach

Year 8

Unit 1	Unit 1							
Unit 2	Unit 2	Unit 1						
Unit 3	Unit 3	Unit 1	Unit 2					
Unit 4	Unit 4	Unit 1	Unit 2	Unit 3				
Unit 5	Unit 5	Unit 1	Unit 2	Unit 3	Unit 4			

Year 8

Unit 1 Spreadsheet Modelling								
Memory recall			Y7 Unit 4 Spreadsheets					
Unit 1 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6	L1 L2 L3 L4 L5 L6 L7
Lesson Content	L1. Spreadsheet Recap	L2. IF statements	L3. What If	L4. Vlookups	L5. Absolute Cells	L6. Named ranges	L7. Spreadsheet functions	L8. Assessment

Unit 2 Understanding Computers							
Memory recall		Y7 Unit 1 introduction to computing					Unit 1
Unit 2 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6
Lesson Content	L1. Input, Output and Storage Devices	L2. Inside a computer	L3. Binary to Denary	L4. Binary Addition	L5. Storage Devices	L6. New technology	L7. Assessment

Unit 3 Edublocks							
Memory recall			Y7 Unit 5 Micro bits				Unit 1& 2
Unit 3 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6
Lesson Content	L1. Introduction and Interface	L2. Sequence of Code	L3. User input	L4. Variables	L5. Functions	L6. Extended Project	L7. Assessment

Unit 4 2D Animation								
Memory recall			Y7 Unit 5 Micro bits					Unit 1& 2 & 3
Unit 4 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6	L1 L2 L3 L4 L5 L6 L7
Lesson Content	L1. Stick Figures	L2. Stick People	L3. Stick Animals	L4. Custom Animals	L5. Backgrounds	L6. Library Characters	L7. 2D motion	L8. Assessment

Unit 5 Introduction to Python							
Memory recall			Y7 Unit 5 Micro bits				Unit 1& 2 & 3 & 4
Unit 5 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6
Lesson Content	L1. Algorithms	L2. Debugging	L3. Complex algorithms	L4. Iteration	L5. Functions	L6. Iteration for Loops	L7. Assessment

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Computing Topic Descriptors

Year 8

Unit 1 Advanced Spreadsheet Modelling

The **Year 8 Spreadsheet Modelling unit** builds on students' prior knowledge from Year 7 and introduces more advanced spreadsheet features to support data analysis, decision-making, and business modelling. The unit begins with the basics of entering data, creating and formatting formulas, and applying common functions such as SUM, AVERAGE, MAX, and MIN. Students use spreadsheets to explore real-life contexts, such as calculating wages and test results. A key focus of the unit is learning how to use **IF statements** to introduce logic and control into spreadsheets. Students also learn about **form controls** like tick boxes and spinners, which allow users to interact with the data and adjust values dynamically. These controls are used in "what if" simulations—for example, adjusting staff hours to stay within a budget while meeting certain working conditions.

Students are introduced to **VLOOKUP functions**, using them to extract data from lists and tables efficiently across various scenarios such as toy shops, test scores, and car garages. They also explore **absolute and relative referencing**, which is essential for creating flexible and reusable formulas. The unit concludes with students applying named ranges and building complex spreadsheet models that demonstrate clear understanding of structure, formatting, and logic. Retrieval tasks, practical assessments, and reflection activities ensure students can define key terms, explain how functions work, and apply them in a structured, problem-solving approach. By the end, students are confident in using spreadsheets as powerful tools for modelling, analysis, and interactive decision-making.

Unit 2 Understanding Computers

The **Year 8 Computing Unit 2: Understanding Computers** focuses on developing students' knowledge of computer hardware, memory, binary systems, and data processing. The unit begins with identifying input, output, and storage devices, helping students understand their roles in a computer system. Learners explore internal components such as the **CPU, RAM, ROM, motherboard, and graphics card**, and study how data flows through the **FDE cycle (Fetch-Decode-Execute)**.

Students research how different CPU speeds impact performance and cost, using real-world online shopping tasks to compare specifications. They investigate memory types and storage options, comparing devices based on capacity, durability, and portability. Cloud storage is also discussed, highlighting both its benefits and potential security risks. A major element of the unit is understanding **binary number systems**.

Students convert between binary and denary, and practise **binary addition**, applying rules and working through increasingly complex examples, including full 8-bit calculations. This mathematical aspect reinforces logical thinking and highlights how data is represented digitally.

Students also reflect on the evolution of technology, completing tasks that compare past and present computing devices and trends. Research-based activities encourage them to evaluate how storage, processing, and user interfaces have changed over time. Throughout the unit, students complete "Do Now" activities, quizzes, and retrieval tasks to reinforce vocabulary and deepen understanding. By the end, they can explain how core computer systems operate, apply binary arithmetic, and assess different types of memory and storage—building a solid foundation for further learning in computing and digital systems.

Unit 3 Edublocks

The **Year 8 Edublocks Computing Unit** introduces students to Python programming concepts through a visual, block-based platform called **Edublocks**. The unit begins by reinforcing foundational coding knowledge, prompting students to reflect on where coding appears in everyday life. Students learn the basics of Python syntax using commands like `print`, `import`, and `range`, and understand how these control repetition and delays in code.

A core feature of the unit is using **Turtle Graphics** to draw shapes, encouraging creativity and precision. Students are guided through tasks like drawing squares, rectangles, and patterns, with challenges that involve changing **pen colours**, **widths**, and **angles**. Through this, they learn about **loops**, **variables**, and **user input**, gradually transitioning into more complex structures. As the lessons progress, students use **input statements**, including integers, to personalise programs. They explore how to accept user-defined values to control shape size, number of sides, and angles. Key computing concepts—**sequence, selection, and iteration**—are consistently reinforced.

Students then build and modify their own **functions**, learning how to encapsulate reusable blocks of code. This includes experimenting with shape design, colour, background settings, and pen movement. Toward the end of the unit, they apply these skills in a creative project where they **design a game using Turtle**, with challenges to customise and debug their code independently. Throughout, students complete retrieval tasks, practical challenges, and an online assessment. The unit successfully builds logical thinking, problem-solving, and programming fluency in an accessible, engaging way that prepares learners for text-based coding in future years.

Computer Science & I Media Learning Journey

Unit 4 2D animation

The **Year 8 2D Animation unit** introduces students to the core principles of animation using **Pivot Animator**. The unit begins with foundational skills, including adding **frames**, **flipping characters**, and **changing colours and sizes**. Students learn how to build a sequence of animated frames that show movement and transformation. They work toward creating short clips with at least 10 frames, incorporating elements like dancing figures, colour changes, and scale adjustments.

As students progress, they begin working with **backgrounds** and **walking animations**, simulating realistic movement across the stage. They then move to more advanced tasks like telling a story visually through animation. For example, students animate a narrative using an elephant, a horse, and optional props, ensuring their message is communicated without words. These activities teach students how **frame rate**, **character interaction**, and **movement consistency** contribute to smooth, understandable animation. Students later create **custom stick figures**, using them in themed animations such as sports sequences with multiple figures, backgrounds, and dynamic changes in colour, size, and direction. They also explore **scene interaction** and **background transitions**, which enhance storytelling and visual interest.

In the final task, students complete a **20–40 frame animation** on the theme "When You Are Young," showcasing all skills developed. Regular retrieval tasks reinforce vocabulary and techniques such as "play," "flip," and "import background." By the end of the unit, students have gained confidence in storytelling through movement, applied digital art skills, and developed an understanding of how animation communicates action, emotion, and narrative visually.

Unit 5 Introduction to Python

The **Year 8.5 Introduction to Python** unit uses the Turing Lab platform to help students develop foundational programming skills using real text-based Python code. Students begin by creating an account on the website and following a structured course designed to guide them through the basics of syntax, commands, and algorithmic thinking. The early lessons introduce **movement commands**, **functions**, **arguments**, and the structure of an **algorithm**.

Students explore the concept of **strings**, **sequences**, and the importance of correct **syntax** (including brackets and quotes) while coding projects like planting crops on a virtual farm. As the lessons progress, the unit focuses on using **loops**, specifically for loops, and introduces the principle of **iteration** in programming. These are reinforced through game-like simulations that mimic tasks such as planting and harvesting.

Debugging plays a major role in helping students understand the trial-and-error nature of real coding. Learners are challenged to identify and fix bugs in pre-written scripts, encouraging **logical thinking** and precision. Students document their work through **screen captures** and reflective questions that test their comprehension of newly introduced terms like function calls, arguments, and navigation blocks.

By the end of the unit, students demonstrate the ability to build structured, functional Python programs with user-defined actions. They are assessed through retrieval tasks, quizzes, and interactive challenges. The unit builds student confidence in using text editors, understanding programming logic, and applying their knowledge to practical, game-style problems—all while building a strong base for future Python programming studies.

Computer Science & I Media Learning Journey

Year 9: Topic summary

How we interleave topics to enable pupils to build and recall knowledge.

KS3 Year 9 Computing - Interleaving Approach

Year 9

Unit 1	Unit 2	Unit 3
	Unit 1	Unit 1 / Unit 2

Unit 4		Unit 5	
Unit 1	Unit 2	Unit 1	Unit 2
Unit 3		Unit 3	Unit 4

Unit 1 Jen and Berry's Marketing

Memory recall	Y8 Unit 6 Python							
Unit 6 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6	L1 L2 L3 L4 L5 L6 L7
Lesson Content	L1. Market Research	L2. Secondary Research	L3. Business Costs	L4. Profit/Loss	L5. Breakeven	L6. Sources of capital	L7. Business ownership	L8. Assessment

Unit 2 Computer Graphics

Memory recall	Y8 Unit 4 2D Animation					Unit 1
Unit 4 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5
Lesson Content	L1. Shapes	L2. Multiple objects	L3. Paths	L4. Project	L5. Vector Images	L6. Assessment

Unit 3 Introduction to Business

Memory recall							Unit 1& 2
Unit 2 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5	L1 L2 L3 L4 L5 L6 L7
Lesson Content	L1. Primary research	L. Secondary resear	L3 Business costs	L4 Profit/Loss	L5 Breakeven	L6 Sources of capita	L7 Business ownership

Unit 4 HTML

Memory recall	Y8 Unit 3 Edublocks					Unit 1& 2 & 3
Unit 4 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5
Lesson Content	L1. Introduction to HTML	L2. Building blocks	L3. Shortcuts	L4. Searching the web	L5. Assets for Own website	L6. Building own website

Unit 5 3D Animation

Memory recall	Y8 Unit 4 2D Animation					Unit 1& 2 & 3 & 4
Unit 5 Memory Recall		L1	L1 L2	L1 L2 L3	L1 L2 L3 L4	L1 L2 L3 L4 L5
Lesson Content	L1. Move, Rotate, Scale & Colour	L2. Animation, Names & Parenting	L3. Organic Modelling	L4. Lights, Camera, Render	L5. Project	L6. Assessment

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Computing Topic Descriptors

Year 9

Unit 1 Jen and Berry's Marketing

The Jen & Berry's business unit PowerPoint is an educational resource designed to guide students through the fundamentals of market research and product development using a fictional ice cream company. The lessons begin by defining key business terms such as market research, primary and secondary research, and customer profiling. Students learn that businesses conduct market research to understand consumer preferences, reduce risk, and make informed decisions.

The unit follows Jen & Berry's journey as they plan to expand from local parlour sales to supermarket distribution of 500ml ice cream tubs. Students engage in practical tasks including designing questionnaires, conducting interviews and focus groups, and analysing competitors. They use this data to develop a customer profile and generate product ideas tailored to the target market.

Further lessons cover evaluating and refining product ideas through self- and peer-assessment, finalising a design, and selecting appropriate pricing strategies like penetration or psychological pricing. Financial literacy is introduced through lessons on calculating revenue, costs, and profit or loss, ensuring students grasp business viability.

The final stages focus on marketing strategies, particularly the 4Ps (Product, Price, Place, Promotion), culminating in students justifying their business decisions and creating a promotional poster for their product. The unit not only teaches business fundamentals but also emphasizes decision-making, creativity, and analytical thinking in a real-world business scenario.

Unit 2 Computer Graphics

The **Year 9 Computer Graphics unit** introduces students to the fundamentals of creating digital artwork using vector graphic tools. The course begins with basic shape creation, such as rectangles, ellipses, polygons, and stars. Students learn how to modify shapes using different **fill styles**, **outlines**, and alignment features. They apply these skills by designing objects like **houses**, using snapping and layering tools to position elements like doors, windows, and roofs accurately.

As the unit progresses, students build more complex graphics using **multiple shapes**, and they are introduced to techniques like **grouping**, **colour changing**, and **combining shapes** through **Union**, **Difference**, and **Intersection** functions. These vector operations are used to create custom designs, such as **robots** and **superhero faces**. A major focus of the unit is developing control over **lines** (straight, curved, and freehand) and converting objects into **paths** for greater editing flexibility. Students apply these techniques to design characters and original artwork using creative expression and technical accuracy.

Later in the unit, students examine **icons**, **logos**, and **illustrations**, exploring how each communicates meaning or brand identity. Practical tasks include replicating real-world company logos and designing original ones. They also learn how to write and modify the **code behind vector graphics**, understanding the structure of scalable images. In the final lessons, students review and refine their graphics, using feedback and rubrics to improve design quality. Assessment involves practical creation, vocabulary recall, and self-evaluation. The unit successfully blends artistic creativity with technical skills, building a foundation for digital design and multimedia work.

Unit 3 Introduction to Business

The "Student Learning Portfolio – Unit 1: Introduction to Business" PowerPoint is a comprehensive resource aimed at introducing students to foundational business concepts and encouraging active engagement through tasks, quizzes, and applied learning activities. It covers key business vocabulary such as target market, primary and secondary research, costs, revenue, and profit. Students learn to distinguish between types of market research and their purposes, including understanding customer needs, reducing business risk, and aiding decision-making.

A significant portion of the unit focuses on primary research methods—like questionnaires, focus groups, and observation—highlighting their advantages and disadvantages. Secondary research methods are also explored, such as using government reports, financial records, and online articles. Practical tasks include sorting examples into primary or secondary research categories and evaluating the effectiveness of questionnaires.

The unit features activities on advertising methods, asking students to select appropriate media for specific products and justify their choices. Key financial concepts such as fixed and variable costs, total costs, revenue, and profit are introduced, with exercises guiding students to calculate break-even points in real-world scenarios. Students also engage in applied research by using the McDonald’s website to gather current business facts.

Regular “Do Now” recall questions and challenges reinforce knowledge and understanding. Reflection is encouraged through self-assessment of effort, understanding, and knowledge retention. Overall, the presentation is an interactive and student-centered approach to understanding the basics of business and marketing principles.

Unit 4 HTML

The **Year 9 HTML and Website Development unit** introduces students to core web design principles using **HTML** and **CSS**. The unit begins with foundational knowledge such as understanding the **World Wide Web (WWW)**, how websites are accessed via browsers, and the difference between the Internet and the web. Students explore how to structure a basic HTML document, edit it using text editors, and view the changes in a browser.

Early activities focus on adding essential elements like **headings**, **paragraphs**, **images**, **breaks**, and **hyperlinks**. Students learn about HTML **tags** and their correct syntax while practicing tasks like inserting titles and aligning content. As the unit progresses, students are introduced to **CSS (Cascading Style Sheets)** to control layout and appearance, including changing colours, fonts, and spacing.

Lessons also cover more advanced CSS concepts like **containers** and the use of tags to structure a page. Students learn how to apply internal styles and use selectors like a:link, a:visited, and a:hover to enhance interactivity. Retrieval activities reinforce understanding of concepts like IP addresses, data encryption, and responsive design. The unit also includes design planning, where students sketch out a multi-page website project with consistent themes and layout. They gather **assets**, including images and text, organise them into folders, and add them into HTML pages using **tables** and styled text. Finally, students build a working website using **Rocketcake**, applying their knowledge in a practical assessment. By the end, learners confidently combine HTML and CSS to build structured, styled, and functional webpages.

Unit 5 3D animation

The **Year 9 Blender unit** introduces students to 3D modelling and animation through hands-on projects using Blender, a professional open-source software. The course begins with key vocabulary building and an introduction to the Blender interface. Early lessons focus on creating simple 3D models like the **Party Monkey** and **Snowman**, allowing students to become comfortable with navigation and object manipulation.

Students then explore **colouring and material tools**, learning how to apply textures and surface properties to models. Lessons on **parenting and naming** teach students how to group and organise 3D elements in scenes. More advanced techniques are introduced, including **Edit Mode**, **extruding shapes**, **loop cuts**, and **adding faces** to refine models and create more complex geometries. Further into the unit, students develop their understanding of structure and detail by using the **knife tool** for precise cuts and shaping. They also explore **advanced colouring** to give depth and realism to their creations. Vocabulary and retrieval tasks link prior knowledge of 2D animation, computing concepts, and binary to the 3D modelling process, reinforcing interdisciplinary skills.

The final assessment challenges students to produce a rendered 3D scene based on the theme **"Space"**, showcasing all skills developed throughout the unit. Students reflect on their progress by evaluating their work using success criteria and feedback badges (WWW/EBI). By the end of the unit, students have a strong foundation in 3D modelling and rendering, with an understanding of both technical processes and creative design—preparing them for further exploration in digital art, animation, and media production.

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Core Knowledge Concepts

Computer Science Curriculum implementation
Knowledge concepts used to form Schemes of Learning

Computer Science & I Media Learning Journey

Year 7 Core Knowledge Concepts

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
Unit 1 Introduction to Computing	**Knowledge & Understanding** By the end of this unit, students will be able to: 1. **Define key digital literacy terms** including file, folder, email, phishing, cloud computing, and e-safety. 2. **Explain the difference between files and folders**, and understand the importance of naming and organising them properly. 3. **Identify common file types** (e.g. .doc, .ppt, .jpeg) and their purposes. **Communication & Online Safety** 4. **Compose and send emails** using appropriate structure and etiquette. 5. **Recognise phishing emails** and explain how to identify and safely respond to suspicious messages. 6. **Describe the risks of cyberbullying** and identify examples of harmful online behaviour. 7. **Understand the law related to online behaviour**, particularly around digital communication and cyberbullying.	**File**	A digital document that stores data such as text, images, or videos.
		Folder	A digital container used to organise files on a computer or in the cloud.
		Email	A method of sending messages electronically between people over the internet.
		Phishing	A scam where fake messages try to trick users into giving personal information.
		E-safety	Safe and responsible use of technology to protect yourself and others online.
		Cyberbullying	Bullying that takes place over digital devices or online platforms.
		Cloud Computing	Storing and accessing data and software over the internet rather than your local device.
		OneDrive	Microsoft's cloud storage service used to save and access files online.
		Office 365	A collection of Microsoft applications (Word, Excel, PowerPoint, etc.) available online.
		SPAG	Spelling, Punctuation and Grammar – important when judging if a message is legitimate.
		Search Engine	A tool like Google or Bing used to find information on the internet.
		Web Browser	Software used to access and view websites (e.g., Chrome, Edge, Firefox).
		Attachment	A file sent along with an email message.
		Spam	Unwanted or irrelevant emails, often sent in bulk.
		URL	Uniform Resource Locator – the web address of a specific webpage.
		Communication	The exchange of information, ideas, or messages using technology.

	Cloud Computing & Digital Tools 8. **Describe the purpose and benefits of cloud storage** platforms like OneDrive. 9. **Access and organise files** within Office 365 and cloud-based systems. 10. **Compare the pros and cons of cloud computing**, including cost, reliability, access, and security. **Research & Search Techniques** 11. **Use search engines effectively**, including refining results using keywords and negative terms. 12. **Evaluate the reliability and relevance of websites**, considering factors like the source, date, and purpose of content. **Evaluation & Reflection** 13. **List the advantages and disadvantages of using email** for communication. 14. **Reflect on personal digital habits** and how to stay safe and responsible online. 15. **Assess their own progress** using feedback tools like WWW (What Went Well) and EBI (Even Better If).	**Reliable Source** A trustworthy and accurate provider of information (e.g., BBC, government sites). **Keyword** A specific word or phrase used in a search engine to find relevant information. **Digital Footprint** The record of your online activity, including websites visited and posts shared.

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Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
Unit 2 Flowol **Flowol 4**	1. **Define and use key control system terms**, including input, output, process, variable, loop, decision, and subroutine. 2. **Describe how control systems work** in real-world contexts (e.g., traffic lights, crossings, trains, theme park rides). 3. **Explain the role of flowcharts** in designing and simulating automated systems. **Software & Simulation Skills** 4. **Use Flowol software** to build, test, and improve control systems using flowcharts. 5. **Create working simulations** involving lights, sensors, motors, and buttons using Flowol mimics (e.g., Zebra Crossing, Train Set, Cot Mobile). 6. **Build flowcharts using appropriate symbols**, including Start, Input, Output, Decision, and Subroutine blocks. **Programming Concepts** 7. **Use loops** (e.g., infinite/repeat loops) to make processes continuous or repeat under certain conditions. 8. **Use decisions** to control different outcomes based on inputs or sensor readings. 9. **Introduce and manipulate variables** to track counts, conditions, or events in the system. **Problem-Solving & Debugging** 10. **Identify problems in control system simulations** and suggest or implement improvements.	**Flowol**	A piece of software used to create and simulate flowchart-based control systems.
		Control System	A system that manages, commands, or regulates the behaviour of other devices.
		Flowchart	A diagram that shows the steps and decisions in a control system.
		Input	A signal or data received by the system (e.g., button press, sensor).
		Output	A response or result produced by the system (e.g., lights turning on, motors running).
		Process	The action or operation that happens in response to inputs.
		Decision (Diamond)	A block in a flowchart that asks a yes/no (true/false) question.
		Loop	A section of the flowchart that repeats actions continuously or until a condition is met.
		Subroutine	A smaller set of instructions within a flowchart that can be called multiple times.
		Mimic	A virtual model in Flowol used to simulate real-world control systems (e.g., zebra crossing, train set).
		Sensor	A device that detects changes (e.g., motion, light, position) and sends input to the system.
		Variable	A value that can change during the running of the program, used for counting or tracking.
		Delay	A pause in the system, often used to slow down the output or allow events to happen in order.
		Motor	A mechanical output device that moves parts of a mimic (e.g., wheel or barrier).
		Actuator	A device in the system that moves or controls something (e.g., motor, light).

	11. **Apply logical thinking** to modify and extend flowcharts for more realistic or complex behaviours. Application to Real-World Scenarios 12. **Simulate real-life control systems**, such as: o Zebra and Pelican crossings o Train crossings with sensors and barriers o Theme park rides (e.g., Big Wheel, Cot Mobile) o School bus dashboards 13. **Model efficient control systems** that respond to user inputs or environmental triggers. Evaluation & Communication 14. **Annotate flowcharts and simulations** using correct terminology to explain how each part works. 15. **Evaluate the effectiveness of a control system**, considering accuracy, timing, safety, and realism. 16. **Reflect on digital safety and data storage** (e.g., phishing emails, file types, using OneDrive).	**Simulation** A model that imitates how a real-life control system would behave. **Start/End Block** A symbol in a flowchart that indicates where the program begins or ends. **Program** A set of instructions that tells a control system what to do. **Trigger** An input that activates a specific response in a control system.

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Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
Unit 3 **Introduction to presentations**	• **Understand and interpret a design brief** ○ Identify the aim and intended audience for a multimedia product based on a given brief. • **Plan a multimedia presentation** ○ Outline the purpose, content, and structure of an interactive presentation tailored to a specific subject and user group. • **Use design tools to create a consistent house style** ○ Apply the Slide Master feature in PowerPoint to design a professional and thematic layout, including navigation elements. • **Incorporate multimedia elements effectively** ○ Integrate text, images, sounds, and animations to enhance the user experience and engagement. • **Design and structure content for interaction** ○ Create non-linear presentations using hyperlinks that allow users to navigate through information as needed. • **Develop and embed a quiz to assess understanding** ○ Design a minimum of five interactive quiz questions, including feedback visuals for correct or incorrect answers. • **Apply basic interactivity features in PowerPoint** ○ Use buttons and hyperlinks to create user-friendly navigation, including Home, Back, Help, and Quiz links. • **Evaluate a digital product critically** ○ Reflect on the effectiveness of the product against the original aims, the suitability for the intended audience, and areas for improvement. • **Incorporate peer feedback constructively** ○ Use feedback from others to identify strengths and development areas in their presentation. • **Demonstrate ICT proficiency** • Show competency in using Microsoft PowerPoint and Word to design, build, and present an interactive multimedia product	**Interactive**	A feature that allows users to engage directly with digital content.
		Multimedia	The use of different types of content such as text, images, sound, and video.
		Product	The final interactive presentation created for a specific purpose.
		Design Brief	Instructions outlining the goals, audience, and requirements of a project.
		Audience	The group of people the product is created for (e.g., age, interests).
		Aim	The main goal or purpose of the multimedia product.
		Professional	Of high quality; suitable for a real-world or formal setting.
		Slide Master	A tool in PowerPoint used to set the layout and design for all slides.
		House Style	A consistent design theme used throughout a presentation.
		Navigation	Tools like buttons and hyperlinks that help users move through the product.
		Hyperlink	A clickable link that directs users to another slide or webpage.
		Quiz	A set of questions used to test the user's understanding of the content.
		Feedback	Information given in response to a quiz answer (e.g., correct/incorrect).
		Evaluation	A reflective review of the product's strengths and areas for improvement.
		Content Area	The part of the slide where the main information is displayed

Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 4 Spreadsheet Modelling Microsoft Excel	**Knowledge & Understanding** 1. **Identify and define key spreadsheet terms**, including cell, row, column, formula, function, formatting, and macro. 2. **Understand how spreadsheets can be used** to model real-world situations such as finances, sports leagues, and business scenarios. 3. **Explain the difference** between absolute and relative cell references. **Technical Skills** 4. **Enter and edit data** in a spreadsheet using appropriate headings, labels, and formatting. 5. **Create and apply formulas** for basic arithmetic operations (e.g. add, subtract, multiply, divide). 6. **Use common functions** such as SUM, AVERAGE, and IF to automate calculations. 7. **Format spreadsheets** using tools such as cell borders, fonts, colours, and conditional formatting. 8. **Sort and organise data** using spreadsheet tools. **Modelling & Problem Solving** 9. **Build spreadsheet models** to explore outcomes (e.g. predicting profit based on variables). 10. **Use spreadsheets to investigate "what if" scenarios**, adjusting data to see how changes affect results. 11. **Apply absolute cell referencing** in formula construction for consistent calculations.	**Spreadsheet** – A digital document made of rows and columns used for organising and calculating data. **Cell** – The individual box in a spreadsheet where you can enter data (e.g., A1). **Column** – A vertical set of cells, labelled with letters (e.g., A, B, C). **Row** – A horizontal set of cells, labelled with numbers (e.g., 1, 2, 3). **Formula** – A calculation created by the user, starting with = (e.g., =A1+B1). **Function** – A built-in command that performs a specific task, like SUM() or AVERAGE(). **Formatting** – Changing how data looks in the spreadsheet (e.g., font, colour, borders). **Model** – A spreadsheet set up to simulate a real-life situation (e.g., budget or business). **Macro** – A recorded set of actions that can be run automatically to save time. **Profit** – The amount of money left after costs have been taken away from revenue. **Loss** – When costs are higher than the revenue earned. **Absolute Reference** – A fixed cell reference that doesn't change when a formula is copied (e.g., A1). **Relative Reference** – A cell reference that changes based on where the formula is copied. **Conditional Formatting** – A feature that changes the appearance of cells based on specific rules or values. **Chart** – A visual representation of spreadsheet data (e.g., bar chart, pie chart). **SUM** – A function that adds up numbers in a range. **IF Statement** – A formula that gives different results depending on a condition. **Autofill** – A tool that quickly copies a pattern or formula into other cells. **Worksheet** – A single page within a spreadsheet file. **Name Box** – The box that shows the cell reference of the active cell (e.g., B3).

	12. **Use linked sheets** to summarise data across multiple pages. Data Analysis & Interpretation 13. **Analyse business models** such as the Bumper Cars profit/loss spreadsheet using real or simulated data. 14. **Interpret results and draw conclusions** from spreadsheet outputs, including changes in profit and league rankings. Communication & Evaluation 15. **Explain how spreadsheet models work**, using appropriate vocabulary and examples. 16. **Evaluate the effectiveness** of a spreadsheet model in solving real-world problems (e.g., budgeting a party or running a business).	

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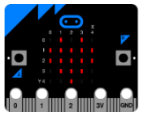
Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 5 Micro bits 	**Knowledge & Understanding** 1. **Define key computing terms** such as input, output, variable, sequence, selection, and iteration. 2. **Describe the purpose and function** of the BBC Micro:bit and the MakeCode programming environment. 3. **Understand the role of sensors** (e.g. motion, compass, buttons) in physical computing. **Programming & Problem-Solving** 4. **Create simple programs** using input commands such as button presses and shakes. 5. **Use basic output blocks** like show string and show LEDs to display text and images on the Micro:bit. 6. **Incorporate selection (IF statements)** to control the flow of a program based on different conditions. 7. **Apply loops** such as while and forever to repeat sections of code efficiently. 8. **Use and modify variables** to store data and control program behaviour (e.g. dice values, compass headings). 9. **Develop interactive programs** including games like **Rock, Paper, Scissors** and simulations like **Dice Rolls**. **Creative Thinking & Design** 10. **Design original LED images and icons** using the Micro:bit's display. 11. **Build a virtual pet** with multiple interactive features like hunger or cleanliness tracking. 12. **Create a working digital compass** using input from the Micro:bit's sensors.	**Micro:bit** A small programmable device used to teach basic programming and electronics. **MakeCode** A block-based coding environment used to program the Micro:bit. **Input** Data or actions received by the Micro:bit (e.g. button press, shake, sound). **Output** The response or result produced by the Micro:bit (e.g. text display, LED image). **LED** Light-emitting diode – used in the Micro:bit's 5x5 display grid to show images or text. **Button A/B** Physical buttons on the Micro:bit that trigger programmed events. **String** A sequence of characters (e.g. "Hello") used in programming. **Variable** A named container that stores data which can change during program execution. **Loop** A sequence of instructions that repeats until a condition is met or forever. **Forever Loop** A loop that repeats endlessly while the Micro:bit is running. **While Loop** A loop that repeats as long as a certain condition is true. **Random Number** A number generated without a set pattern, often used in games and simulations. **Compass** A built-in sensor in the Micro:bit that detects direction (bearing). **Sequence** The specific order in which code instructions are executed. **Selection** A decision-making structure using conditions (e.g. IF/ELSE statements). **Iteration** Another word for repetition – loops that repeat code. **Simulation** A model that imitates a real-life process, such as a dice roll. **Function** A named block of reusable code that performs a specific task. **Debugging** Finding and fixing errors or issues in code. **Phishing** A type of online scam where fake messages try to steal personal information.

	Testing, Debugging & Evaluation 13. **Test and refine programs** to ensure correct behaviour and output. 14. **Use logical reasoning** to explain how and why code works or needs improvement. 15. **Work independently and collaboratively** to solve challenges using creative code solutions. Digital Literacy & Online Safety 16. **Recognise phishing emails** and explain appropriate responses to protect personal information. 17. **Understand cloud storage** (e.g., OneDrive) and how it can be used to save and access work securely.	

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Year 8 Core Knowledge Concepts

Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
Unit 1 Advanced Spreadsheets Microsoft Excel	**Knowledge & Understanding** 1. **Identify and define** key spreadsheet terms such as **cell**, **formula**, **function**, **range**, and **VLOOKUP**. 2. **Understand the difference** between **absolute** and **relative** referencing in spreadsheet formulas. 3. **Explain the purpose** of spreadsheet features such as formatting, functions, and data modelling tools. **Practical Application** 4. **Enter and format data** in a spreadsheet using headings, number formats, and cell styles. 5. **Use functions** such as SUM, AVERAGE, MAX, MIN, COUNT, COUNTA, and COUNTIF. 6. **Create and apply formulas** using logical statements like IF and nested conditions. 7. **Insert and use form controls** (e.g., tick boxes, spinners) to create interactive spreadsheets. 8. **Apply conditional formatting** to visually organise and highlight data based on criteria. 9. **Use VLOOKUP** to search for and return data from a defined table range. **Problem-Solving & Modelling** 10. **Carry out 'What If' analysis** to change variables and explore outcomes within a model. 11. **Solve realistic data problems** using spreadsheet simulations (e.g., wage budgeting scenario).	**Spreadsheet**	A digital document made up of rows and columns used to store, organise, and calculate data.
		Cell	A single box in a spreadsheet where data is entered (e.g., A1).
		Formula	A calculation written by the user that starts with = (e.g., =A1+A2).
		Function	A pre-written formula in Excel or Sheets, such as SUM() or AVERAGE().
		Range	A group of cells selected together (e.g., A1:A10).
		Relative Reference	A cell reference that changes when copied to another location.
		Absolute Reference	A fixed cell reference (using $ symbols) that does not change when copied.
		If Statement	A logical formula that returns different values depending on whether a condition is true or false.
		Conditional Formatting	A tool used to change cell colour or style based on specific rules or values.
		Form Control	Interactive elements such as tick boxes and spinners added to spreadsheets.
		VLOOKUP	A function that searches for a value in one column and returns data from another column in the same row.
		COUNT	A function that counts the number of numeric values in a range.
		COUNTA	A function that counts all non-empty cells in a range.
		COUNTIF	A function that counts cells that meet a specified condition.
		Chart	A visual representation of spreadsheet data (e.g., bar chart, pie chart).
		Formatting	Changing the appearance of cells, text, or data to improve clarity.
		Model	A simplified representation of a real-world scenario using spreadsheet tools.
		Named Range	A descriptive label assigned to a range of cells, used in formulas.

	12. **Use named ranges** to simplify complex formulas and increase spreadsheet clarity. Data Interpretation 13. **Read, interpret, and explain data** from spreadsheets and charts. 14. **Design basic models** that represent real-world scenarios using spreadsheet tools. Communication & Reflection 15. **Explain how spreadsheet tools work**, using accurate vocabulary and examples. 16. **Evaluate spreadsheet solutions** based on effectiveness, efficiency, and ease of use.	**What-If Analysis** Exploring different outcomes by changing input values in a spreadsheet. **Macro** A recorded sequence of actions that can be played back to automate tasks.

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Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
Unit 2 Computer Hardware 	**Knowledge and Understanding** **Identify and describe** key computer components including input, output, and storage devices. **Explain the purpose** of internal hardware components such as the CPU, RAM, ROM, motherboard, and graphics card. **Understand the function** and importance of the **FDE (Fetch-Decode-Execute)** cycle in processing instructions. **Digital Literacy & Application** **Differentiate between RAM and ROM**, and explain how each contributes to a computer's operation. **Recognize and compare storage devices**, discussing their capacity, durability, portability, and common uses (e.g. SSD, HDD, USB drives, cloud storage). **Use binary code** to convert between **binary and denary** (decimal) number systems. **Perform binary addition**, including with carries, up to 8-bit values. **Research and Reasoning** **Investigate processor speeds** and explain how CPU performance affects computing tasks.	**Hardware**	The physical components of a computer system (e.g., keyboard, monitor, CPU).
		Input Device	A device that sends data into a computer (e.g., keyboard, mouse, microphone).
		Output Device	A device that receives data from a computer and presents it (e.g., monitor, printer).
		Storage Device	A component used to save data (e.g., hard drive, SSD, USB stick).
		CPU (Central Processing Unit)	The brain of the computer that carries out instructions.
		RAM (Random Access Memory)	Temporary memory that stores data currently being used by programs.
		ROM (Read Only Memory)	Permanent memory that holds essential system instructions.
		Motherboard	The main circuit board that connects all hardware components in the computer.
		Graphics Card	A component that handles visual output and rendering of images or video.
		FDE Cycle	The Fetch–Decode–Execute cycle; the basic operation cycle of a computer's CPU.
		Binary	The language of computers using only 0s and 1s to represent data and instructions.

	Use real-world examples (e.g. online retail or videos) to understand how technology has changed and evolved over time. **Literacy and Communication** **Use computing vocabulary confidently**, defining and applying terms such as binary, CPU, FDE, RAM, ROM, storage, input, output, and cloud computing. **Present information clearly** through slides and discussions, including historical context and facts about computing evolution. **Critical Thinking & Analysis** **Explain why binary is used** in computers and how it underpins all digital processing. **Describe how computer components interact**, particularly how data flows through the CPU and memory during the FDE cycle	**Bit** The smallest unit of data in computing, either 0 or 1. **Byte** A group of 8 bits, used to store a single character. **Denary** The base-10 number system, used in everyday mathematics. **Cloud Storage** A way to save data online using remote servers instead of physical hardware. **SSD (Solid State Drive)** A fast, durable type of storage device with no moving parts. **HDD (Hard Disk Drive)** A traditional storage device using spinning disks to store data

Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 3 Edublocks 	**Knowledge & Understanding** 1. **Define coding** and explain how it applies to everyday digital tools and systems. 2. **Identify and explain** key programming concepts: sequence, selection, and iteration. 3. **Recognize the purpose and use** of different input devices (e.g., mouse, keyboard, microphone). **Practical Skills** 4. **Navigate Edublocks** and use it to write, edit, and run Python code in block format. 5. **Write simple programs** using variables, loops (for, range), and input/output commands. 6. **Use Turtle Graphics** to draw basic and complex shapes, incorporating loops and angles. 7. **Enhance turtle drawings** by adjusting pen colour, width, and patterns. **Application & Problem-Solving** 8. **Use user inputs** (including int) to make dynamic and responsive programs. 9. **Create and use functions** to structure code for drawing and interactive tasks. 10. **Develop a custom program or game** that demonstrates control over shape, colour, speed, and inputs. **Creativity & Design** 11. **Design and implement unique turtle art** using loops, variables, and functions.	**Coding** Writing instructions that a computer can understand and execute. **Edublocks** A block-based visual programming tool that helps write Python code. **Variable** A container that stores information (e.g., a number or word) to be used in a program. **Loop** A programming structure that repeats a set of instructions. **For Loop** A loop that repeats a fixed number of times, defined by a range or condition. **Function** A named block of reusable code that performs a specific task. **Input** Information entered into a program by the user (e.g., typing or clicking). **Output** The result a program gives back to the user, such as printed text or drawings. **Print** A command that displays text or values on the screen. **Import** A command used to bring in external libraries like time or turtle. **Turtle** A Python library used to draw shapes and graphics by moving a "turtle" on screen. **Shape** A visual figure created using commands in the turtle library. **Integer** A whole number (positive or negative), often used in input or calculations. **Pen Width** Controls how thick the drawing lines are in turtle graphics. **Pen Colour** Controls the colour used by the turtle when drawing. **Background Colour** Changes the canvas or screen colour behind the turtle drawings. **Iteration** Repeating a set of actions (e.g., drawing lines in a loop). **Selection** Choosing between different actions in code based on conditions. **Sequence** The specific order in which instructions are written and run. **Syntax** The correct structure and rules of writing code in a programming language.

	12. **Incorporate user interaction** to personalise drawing outcomes and experiences. 13. **Experiment with changes** in pen colour, shape selection, and movement to improve their projects. Reflection & Evaluation 14. **Explain how their code works**, using key programming terminology correctly (e.g., loop, function, variable). 15. **Identify errors or bugs** and describe how they solved them during development. 16. **Evaluate and improve** their final game or drawing project based on set challenges and feedback.	

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Computer Science & I Media Learning Journey

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
Unit 4 2D animation 	**Understand Animation Fundamentals** • Identify and describe common animated films. • Explain how animations work using frames, movement, and changes in visual elements. **Create and Manipulate Basic Animations** • Add and edit individual animation frames using animation software (e.g., Pivot). • Apply basic transformations such as flipping, resizing, and recolouring animated characters. **Demonstrate Key Animation Techniques** • Construct animations with a minimum of 10 frames including dancing figures and varied visual styles. • Integrate background scenes and walk cycles to simulate realistic character movement. **Develop Narrative through Animation** • Create a coherent animated story (minimum 35 frames) involving characters (e.g., an elephant and horse) and objects. • Use non-verbal cues (e.g., movement, size, colour) to convey meaning. **Design Custom Figures and Scenarios** • Design original stick figures and animate them in sports or themed scenes (minimum 40 frames).	**Frame**	A single image in a sequence that makes up an animation.
		Animation	The process of creating motion and shape change by displaying images in order.
		Flip	A transformation that mirrors a character or object horizontally or vertically.
		Resize	Changing the dimensions (height or width) of an object or character.
		Recolour	Changing the colours of an object or character.
		Background	The scenery or setting behind the animated figures in each frame.
		Movement	The visual motion shown by changing the position of figures over frames.
		Walk Cycle	A repeating pattern of frames that shows a character walking realistically.
		Storyboarding	Planning out scenes and actions in a visual sequence before animating.
		Narrative Animation	An animation that tells a story without words.
		Custom Figure	A user-designed character, often a stick figure, created in the animation tool.
		Interaction	How characters or objects respond to each other within an animation.
		Pivot Animator	A program used to create stick figure animations by adjusting frames.
		Timeline	The part of the animation interface where frames are arranged sequentially.
		Play	The action of running the animation to preview movement and transitions.
		Keyframe	A main frame that defines the start or end of a smooth transition.
		Transition	The smooth movement or transformation between frames or scenes.
		Character Design	The process of creating the look, features, and movement of an animated figure.
		Export	Saving or converting an animation into a shareable video format.
		Frame Rate	The number of frames shown per second in an animation (affects smoothness).

	• Employ multiple figures with dynamic changes (size, flip, colour) and relevant backgrounds. **Incorporate Storytelling and Interaction** • Tell a story around themes such as friendship using interactive backgrounds and at least 20 frames. • Demonstrate progression by changing backgrounds and character interactions within the scene. **Reflect and Assess Work** • Use feedback mechanisms such as WWW (What Went Well) and EBI (Even Better If). • Engage in self-assessment and recall key animation terms (e.g., frame, play, background). **Complete a Summative Assessment** • Plan and complete a final animation titled **"When You Are Young"** showcasing all learned skills. • Highlight personal achievements and progress throughout the project.	

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Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 5 Introduction to Python 	**Lesson 1: Introduction to Python and Programming Basics** • I can explain what a **command**, **computer program**, and **text editor** are. • I can use basic **Python commands** to move characters or objects in an environment. • I understand how to **call functions** and **pass arguments**. • I can define an **algorithm** and understand how it relates to solving problems. • I know what a **string** is in Python. **Lesson 2: Sequencing and Syntax** • I can explain the concept of **sequence** in programming. • I understand the importance of **syntax**, including correct use of quotes and brackets. • I can recognise and apply **strings** correctly in my code. • I can independently **test myself** using Turing Lab and identify new coding terms. **Lesson 3: Debugging and Problem Solving** • I can identify and **debug errors** in a Python program. • I can apply logical thinking to write **bug-free programs**. • I understand what **bugs** are and how to fix them using code. **Lesson 4: Commenting and Navigation** • I can add **comments** to my code to explain what it does. • I understand why commenting is important for debugging and teamwork.	**Core Programming Concepts** • **Command** – An instruction for the computer to perform a specific task. • **Program** – A collection of commands that perform a task when run. • **Algorithm** – A step-by-step set of instructions to solve a problem. • **Function** – A reusable block of code that performs a specific task. • **Call (Function Call)** – The process of using a function in your code. • **Argument** – A value passed into a function when it is called. **Code Structure & Syntax** • **String** – A sequence of characters enclosed in quotation marks, e.g. "hello". • **Sequence** – The order in which commands are executed. • **Syntax** – The set of rules that define the structure of code in a programming language. • **Brackets** – Symbols used in functions and structures, such as () or []. • **Quotes** – Characters used to enclose strings, either single (') or double ("). **Programming Logic** • **Iteration** – Repeating a set of instructions (looping). • **For Loop** – A control structure that repeats a block of code a set number of times. • **Variable** – A named location used to store a value that can change during a program. • **Debugging** – The process of identifying and fixing errors in a program. • **Bug** – An error or flaw in the program that causes incorrect behaviour. **Documentation & Communication** • **Comment** – A note in the code (usually preceded by #) that explains what the code does but is not executed.

	• I can demonstrate the ability to **navigate and improve programs** effectively. Lesson 5: Applying Knowledge in Projects • I can start coding **from scratch**, building full programs with correct logic and structure. • I can describe the **steps and knowledge** needed to complete complex projects (e.g. harvesting the farm). • I can reflect on and identify my **new learning and key programming skills**. Lesson 6: Assessment and Reflection • I can complete a quiz to demonstrate my understanding of key concepts. • I can evaluate my progress using **WWW (What Went Well)** and **EBI (Even Better If)**. • I can showcase the development of my **computational thinking** and Python knowledge over time	• **Text Editor** – Software used to write and edit code (e.g. Notepad, Turing Lab editor). Computing & Digital Literacy • **Turing Lab** – An online platform for learning and practising Python programming. • **Hardware** – The physical components of a computer (e.g. CPU, RAM). • **Storage Device** – A device used to store data, such as a USB drive or hard disk.

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Year 9 Core Knowledge Concepts

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Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 1 Jen and Berry's Marketing	• I understand the term **market research** and the different market research methods. • I understand the **advantages and disadvantages** of using a **questionnaire**. • I can **create an effective questionnaire** for a specific purpose. • I understand **why businesses conduct market research**. • I understand the term **target market**. • I can **identify products** which target specific types of customers. • I can **create a customer profile** for Jen & Berry's. • I understand **why businesses have target markets**. • I understand **key business terms** (e.g., customer, competitor, primary/secondary research). • I can **plan a range of suitable questions** for an interview and focus group. • I understand the **advantages and disadvantages** of using **primary research methods**. • I understand **why businesses use interviews and focus groups**. • I understand the **importance to a business of knowing its competitors**. • I can **research Jen & Berry's competitors** and find useful information to help make business decisions • I can use **market research** to inform my **product ideas**. • I can **explain how my designs suit the customer profile**.	• **Market Research** – Methods used to gather information about consumer needs and preferences. • **Products** – Physical goods offered by a business (e.g. ice cream). • **Services** – Non-physical offerings (e.g. hairdressing). • **Customer** – A person who buys goods or services. • **Questionnaire** – A set of questions used to gather information from potential customers. • **Primary Research** – Original data collected first-hand by the business. • **Secondary Research** – Existing data used from other sources (e.g. internet, newspapers). • **Target Market** – A specific group of customers a product is aimed at. • **Customer Profile** – A detailed description of the ideal customer for a product. • **Interview** – A one-to-one conversation used to gather in-depth primary data. • **Focus Group** – A discussion with a group of people to gather opinions and feedback. • **Competitor** – A business offering similar products or services. • **Competitor Research** – Investigating rival businesses to inform your own product decisions. • **Product Development** – The process of creating and improving a product based on research. • **Design Suitability** – Matching the product's features to the needs of the target customer. • **Self-Assessment** – Evaluating your own work to identify strengths and areas for improvement. • **Peer Assessment** – Receiving constructive feedback from classmates.

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	• I can **amend and improve my designs** based on **self-reflection and peer evaluation**.
	• I can **design suitable product ideas** for the business need.
	
	• I can **complete a self-assessment** of my design ideas.
	• I can **gather and apply peer feedback** to improve my product design.
	
	• I can **select and improve a final design** that matches:
	  ○ My customer profile
	  ○ Market research
	  ○ Self and peer assessments
	
	• I know the **different pricing strategies** a business can use.
	• I understand the business terms **sales**, **revenue**, and **profit/loss**.
	• I can **calculate the costs** for my business idea.
	• I can **identify and justify** a suitable **pricing strategy** for my product.
	
	• I understand the **4 P's of marketing**: Product, Price, Place, Promotion.
	• I can **identify the 4 P's** for my own product.
	• I can **justify my decisions** based on research and customer needs.
	
	• I can **summarise and present final design decisions** including pricing, flavour, sales location, promotion, and packaging.
	• I can **create an effective advertisement** targeting my customer profile.
		• **Final Design** – The completed product idea refined using research and feedback.
		
		• **Revenue** – Income from sales (calculated as price × quantity sold).
		• **Cost** – Expenses involved in producing the product.
		• **Profit** – The financial gain (Revenue - Costs).
		• **Loss** – When costs exceed revenue.
		• **Sales** – The quantity of product sold.
		• **Pricing Strategy** – The approach used to set a product's selling price:
		  ○ **Price Penetration**
		  ○ **Price Skimming**
		  ○ **Psychological Pricing**
		  ○ **Competitive Pricing**
		
		• **4 P's of Marketing**:
		  ○ **Product** – The item or service offered.
		  ○ **Price** – The cost to the customer.
		  ○ **Place** – Where the product is sold.
		  ○ **Promotion** – How the product is advertised and marketed.

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Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 2 Computer Graphics Inkscape	**Lesson 1: Shape Tools & Composition** • I can create and manipulate **basic shapes** (rectangles, ellipses). • I can use **polygon and star tools**, and adjust shape properties (e.g. number of corners). • I can **construct a composite image** (e.g. a house) by aligning and assembling multiple shapes. **Lesson 2: Grouping and Combining Shapes** • I can design an object (e.g. robot) using **multiple aligned and grouped shapes**. • I can demonstrate **different object combinations** (e.g. union, difference, intersection) and provide evidence of each. **Lesson 3: Lines and Paths** • I can draw and identify **various line types** (straight, curved, freehand). • I can **convert objects to paths** and manipulate them to create new shapes. • I can use path editing tools to **design a face**, demonstrating control of shape and form. **Lesson 4: Design Process and Mood Board** • I can identify differences in digital images and logos. • I can **create a mood board** using collected images relevant to a chosen theme.	**File Types & Basics** • **JPEG (.jpg)** – A commonly used compressed image file format. • **PNG (.png)** – A raster image format supporting transparency. • **SVG (.svg)** – A scalable vector graphic format used in Inkscape. **Shape Tools** • **Rectangle Tool** – Used to draw rectangles and squares. • **Ellipse Tool** – Used to draw circles and ellipses. • **Polygon Tool** – Used to draw multi-sided shapes (polygons). • **Star Tool** – Used to create star-shaped designs. **Combining & Modifying Objects** • **Union** – Combines two or more shapes into one. • **Difference** – Subtracts one shape from another. • **Intersection** – Keeps only the overlapping parts of selected shapes. • **Grouping** – Joins multiple objects so they can be moved/edited together. • **Alignment** – Positions objects relative to each other or the canvas. **Paths & Editing** • **Path** – A shape that can be edited point by point. • **Convert to Path** – Changes a shape into a path for more detailed editing. • **Node** – A point on a path that can be moved or adjusted. • **Handle** – Used to adjust the curve or angle of a path segment. **Lines & Drawing** • **Straight Line** – A direct line between two points. • **Curved Line** – A line that bends between nodes.

	• I can apply prior skills to complete **creative projects** (e.g. Project 1 and Project 2).
	
	Lesson 5: Icons, Logos, and Vector Graphics
	
	• I can correctly identify the purposes of **icons**, **illustrations**, and **logos**.
	• I can create and manipulate a **vector graphic** using XML code (including resizing and recolouring).
	• I can **revise and adapt a graphic** (e.g. robot) for a specific audience and recreate it using code.
	
	End-of-Unit Assessment
	
	• I can independently produce a creative, edited image on the theme "**New Trainers**".
	• I can reflect on my work and evaluate:
	  ○ My **effort**
	  ○ My **knowledge of the unit**
	  ○ My **use of key vocabulary**
	• I can self-assess and identify **what went well (WWW)** and **even better if (EBI)**.
		• **Freehand Tool** – Allows drawing of organic, hand-drawn shapes.
		
		Design & Layout
		
		• **Mood Board** – A collection of images and ideas used to inspire a design.
		• **Illustration** – A visual representation, often drawn, used for communication or art.
		• **Logo** – A symbol representing a company or product.
		• **Icon** – A simple image representing a function or object.
		
		Vector Graphics & XML
		
		• **Vector Graphic** – An image made up of paths, not pixels, scalable without losing quality.
		• **Fill Colour** – The inside colour of a shape or object.
		• **XML** – A markup language used to structure and code Inkscape graphics.
		• **Duplicate** – To copy an object exactly.

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.	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 3 Introduction to Business 	**Market Research & Business Concepts** 1. **Define key business terms** such as: o Target Market o Primary Research o Secondary Research o Costs o Revenue o Profit 2. **Understand the purpose of market research**, including: o Reducing business risk o Identifying and understanding the market o Supporting business decision-making o Understanding customer needs o Informing product development 3. **Differentiate between primary and secondary research**, including: o Definitions and examples o Advantages and disadvantages o When and why each method is used 4. **Identify and evaluate various primary research methods**, such as: o Questionnaires o Focus groups o Observations o Product trials 5. **Identify and evaluate secondary research sources**, such as: o Census data o Government reports o Competitor financial reports o Online articles and websites	**Fixed Costs** – Business expenses that remain the same regardless of how much is produced (e.g. rent, salaries). **Variable Costs** – Costs that change depending on the level of production or sales (e.g. materials, packaging). **Total Costs** – The combined value of fixed and variable costs for a business. **Revenue** – The total money a business earns from selling its goods or services. **Market Research** – The process of gathering information about customers and market trends to inform business decisions. **Product Development** – The creation or improvement of a product to meet customer needs. **Advertising** – Paid promotion of a product or service to attract customers and increase sales. **Focus Group** – A small, diverse group of people who give feedback on a product or idea during market research. **Questionnaire** – A set of written questions used to collect information from people for research purposes. **Observation** – Watching customer behaviour in real or digital environments to gather data. **Trial / Product Trial** – A limited-time release of a product to test customer reactions and feedback. **Customer Needs** – The wants and requirements of customers that businesses aim to satisfy. **Decision-making** – The process of choosing the best course of action for the business based on information and goals. **Competitor** – Another business offering similar products or services in the same market.

	Application & Analysis 6. **Analyze and improve research tools**, particularly questionnaires. 7. **Categorize research methods** as primary or secondary using real-world examples. 8. **Conduct secondary research** using websites (e.g., McDonald's) to gather and interpret business data. **Advertising & Promotion** 9. **Understand the purpose of advertising** and different advertising methods. 10. **Evaluate advertising methods** for effectiveness based on product type and target market. 11. **Justify advertising media choices** for different business scenarios. **Finance & Calculation** 12. **Define key financial terms**, including: • Fixed Costs • Variable Costs • Total Costs • Revenue • Profit • Break-even Point 13. **Calculate total costs**, break-even points, and profit using formulas and real-life examples. 14. **Interpret the meaning of breaking even** and its importance in business planning.	**Information / Data Collection** – The process of gathering facts and statistics for analysis. **Business Risk** – The potential for loss or failure in business activities due to uncertainty or decisions.

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Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 4 HTML 	**Lesson 1: Introduction to the Web and HTML Basics** • I understand the difference between the **Internet** and the **World Wide Web (WWW)**. • I can describe what happens when a **URL** is entered in a web browser. • I can **open, view, and edit HTML files** using a text editor and browser. • I can use **basic HTML tags** like <title>, <h1>, <body>, and <img> to create a simple webpage. • I can apply **text alignment** and insert **text and images** into a web page. • I can use the tag and add **hyperlinks** using <a href>. **Lesson 2: Introduction to CSS (Cascading Style Sheets)** • I can apply **inline and internal CSS styles** to change colours, fonts, and sizes. • I can style hyperlinks using **pseudo-classes**: :link, :visited, :hover, :active. • I understand and can use **CSS containers** and tags to organise webpage layout. • I can structure a page using a **container for content**, with consistent styling and alignment. **Lesson 3: Web Design Planning** • I can identify the **purpose and audience** for a website. • I can **design multiple web pages** with a consistent layout and theme. • I can plan page content and layout using **design sheets** with text and image ideas.	**Web & Internet Concepts** • **Internet** – A global network of interconnected computers that share information. • **World Wide Web (WWW)** – A system of interlinked webpages accessed via the internet. • **URL (Uniform Resource Locator)** – The address used to access a webpage (e.g., https://example.com). • **Web Browser** – Software used to access and view websites (e.g., Chrome, Firefox, Safari). • **Server** – A computer that stores and delivers web pages to users. • **ISP (Internet Service Provider)** – A company that provides access to the internet. • **IP Address** – A unique identifier assigned to each device connected to a network. **HTML (Hypertext Markup Language)** • **HTML** – The standard language used to create webpages. • **Tag** – A keyword surrounded by angle brackets that defines how content is displayed. • <html> – The root element of an HTML document. • <head> – Contains metadata and settings for the page. • <body> – Contains the visible content of the webpage. • <title> – Sets the title of the webpage shown on the browser tab. • <h1> to <h6> – Heading tags, where <h1> is the largest. • <p> – Paragraph tag used for blocks of text. • <img> – Used to display images. • <a href> – Used to create hyperlinks. • – Line break tag. **CSS (Cascading Style Sheets)** • **CSS** – A language used to style the appearance of web content. • **Style** – A collection of formatting rules applied to HTML elements. • background-color – Defines the background colour of an element. • font-size – Sets the size of the text.

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	• I can design a **form page** for collecting information from users.
	
	Lesson 4: Asset Management
	
	• I can create and use a dedicated **assets folder** to organise project files (images, text, HTML).
	• I can gather and record **website components** in an asset table.
	• I can evaluate and select appropriate content for a target audience.
	
	Lesson 5: Web Page Building (RocketCake)
	
	• I can create a **home page** using RocketCake and customise its background colour.
	• I can **create a table** to display content clearly on the webpage.
	• I can **add text, headings, and labels** to support the organisation and visual appeal of content.
	• I can customise **text colour and size** for better readability and design.
	
	Lesson 6: Assessment and Reflection
	
	• I can complete a summative **HTML assessment** to demonstrate my knowledge.
	• I can reflect on and describe **what went well (WWW)** and **what could be improved (EBI)** in my project.
	• I can identify **effective design choices** and explain the **impact of good and bad web design**.
	• I understand the role of file structure, consistency, and user experience in effective website creation.
		• color – Changes the text colour.
		• **Pseudo-classes**:
		  ○ :link – Style for unvisited links.
		  ○ :visited – Style for visited links.
		  ○ :hover – Style when hovering with the mouse.
		  ○ :active – Style when a link is clicked.
		• **Container** – A styled used to hold and structure page content.
		• – A block-level container for grouping HTML elements.
		
		Website Structure & Design
		
		• **Asset** – Files such as images, videos, or documents used in a website.
		• **Index.html** – The default homepage file for a website.
		• **Consistency** – Using a uniform design across all pages.
		• **Responsive Design** – Layout that adjusts to different screen sizes and devices.
		
		Computing & Networking Terms
		
		• **Data Encryption** – A method of encoding information to protect it from unauthorised access.
		• **Virus** – Malicious software that can damage or disrupt a computer system.
		• **User Interface (UI)** – The visual elements of a program or website that users interact with.
		• **CPU (Central Processing Unit)** – The brain of the computer that processes instructions.
		• **RAM (Random Access Memory)** – Temporary memory used to store data that's actively being used.
		• **Operating System** – Software that manages computer hardware and software (e.g., Windows, macOS).
		• **Algorithm** – A step-by-step procedure or formula for solving a problem.
		• **Hardware** – The physical components of a computer.
		• **Software** – The programs and operating systems used by a compute

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Unit	Student Learning Outcomes	Disciplinary Literacy Word Power
Unit 5 Blender blender	**Lesson 1: Introduction to 3D Modelling** • I can follow instructions to **create basic 3D models** in Blender (e.g. Party Monkey, Snowman). • I can navigate the Blender interface and use basic tools effectively. **Lesson 2: Materials and Hierarchies** • I can **apply colours and materials** to 3D models to enhance appearance. • I understand and can implement **parenting** to group objects logically in Blender. • I can **name objects** clearly to stay organised in complex scenes. **Lesson 3: Edit Mode and Extrusion** • I can use **Edit Mode** to manipulate the geometry of objects. • I can use the **Extrude tool** to create 3D shapes from faces. • I can apply **advanced colouring** techniques to models. **Lesson 4: Shape Modification** • I can use **Loop Cuts** to add detail and complexity to my 3D models. • I can add and edit **faces** to reshape and customise models.	**3D Modelling Basics** • **Object Mode** – The default mode in Blender for positioning and transforming whole objects. • **Edit Mode** – A mode used to modify the individual parts (vertices, edges, faces) of a model. • **Extrude** – A tool used to extend a face or edge, creating additional geometry. • **Face** – A flat surface that forms part of the boundary of a 3D object. • **Vertex** – A point in 3D space; the corner of a face or the end of an edge. • **Edge** – A line connecting two vertices in a mesh. • **Loop Cut** – A tool used to add a new edge loop (line of edges) to refine a shape. **Tools and Techniques** • **Knife Tool** – A tool for making custom, manual cuts in the geometry of a model. • **Parenting** – A method of linking objects so that one acts as the 'parent' and others follow its transformations. • **Naming** – Renaming objects for easier identification and organisation in complex scenes. • **Path** – A type of object that defines a curve, which can be followed by other objects or used in animation. **Materials and Appearance** • **Material** – A property applied to an object to give it colour, texture, or reflectivity. • **Texture** – An image or pattern that is mapped onto the surface of a 3D object. • **Shading** – Techniques used to simulate light and shadow on a 3D surface. • **Colouring** – Applying colour to objects to affect their appearance in renders. **Rendering and Output**

	Lesson 5: Precision Editing • I can use the **Knife Tool** to make precise cuts in geometry. • I understand how to refine 3D models using **manual editing tools**. **Lesson 6: Rendering and Assessment** • I can follow a structured workflow to **render a 3D scene**. • I can complete a full **3D design project** on a chosen topic (e.g. "Space"). • I can reflect on and evaluate my own work using **screenshots** and self-assessment. **Across All Lessons: Disciplinary Skills** • I can use **Blender-specific vocabulary** (e.g. render, extrude, face, loop cut, parenting). • I can **follow detailed instructions** independently. • I can demonstrate **creativity and technical skill** in producing original 3D models. • I can **organise and present** my learning in a digital portfolio with screenshots	• **Render** – The process of generating a final image or animation from a 3D scene. • **Scene** – The 3D environment containing all objects, lights, and cameras used for rendering. **Animation Concepts** • **Frame** – A single still image in an animation sequence. • **Timeline** – The sequence of frames used to create animation. • **Keyframe** – A marker used to set the position or state of an object at a specific time.

Computer Science & I Media Learning Journey

KS4 I Media Learning Journey Overview

The **OCR Level 1/Level 2 Cambridge National in Creative iMedia** is a vocational qualification aimed at students aged 14–16 who are interested in the media industry. It combines practical digital media skills with theoretical knowledge and real-world application. The course is made up of three units: one externally assessed written exam (Unit R093 – *Creative iMedia in the Media Industry*) and two Non-Exam Assessment (NEA) units, one of which is mandatory (Unit R094 – *Visual Identity and Digital Graphics*) and (Unit R097 – *Interactive Digital product*)

The qualification helps students understand the media industry, pre-production planning, and legal considerations. Students learn to develop visual identities, create digital graphics, and apply design principles such as layout, colour theory, typography, and file formatting. Through their chosen optional unit, learners expand their knowledge in a specific media sector—like designing comics, creating animations with audio, or producing digital games—while also exploring audience targeting and planning techniques.

The assessment is split into 40% written exam and 60% coursework (NEA), with students graded from Level 1 Pass to Level 2 Distinction*. Emphasis is placed on developing **creative, technical, planning, and evaluative skills**, with strong links to real-world contexts. It encourages independent thinking, problem-solving, and the use of digital tools to meet client needs.

The course supports progression to further study, such as Cambridge Technicals, A Levels, T Levels, or apprenticeships in media, IT, and design, while also fostering transferable skills valuable in many careers.

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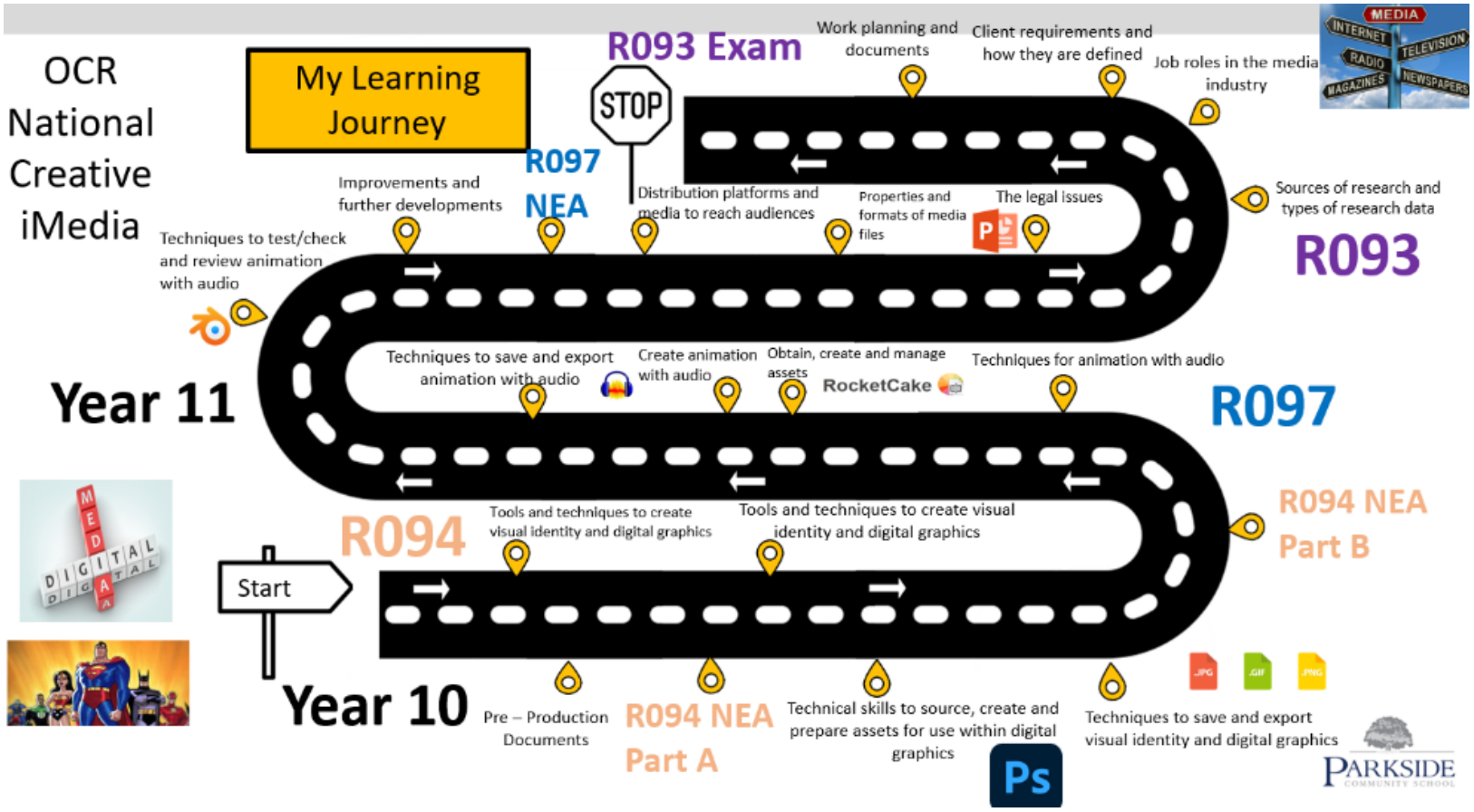

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KS4 I Media Core Knowledge Concepts

Computer Science & I Media Learning Journey

KS4 I Media: Summary

How we interleave topics to enable pupils to build and recall knowledge.

Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
R094	**Topic Area 1: Develop Visual Identity** By the end of this topic, students will be able to: 1. Define what is meant by *visual identity* and explain its role in brand recognition and loyalty. 2. Identify and describe key components of visual identity including name, logo, and slogan. 3. Recognise and apply the elements of visual identity: shape, colour palette, typography, layout, and complexity. 4. Explain how business type, brand values, and brand positioning (economy, mid-range, high-end) influence visual identity design. 5. Evaluate how visual identity communicates a brand's personality, values, and purpose to different audiences. 6. Combine visual elements to create appropriate, emotionally engaging visual identities for specific target markets. 7. Identify when a visual identity is not fit for purpose and suggest improvements. **Topic Area 2: Plan Digital Graphics for Products** By the end of this topic, students will be able to:	**Visual Identity**	The visual elements (e.g. logo, colour, typography) that represent a brand or business.
		Brand Identity	The overall image and personality of a business, including values and positioning.
		Logo	A graphical symbol or emblem used to identify a brand.
		Slogan/Strapline	A short phrase that expresses the brand's message or purpose.
		Typography	The style and appearance of printed or digital text (fonts, sizes, spacing).
		Colour Palette	A selection of colours used consistently to represent a brand.
		Layout	The arrangement of visual elements on a page or design.
		Mood Board	A collage of images, colours, and text used to communicate design ideas.
		Mind Map	A visual diagram used to organise and expand ideas.
		Visualisation Diagram	A sketch that shows how a design will look, with labels and notes.
		Concept Sketch	A rough drawing showing an early idea for a design or graphic.
		Raster Image	A bitmap image made of pixels (e.g., JPEG, PNG); may lose quality when scaled.
		Vector Graphic	An image made using paths, scalable without loss of quality (e.g., SVG, AI).
		Compression	Reducing the file size of an image, sometimes affecting quality.
		Scalability	The ability of an image (especially vector) to be resized without losing clarity.
		Licence	Legal permission to use an image or asset.
		Copyright	The legal right to control how creative work is used by others.

	1. Apply graphic design conventions including alignment, typography, use of colour, and white space. 2. Describe layout conventions for different product types (e.g., posters, packaging, book covers, websites). 3. Explain how colour systems (e.g., Pantone, NCS) and trends influence digital graphics. 4. Understand the purpose and design of typical graphic products and incorporate visual identity appropriately. **Topic Area 2.2: Properties of Digital Graphics and Use of Assets** By the end of this topic, students will be able to: 1. Compare the properties of bitmap and vector images including scalability, file size, quality, and transparency. 2. Explain when to use bitmap vs. vector formats based on project requirements. 3. Identify copyright, licensing, and permissions for sourcing images and third-party assets. 4. Use search filters and asset tables to ensure correct and legal use of media assets. **Topic Area 2.3: Techniques to Plan Visual Identity and Digital Graphics** By the end of this topic, students will be able to: 1. Create mood boards using physical and digital content to explore design ideas. 2. Use mind maps to organise and expand design concepts.	**House Style** A consistent style used across all materials from a brand. **White Space** Empty space in a layout used to improve readability and focus. **Export** Saving a design in the correct format for use or printing. **Master File** The original, editable file used for further editing or versioning.

	3. Develop concept sketches and visualisation diagrams to show possible design layouts. **Topic Area 3: Create Visual Identity and Digital Graphics** By the end of this topic, students will be able to: 1. Use imaging software tools effectively: layout tools, drawing tools, selection tools, filters, and effects. 2. Apply editing techniques such as adjusting brightness, contrast, colour balance, layers, and typography. 3. Source and import appropriate image assets from online libraries or client-provided content. 4. Create original or derivative assets using drawing and editing tools. 5. Resize, resample, and rasterise graphics to ensure they are suitable for print or digital use. 6. Organise and store digital files in appropriate formats and locations. 7. Save and export visual identity and graphic products in high-resolution master formats and repurposed output formats based on client needs	

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Unit	Student Learning Outcomes	Disciplinary Literacy Word Power	
R097	**Topic Area 1: Plan Interactive Digital Media** By the end of this topic, students will be able to: 1. **Identify and describe** different formats of interactive digital media (e.g. websites, apps, kiosks, games). 2. **Explain how format, purpose, and audience** influence the design of interactive media. 3. **Describe and apply** different content types (e.g. video, forms, animation) used in interactive digital media products. 4. **Recognise a range of access devices** (e.g. tablets, phones, smart TVs) and explain how design must adapt to each. 5. **Explain methods of user interaction** (e.g. touchscreen, voice, mouse) and when each is suitable. 6. **Describe GUI features** such as layout, typography, colour schemes, and how they affect usability. 7. **Select and justify** appropriate interface and interaction styles to match product purpose and audience. 8. **Explain and apply accessibility features** (e.g. alt text, resizable text, colour contrast) to make products inclusive. 9. **Apply conventions of interactive media**, such as non-linear navigation and user-friendly layouts. 10. **Evaluate creativity** in design choices, balancing originality with effective media conventions.	**Interactive Media**	Digital products that respond to user input (e.g. websites, apps, games).
		User Interface (UI)	The layout and design of screens and controls that users interact with.
		GUI (Graphical User Interface)	A visual interface with menus, icons, buttons, and navigation features.
		Wireframe	A basic layout plan showing screen elements and navigation paths.
		Navigation Bar	A set of links or buttons to help users move through content or pages.
		Non-linear Navigation	A structure where users can jump freely between sections rather than following a set order.
		Asset	Any media component used in a product (e.g. image, video, sound, text).
		Static Image	A non-moving visual, such as a JPEG or PNG.
		Vector Graphic	A scalable image made from lines and shapes, useful for logos and icons.
		Bitmap (Raster) Image	A pixel-based image that can lose quality when scaled.
		Animation	A sequence of images or frames creating the illusion of motion.
		Audio Editing	The process of cutting, trimming, enhancing, or combining sound files.
		Video Editing	Modifying moving image content through cutting, sequencing, and effects.
		Trigger	An action (e.g. button click) that causes an interactive response.
		Rollover Button	A button that changes appearance when the cursor hovers over it.
		House Style	A consistent design across all pages or products (e.g. font, colour scheme).
		Accessibility	Design features that make content usable by people with disabilities (e.g. alt text, captions).
		File Format	The type of file used to save digital content (e.g. .mp4, .png, .wav).
		Compression	Reducing file size for storage or faster loading, can be lossy or lossless.
		Master Page	A template applied to multiple pages to ensure layout consistency.

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	Topic Area 2: Create Interactive Digital Media
	
	By the end of this topic, students will be able to:
	
	11. **Select suitable hardware and software tools** for creating interactive digital media products.
	12. **Use pre-production planning tools** (e.g. wireframes, asset tables, navigation diagrams) to design interactive features.
	13. **Plan asset properties** (e.g. file type, size, resolution) to meet technical and client requirements.
	14. **Create, edit, and manage assets** including:
	  ○ **Static images** (bitmap/vector, transformations, retouching)
	  ○ **Audio files** (cutting, enhancing, combining)
	  ○ **Video clips** (sequencing, trimming, adjusting speed/colour)
	  ○ **Interactive elements** (buttons, forms, rollovers, navigation bars)
	15. **Use master pages/templates** to apply consistent house styles and navigation across multiple pages.
	16. **Implement playback controls, triggers, and behaviours** (e.g. pop-ups, drag-and-drop, scoring).
	17. **Manage folders and naming conventions** for efficient file structure during development.
	18. **Save and export final products** using appropriate formats for compatibility with multiple platforms.
	
	Topic Area 3: Review Interactive Digital Media
	
	By the end of this topic, students will be able to:
	
	19. **Plan and conduct technical tests** (e.g. navigation, inputs, media playback) using test plans and checklists.
	20. **Assess product quality** based on performance, usability, format compatibility, and client requirements.
		Storyboard — A visual sequence showing scenes or steps of an interactive product.
		Resolution (DPI/PPI) — The clarity or sharpness of an image, based on pixel density.
		Version Control — A method of saving and naming different file stages to track changes.
		Test Plan — A document outlining checks to ensure functionality and quality of a product.
		Interactive Element — A component users can click, drag, type in, or interact with (e.g. quiz, map).
		Template — A pre-designed structure for repeated use in digital products.
		Publishing/ Exporting — The process of saving and outputting the final product in a usable format.

	21. **Review completed products** for effectiveness in meeting audience needs, accessibility, and overall engagement. 22. **Identify strengths and weaknesses** in their work and suggest improvements. 23. **Explain how constraints** (e.g. time, resources, budget, software limitations) affect the final product. 24. **Propose further development opportunities** (e.g. new features, added interactivity, expanded scope).	

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Unit		Disciplinary Literacy Word Power	
R093	**Topic Area 1: The Media Industry** **By the end of this topic, students will be able to:** 1. Identify and describe the different **sectors** of the media industry (e.g. film, radio, digital publishing, games). 2. Recognise a wide range of **media products** and match them to relevant sectors. 3. Explain how some products can be used across multiple media sectors. 4. Identify **creative**, **technical**, and **senior job roles** in the media industry. 5. Explain the purpose and responsibilities of key job roles during **pre-production**, **production**, and **post-production**. 6. Understand how individuals may take on **multiple roles** depending on the project size and scale. **Topic Area 2: Factors Influencing Product Design** By the end of this topic, students will be able to: 1. Explain how the **purpose** of a media product (e.g. to inform, entertain, promote) affects its style, layout, and content. 2. Interpret different formats of **client briefs** (e.g. written, informal, meeting) and identify key requirements.	**Media Industry**	The sector responsible for producing and distributing media content.
		Traditional Media	Long-established forms like film, television, radio, and print publishing.
		New Media	Digital formats including websites, social media, digital games, and apps.
		Sector	A specific area within the media industry (e.g., gaming, publishing).
		Product	A piece of media created for an audience (e.g., video, game, poster).
		Client Brief	A document or discussion outlining what a client wants for a media product.
		Target Audience	The specific group a media product is designed to reach.
		Segmentation	Grouping audiences by characteristics like age, gender, income, or interests.
		Primary Research	Original data gathered directly (e.g., interviews, surveys).
		Secondary Research	Existing data from books, articles, or the internet.
		Quantitative Data	Numerical data (e.g., percentages, statistics).
		Qualitative Data	Descriptive data (e.g., opinions, feedback).
		Media Codes	Techniques used to communicate meaning (e.g., camera angles, colours, typography).
		Symbolic Code	Visual signs and meanings, such as colour and costume.
		Technical Code	Production techniques like lighting, camera shots, and editing.
		Written Code	Language, fonts, and written content used in media.
		Work Plan	A schedule showing the steps and timing of a media project.
		Mood Board	A collage of visual ideas used to inspire and guide design work.
		Storyboard	A visual plan of scenes or steps in a video or animation.
		Wireframe	A simple layout that shows structure of a webpage or app.
		Copyright	Legal protection for original creative work.
		Defamation	Making false statements that damage someone's reputation (libel/slander).

	3. Understand how **audience segmentation** (e.g. age, lifestyle, income) influences design and targeting.
	4. Distinguish between **primary** and **secondary research** and their **advantages/disadvantages**.
	5. Compare **qualitative** and **quantitative data** and explain their relevance to media research.
	6. Identify and explain how **media codes** (technical, symbolic, written) are used to convey meaning, create impact, and engage audiences.
	
	Topic Area 3: Planning and Legal Considerations
	
	By the end of this topic, students will be able to:
	
	1. Identify and describe the **components of a work plan** (e.g. phases, tasks, timescales, milestones).
	2. Explain the use and features of planning documents such as **mind maps**, **mood boards**, **scripts**, **storyboards**, and **wireframes**.
	3. Understand the purpose of **legal considerations** including:
	  ○ Privacy and permissions
	  ○ Defamation (libel and slander)
	  ○ Data protection
	4. Define **intellectual property** and explain how copyright, trademarks, and permissions affect media production.
	5. Understand the role of **regulatory bodies** (e.g. ASA, Ofcom, BBFC, PEGI) and the importance of **certification and classification**.
		Data Protection Legal control over how personal data is collected, stored, and used.
		Risk Assessment A document that identifies hazards and how to prevent them.
		Regulatory Body An organisation that sets rules for media content (e.g., ASA, Ofcom, BBFC).
		Classification The process of assigning age or content ratings to media.
		Compression Reducing file size (lossy or lossless) for storage or distribution.
		Resolution The quality of an image or video based on pixel density.
		Sample Rate Number of samples per second in digital audio (affects quality).
		Frame Rate Number of frames per second in a video (affects smoothness).

	6. Recognise **health and safety risks** in media production and explain the use of **risk assessments** and **location recces**. **Topic Area 4: Distribution Considerations** By the end of this topic, students will be able to: 1. Identify different **distribution platforms** (e.g. online, physical, mobile) and discuss their characteristics. 2. Explain the **advantages and disadvantages** of each distribution method. 3. Understand how platform characteristics affect **file format selection**. 4. Compare the **properties** and **formats** of: ○ **Static image files** (e.g. DPI, raster vs. vector) ○ **Audio files** (e.g. bit depth, sample rate) ○ **Moving image files** (e.g. frame rate, resolution) 5. Explain the differences between **lossy** and **lossless compression**, and when each is appropriate.	

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KS4 : Topic summary

How we interleave topics to enable pupils to build and recall knowledge.

Year 10	**R093**: Media industry sectors and products (TA1) **R093**: How style, content and layout are linked to the purpose. Client requirements and how they are defined (TA2) **R093**: Audience demographics and segmentation (TA2) **R093**: Media codes used to convey meaning, create impact and/or engage audiences (TA2)	**R093**: Work planning and documents used to support ideas generation (TA3) **R093**: Documents used to design/plan media products (TA3) **R094**: Purpose, features, elements and design of visual identity **R094**: Graphic design concepts and conventions **R094**: Properties of digital graphics and use of assets	**R094**: Techniques to plan visual identity and digital graphics **R094**: Tools and techniques to create visual identity and digital graphics **R094**: Technical skills to source, create and prepare assets for use within digital graphics	**R094**: Techniques to save and export visual identity and digital graphics (with integrated **R093** TA4 distribution considerations and file formats) **R094**: NEA Assessment (working on)	**R094**: NEA Assessment (Working on and submit for moderation) **R097 :**TA Introduction (with R093 key content embedded)	**R097** Features and conventions of animation and audio **R097**: Creativity in animation and audio **R097**: Resources required to create animation with audio

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Year 11	**R097** Pre-production and planning documentation and techniques for animation with audio	**R097**: Techniques to obtain, create and manage assets **R097**: Techniques used to create animation with audio	**R097**: Techniques to save and export animation with audio **R097** Techniques to test/check and review animation with audio **R097**: Improvements and further developments	**R097**: NEA Assessment (Working on) **R093**: Distribution platforms and media to reach audiences (TA4) **R093**: Properties and formats of media files (TA4)	**R096**: (submit**Error! Bookmark not defined.** for moderation) **R093**: Sources of research and types of research data (TA2) **R093**: The legal issues that affect media (TA3) **R093**: Job roles in the media industry (TA1)	**R093:** Revision and mock papers/tests **R093**: Examination (Terminal unit)