Year 7 - Term 1 - Programming

Year group: 7	Subject: Computing
Introduction	The Year 7 Programming curriculum begins by introducing students to programming fundamentals and basic programming concepts. This initial stage teaches students how to give instructions to computers using code, boosting their logical thinking and creativity. A core component of the early learning journey is the use of Micro:bits, often utilizing Block based coding. Students learn about algorithms, which are step-by-step instructions, and foundational elements like sequencing. The goal at this emerging stage is for students to successfully create simple programs that follow a sequence, including basic inputs (such as buttons) and outputs (such as showing messages). Students also start learning key skills like acting as a detective to debug any mistakes in their code.
Rationale	1. Developing Core Concepts: Students learn about algorithms (step-by-step instructions) and sequencing, which are foundational to all programming. 2. Achieving Early Success: By using tools like Block based coding and Micro:bits, students are enabled to successfully create a simple program that follows a sequence, incorporating basic inputs (like buttons) and outputs (like showing messages). 3. Building Investigative Skills: The curriculum immediately introduces the skill of debugging, teaching students to become "a detective to debug any mistakes" in their code.
Vocabulary:	1. Programming: The process of learning how to give instructions to computers using code. 2. Algorithms: Instructions that are followed in a step-by-step manner. 3. Micro:bits: A hardware tool used when students are introduced to programming fundamentals.

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	4. Block based coding: A method of coding where students learn to put blocks together in the right order. 5. Sequencing: The ability to successfully create a simple program that follows a sequence. 6. Inputs/Outputs: Basic elements (like buttons) and results (like showing messages) included in simple programs. 7. Debugging: The skill of acting as a detective to debug any mistakes, often used to identify and fix logical and syntax issues. 8. Variables: Used in programs to store data. 9. Decomposition: The crucial process of breaking down complex programming problems into smaller, manageable sub-problems. (This skill is specifically required for mastery in Year 9, but is fundamental to structured problem-solving.) 10. Abstraction: A concept used to focus on essential details while hiding complexity, often used to create more efficient programs. (This skill is specifically required for mastery in Year 9, but is fundamental to structured problem-solving.)
Cultural Capital:	The introductory programming unit, focused on fundamentals like Micro:bits and Block based coding, equips students with valuable conceptual understanding and transferable skills: • Understanding the Digital World: The curriculum directly addresses the question of "how your favorite games or apps work," emphasizing that "It's all about programming". Students gain insight into how instructions are given to computers using code, which is the mechanism behind digital media and applications. • Logical Thinking and Creativity: This programming journey is explicitly designed to boost students' logical thinking and creativity, skills that are noted as "helping you in all your subjects". • Investigative Skills: Students immediately learn the crucial skill of debugging, requiring them to "become a detective to debug any mistakes" in their code. This teaches methodical problem-solving and error identification. • Foundation for Future Impact: By starting with basic concepts, students begin the journey toward understanding how different apps and devices work together. This foundation is necessary for later progression

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<tr><td>Links to National Curriculum</td><td>The content of Year 7 Term 1 covers the fundamental skills required for the Emerging and Developing levels of the KS3 Programming progression pathway.

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<tr><th>Skill / Concept</th><th>KS3 Learning Pathway Objective</th></tr>
<tr><td>Algorithms</td><td>Students learn about algorithms (step-by-step instructions).</td></tr>
<tr><td>Programming Fundamentals</td><td>The term focuses on Programming fundamentals and Basic programming concepts using Micro:bits.</td></tr>
<tr><td>Sequencing (Emerging)</td><td>Students must be able to "Put blocks together in the right order" using Block based coding.</td></tr>
<tr><td>Sequencing, Inputs, and Outputs (Developing)</td><td>Students should successfully create a simple program that follows a sequence, including basic inputs (like buttons) and outputs (like showing messages). This includes learning about Inputs/outputs.</td></tr>
<tr><td>Debugging</td><td>https://docs.google.com/presentation/d/11u8jBjw2LQMK7cskIbjsclsBkrxDwfvWhhAul8Qy_SI/edit?usp=drive_linkStudents learn skills necessary to "become a detective to debug any mistakes", covering the general topic of Debugging.</td></tr>
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