



Subject: **Computer Science**

Year: **11**

| | What? | Why? | National Curriculum Links |
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| Term 1-1 | <p>2.2: Programming Fundamentals Pupils learn how to use variables, constants, operators, inputs, outputs, and assignments in Python. They explore the three key programming constructs — sequence, selection, and iteration — and practise implementing arithmetic and Boolean operators. Pupils also study data types (integer, real, Boolean, character, string) and casting between them.</p> | <p>Pupils learn how to use variables, constants, operators, inputs, outputs, and assignments in Python. They explore the three key programming constructs — sequence, selection, and iteration — and practise implementing arithmetic and Boolean operators. Pupils also study data types (integer, real, Boolean, character, string) and casting between them.</p> | <p>4.1: develop their capability, creativity and knowledge in computer science, digital media and information technology</p> <p>4.2: develop and apply their analytic, problem-solving, design, and computational thinking skills</p> |
| | <p>Consolidation and Exam Preparation Pupils consolidate programming skills by applying them to exam-style tasks, combining inputs, selection, iteration, arrays, string handling, and file operations. They also practise structured programming techniques, including subprograms (functions and procedures) and defensive programming.</p> | <p>This year focuses on strengthening fluency and confidence in applying programming under exam conditions. It builds on Year 9 and Year 10, ensuring pupils can combine all constructs into robust solutions. This prepares them directly for Paper 2 assessments and programming tasks in controlled conditions.</p> | <p>4.2: develop and apply their analytic, problem-solving, design, and computational thinking skills</p> |
| Term 1-2 | <p>2.3: Robust Programs and Mock Exams Pupils study how to design programs defensively, anticipate misuse, and validate inputs. They explore maintainability through subprograms, naming conventions, indentation, and commenting. Testing is introduced formally, including the use of normal, boundary, and invalid data. Pupils also sit their GCSE Paper 1 and Paper 2 mock exams this term.</p> | <p>This unit builds directly on <i>Programming Fundamentals</i> (Term 1-1) and links back to Year 10 <i>Algorithm Testing</i>. It prepares pupils for GCSE Paper 2 (SLR 2.3) and gives them strategies to produce reliable, maintainable code in the exam context. The mock exams provide an essential checkpoint, allowing pupils to identify weaknesses before final revision.</p> | <p>4.1: develop their capability, creativity and knowledge in computer science, digital media and information technology</p> |
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| Term 2-1 | <p>2.4: Boolean Logic Pupils explore simple logic diagrams using AND, OR, and NOT gates. They construct truth tables to represent logic and combine Boolean operators to solve problems. They also learn how to represent logic in expressions and create logic circuits that model real-world decision-making systems.</p> | <p>This unit builds on Year 9 <i>Binary and Data Representation</i>, linking number systems and logic together. It prepares pupils for GCSE Paper 2 (SLR 2.4) and supports algorithmic thinking by reinforcing how decisions are made inside a computer system. Boolean logic also links directly to programming selection statements studied earlier in Year 11.</p> | <p>4.1: develop their capability, creativity and knowledge in computer science, digital media and information technology</p> |



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| <p>Term 2-2</p> | <p>2.5: Programmign Languages and IDEs Pupils study the characteristics and purpose of high- and low-level programming languages. They learn about translators (compilers, interpreters, and assemblers) and the advantages and disadvantages of each. Pupils also explore IDE tools and facilities such as editors, error diagnostics, run-time environments, and translators, using them in practice while developing programs.</p> | <p>This unit builds on Year 10 <i>Systems Software</i>, linking the role of operating systems to programming environments. It prepares pupils for GCSE Paper 2 (SLR 2.5) and consolidates their programming practice by introducing them to professional coding tools. By learning how IDEs support coding, pupils strengthen both their exam readiness and their real-world programming skills.</p> | <p>4.1: develop their capability, creativity and knowledge in computer science, digital media and information technology</p> <p>4.2: develop and apply their analytic, problem-solving, design, and computational thinking skills</p> <p>4.3: understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.</p> |
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| <p>Term 3-1</p> | <p>Exam Preparation and Programming Consolidation Pupils review and consolidate knowledge from across all GCSE topics, with a focus on programming practice, past paper questions, and retrieval strategies for key facts. They complete exam-style tasks covering both Paper 1 and Paper 2.</p> <p>Pupils focus on targeted revision for areas of individual weakness, supported by walking–talking mock papers and timed practice. They revisit high-value content from Paper 1 (systems, networks, security) and Paper 2 (programming, algorithms). Lessons centre on exam confidence, time management, and retrieval of crucial knowledge.</p> | <p>This unit pulls together all strands of learning from Years 9–11. It strengthens exam technique and ensures pupils can apply knowledge from theory and programming in timed conditions. Revision consolidates cross-topic links — e.g. how logic underpins programming, or how networks link to security — improving performance in both papers.</p> <p>This unit ensures pupils enter exams fully prepared, confident, and able to apply their knowledge under exam conditions. It links to all previous units across KS4 and strengthens recall just before final assessments. After this term, lessons conclude when GCSE exams are completed (mid-Summer Term 1).</p> | <p>4.1: develop their capability, creativity and knowledge in computer science, digital media and information technology</p> <p>4.2: develop and apply their analytic, problem-solving, design, and computational thinking skills</p> <p>4.3: understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.</p> |
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