MATTHEW MOSS HIGH SCHOOL
*Learning for Life*

# KS4 Curriculum Plan

## **Subject:** GCSE Computer Science

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 10** | **Data Representation**<br>• Introduction to binary<br>• Computer storage and compression<br>• Image & Sound representation<br>• Binary conversions and calculations<br><br>**Intro to Python Programming**<br>Learners are introduced to the key programming concepts which include:<br>• Variables and inputs<br>• Data types<br>• Selection<br>• iteration | **Python Programming**<br>Learners continue to develop their programming skills, with coverage of:<br>• Iteration continued - While and For Loops<br>• AND, OR & NOT<br>• Nested Loops and Selection<br>• Program Formatting<br>• Identifying and resolving runtime and syntax errors<br><br>**Computers**<br>• Von Neumann Architecture - The modern day computer<br>• The Central Processing Unit<br>• Secondary storage devices<br>• Embedded Systems<br>• Operating systems<br>• High/Low level languages<br>• Compilers and Interpreters | **Computational Thinking**<br>• Introduction to the 4 key concepts of computational thinking.<br>• Truth tables<br>• Flowcharts | **Networks**<br>• Why do we use networks/types of networks<br>• Network topologies<br>• The internet<br>• Wired vs Wireless networks<br>• Network Speeds and protocols<br>• 4 Layer network model<br>• Network security<br><br>**Python Programming**<br>• 1 and 2 dimensional arrays<br>• Parameters<br>• Data validation<br>• Writing to external documents | **Computational Thinking**<br>• Introduction to the 4 key concepts of computational thinking.<br>• Truth tables<br>• Flowcharts<br><br>**Python programming**<br>• Application of subprograms and their benefits<br>• Application of key programming concepts to a programming project and exam style questions. | **Computational Thinking**<br>• Introduction to the 4 key concepts of computational thinking.<br>• Truth tables<br>• Flowcharts |
| **Year 11** | **Data Representation**<br>• Introduction to binary<br>• Computer storage and compression<br>• Image & Sound representation<br>• Binary conversions and calculations | **Computers**<br>• Von Neumann Architecture - The modern day computer<br>• The Central Processing Unit<br>• Secondary storage devices<br>• Embedded Systems<br>• Operating systems<br>• High/Low level languages<br>• Compilers and Interpreters | **Ethical Issues and Impact of Computing**<br>• Environmental Issues (energy consumption, manufacture and disposal<br>• Collecting of personal data<br>• Artificial Intelligence<br>• Protecting digital systems | **Revisiting previous topics**<br>• Lessons will revisit previous topics to embed previous knowledge gained<br>• How to effectively answer 6 mark questions | **Revision and Exam practice**<br>• Revisiting the key programming concepts before applying these to exam style questions.<br>• Theory exam question practice | **Revision and Exam practice**<br>• Exam question practice |

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