

Computing Curriculum Overview

Computing at Mulberry seeks to address the lack of representation of female and ethnic minorities within the computing industry by developing industry pioneers that will serve as role models going forward. However, irrespective of which career students choose, the Computing department works to ensure all students are digitally literate and have a strong understanding e-safety. To achieve this, we aim to provide students with a comprehensive and dynamic curriculum that empowers learner to use computational thinking and creativity to understand and change the world.

To ensure our curriculum is comprehensive, we use the **National Centre for Computing Education (NCCE)**'s [Computing Taxonomy](#) which provides greater granularity beyond the National Curriculum's three pillars of Information Technology (IT), Digitally Literacy (DL) and Computer Science (CS).

CT Strand	NCCE Computing Taxonomy Description https://blog.teachcomputing.org/categorising-national-centre-content/
Algorithms	Being able to comprehend, design, create, and evaluate algorithms
Programming	Writing software to allow computers to solve problems
Data and Information	How data is stored, organised, and used to represent real-world artefacts and scenarios
Computer systems	What is a computer, how do its constituent parts function together as a whole
Networks	Understand how networks can be used to retrieve and share information and come with associated risks
Creating media	Select and create a range of media including text, images, sounds and video
Design & development	The activities involved in planning, creating and evaluating computing artefacts
Effective use of tools	Use software tools to support computing work
Impact of technology	How individuals, systems, and society interact with computer systems
Safety and security	Understanding risks when using technology and how to protect individuals and systems

Key Stage 3

- Y7 utilise the NCCE Key Stage 3 Computing Curriculum resources which are adapted to our school context and cultural capital
- Y8-9 SOLs centred around the existing NC Computing Curriculum but will updated to the adapted NCCE resources one a rolling annual basis

Key Stage 4

- OCR GCSE Computer Science if offered to students
- Non-GCSE CS students receive the National Curriculum KS4 Computing curriculum teaching via registration time through a curated programme of study based on the award winning [iDEA programme](#) that helps students develop and demonstrate their computing knowledge and skills

Key Stage 5

- OCR A Level Computer Science if offered to students who meet course requirements

Assessment

Students at Key Stage 3, complete an assessed piece of work per half.

Students at Key Stage 4 that study GCSE Computer Science have two pieces of work marked per half term which is used to measure progress. Non-GCSE students complete a curated programme of study based. Non-GCSE students are assessed through their completion of the iDEA's Bronze award programme.

Year 7 Curriculum Overview

We are currently rolling out a new KS3 curriculum starting with Y7 and then Y8 in 24/25 and Y9 in 25/26, therefore we have not mapped Y8 and Y9 units to Computing Taxonomy.

Year 7 Intent	Order	Unit of work	Computing Taxonomy	Nat. Curriculum (inc KS2 links)	Assessment
<p>To ensure all pupils are digitally literate while using the school network and understand the importance e-safety (safe and responsible use of technology) regardless of where they are using it.</p> <p>To develop a good understanding of IT, DL and CS through the design and use of products whilst using different applications.</p>	Autumn term 1	7.1 Clear messaging in digital media	CM, DD, ET, SS	3.8, 3.9 2.5-2.7	Presentation to owner of Charity) Rubric EEE
	Autumn term 2	7.2 Networks from semaphores to the Internet	CS, IT, NW, SS	3.5 2.4	Assessment 24Q MCQ Test
	Spring term 1	7.3 Using media – Gaining support for a cause	CM, DD, ET, IT, SS	3.8, 3.9 2.5-2.7	Blog Creation - Rubric EEE Assessment 16Q MCQ Test Midyear assessment
	Spring term 2	7.4 Programming essentials in Scratch – part I	AL, DD, PG	3.7, 3.8 2.1-2.3	Tasks on Scratch – Rubric EEE
	Summer term 1	7.5 Programming essentials in Scratch – part II	AL, DD, PG	3.2, 3.3, 3.4, 3.8 2.1-2.3	20Q Test
	Summer term 2	7.6 Modelling data using spreadsheets	CM, DD, DI, ET, IT	3.2, 3.7, 3.8 2.6	Week 6 End of Unit Spreadsheet Task (Using spreadsheet) End of year assessment

Year 8 & 9 Curriculum Overview

Intent	Duration	Unit of work – to be taught as written & links to Nat. Curriculum	Assessment
<p>The intent for year 8 is to build on their knowledge of IT, DL & CS through the different units. Develop a wider set of skills and deeper knowledge of computer systems, a deeper awareness of the role of women in IT and develop their computational thinking further through their application of computation to programming projects (scratch and Python)</p>	Autumn term 1	E-Safety (DL)	Week 6 End of unit assessment
	Autumn term 2	Women in IT & Computer Systems & Data Representation (IT, DL & CS)	Week 6 End of unit assessment
	Spring term 1	Spreadsheet (IT)	Week 5 Assessment of finished theatre model
	Spring term 2	Scratch (CS)	Week 5 End of unit assessment
	Summer term 1	Database (IT & CS)	Week 5 Assessment of database
	Summer term 2	Intro to Python Programming (CS)	Week 3 End of year Assessment
<p>The intent for year 9 is to become confident in their use and development of technology; they will leave KS3 with a solid understanding and necessary skills to respond to the challenges regardless of the pathway they choose to follow in KS4 and beyond.</p>	Autumn term 1	E-Safety (DL)	Week 6 End of unit assessment
	Autumn term 2	Women in IT, Computer Systems, rep of data & logic gates (DL & CS)	Week 6 End of unit assessment
	Spring term 1	Python - Skills builder (CS) - Algorithms & Programming (CS)	Week 5 End of unit assessment
	Spring term 2	Python – Algorithms & Programming (CS) with python (CS)	Week 5 Assessment of the final code
	Summer term 1	Database and SQL (IT & CS)	Week 5 End of unit assessment
	Summer term 2	Networks, network security & encryption (IT & CS)	Week 3 End of year Assessment

KS4 GCSE Curriculum Overview

Intent	Year group	Unit of work – to be taught as written & links to National Curriculum	Duration	Assessment
<p>Pupils will be taught to develop their capability, creativity and knowledge in computer science, digital media and information technology. Pupils will be developing and applying their problem-solving skills through the application of computational thinking.</p> <p>Pupils will develop a set of skills and knowledge at the end of each year which will work as a building block to the next. To enable deep learning to take place, links will be made between the units as well so that pupils understanding of IT, digitally literacy and computational thinking is reinforced and pupils</p>	<p>Year 10</p>	<p>Unit 1.1 System Architecture</p> <ul style="list-style-type: none"> • 1.1.1 Architecture of the CPU • 1.1.2 CPU performance • 1.1.3 Embedded systems <p>Unit 1.2 Memory and Storage</p> <ul style="list-style-type: none"> • 1.2.1 Primary storage (Memory) • 1.2.2 Secondary storage • 1.2.3 Units • 1.2.4 Data storage • 1.2.5 Compression <p>Unit 2.1 Algorithms</p> <ul style="list-style-type: none"> • 2.1.1 - Computational thinking • 2.1.2 - CPU performance • 2.1.3 - Searching and sorting algorithms <p>Unit 2.2 Programming Functions</p> <ul style="list-style-type: none"> • 2.2.1 - Programming fundamentals • 2.2.2 - Data types • 2.2.3 - Additional programming techniques <p>Unit 2.3 Producing robust programs</p> <ul style="list-style-type: none"> • 2.3.1 - Defensive design • 2.3.2 - Testing 	<p>Autumn term 1</p> <p>Autumn term 2</p> <p>Spring term 1</p> <p>Spring term 2</p> <p>Summer term 1</p>	<p>Week 2 (Exam questions on Von Neumann architecture) Week 4 (Unit 1.1 Assessment)</p> <p>Week 4 (MFA - conversion worksheet between Binary, Denary and Hex) Week 6 (Assessment on ALL of 1.2 – Memory and storage)</p> <p>Week 3 (Written piece of work produced during the lesson on students refining and producing further algorithms) Week 5 (Assessment on 2.1)</p> <p>Week 1 (Students will be assessed by looking at their flow chart and pseudocode of solution for sequence (OCR booklet task 4b), selection (OCR booklet task 6c) and iteration (OCR booklet task 8b) Week 5 (Written paper made up of exam questions on 2.2, Assessment will be on OCR booklet task 10A)</p> <p>Week 4 (Assessment 2.2 Programming Fundamentals) Week 6 (Past exam questions on 2.3)</p>

<p>can see the subject as whole. This will develop subject mastery and will challenge and stretch all learners with lessons and assessments that are fit for purpose</p> <p>Pupils will understand how computer systems operate and the impact of the law determines the use of technology and data. Pupils will also study how changes in technology affect safety and how it impacts the world they world they live in today (environment, culture).</p>		<p>Unit 1.3 Computer networks, connections and protocols</p> <ul style="list-style-type: none"> 1.3.1 - Networks and topologies 1.3.2 - Wired and wireless networks, protocols and layers 	<p>Summer term 2</p>	<p>Week 2 (End of unit assessment on 2.3) Week 6 (Assessment on 1.3)</p>
	<p>Year 11</p>	<p>Unit 1.4 Network Security</p> <ul style="list-style-type: none"> 1.4.1 Threats to computer systems and networks 1.4.2 Identifying and preventing vulnerabilities <p>Unit 1.5 System Software</p> <ul style="list-style-type: none"> 1.5.1 Operating systems 1.5.2 Utility software <p>Unit 1.6 Impacts of Digital Technology</p> <ul style="list-style-type: none"> 1.6.1 Ethical, legal, cultural and environmental impacts <p>Unit 2.4 Boolean Logic</p> <ul style="list-style-type: none"> 2.4.1 Boolean logic <p>Unit 2.5 Programming Languages & IDEs</p> <ul style="list-style-type: none"> 2.5.1 Languages 2.5.2 The Integrated Development Environment (IDE) <p>Revision</p>	<p>Autumn term 1</p> <p>Autumn term 2</p> <p>Spring term 1</p> <p>Spring term 2</p>	<p>Week 4 (Assessment 1.1-1.4) Week 7 (assessment on 1.6 System security & 1.7 Systems software)</p> <p>Week 4 (Assessment on 1.6) Week 7 (Assessment on 2.4 – Boolean logic)</p> <p>Week 4 (Assessment on 2.5) Week 6 (Mock exam on paper 1)</p> <p>Week 2 ((Mock exam on paper 2) Week 4 (Mock exam)</p>