



# Marshall's Park Academy - Curriculum Overview

Subject: Computing and ICT

Year Group: 8



In Year 8, students will undertake a curriculum geared to ready learners for advanced Computer Science the following year. Students will be learning about the internal make-up of computers, advanced modelling using spreadsheet software. Student will also get considerable exposure to programming using different languages and interfaces.

TERM 1	TERM 2	TERM 3
<b>KNOWLEDGE/SKILLS</b>  <b>Understanding Computers</b> <ul style="list-style-type: none"><li>Distinguish between hardware and software</li><li>Identify input, output and storage devices</li><li>Understand the differences between primary and secondary storage</li><li>CPU/ Fetch Execute Cycle</li><li>Understand the difference between RAM and ROM and what ROM is used for</li></ul> <b>Computational Thinking &amp; Logic</b> <ul style="list-style-type: none"><li>Get mind-set ready for logical thinking</li><li>Understand and use logic gates</li><li>Algorithmic Thinking Understanding</li><li>Abstraction</li><li>Decomposition</li></ul>	<b>KNOWLEDGE/SKILLS</b>  <b>Developing for the Web</b> <ul style="list-style-type: none"><li>Learn what HTML is and what it is used for</li><li>Type basic HTML tags using a text editor</li><li>Edit HTML code and view in a browser</li><li>Write CSS code to set styles</li><li>Create a responsive web page</li><li>Understand the main principles of website design</li><li>Learn how to create a web form</li></ul> <b>Python Programming</b> <ul style="list-style-type: none"><li>Explore Python 3 programming language</li><li>Learn how to use IDLE to write and organise programs</li><li>Get Python to do some maths</li><li>Learn how to combine maths and text</li><li>Learn about variables</li><li>Use if, elif and else statements (including loops)</li></ul>	<b>KNOWLEDGE/SKILLS</b>  <b>Cyber Security</b> <ul style="list-style-type: none"><li>Cybercrime and email scams</li><li>Health and safety and hacking</li><li>Protecting online identity</li><li>Legal issues, Copyright</li></ul> <b>Microbits</b> <ul style="list-style-type: none"><li>Identify components of the microbit</li><li>Output text/designs on the display</li><li>Trigger events based on button presses</li><li>Use selection and forever loops</li><li>Adjust LEDs on the microbit</li><li>Program the “gestures” function to use the accelerometer</li></ul>
<b>KEY ASSESSMENTS</b>  HALF TERM 1 End of unit test (Understanding Computers)  HALF TERM 2 End of unit test (Computational Thinking and Logic)	<b>KEY ASSESSMENTS</b>  HALF TERM 3 End of unit test (Developing for the Web)  HALF TERM 4 End of unit test (Python Programming)	<b>KEY ASSESSMENTS</b>  HALF TERM 5 End of unit test (Cyber Security)  HALF TERM 6 End of unit test (Microbits)

Extended reading suggestions and links to external resources:

**Teach-ICT** - <http://www.teach-ict.com/>

Theory components of the course are covered in great-depth to accompany all of the computer Science Course

**Codecademy** - <https://www.codecademy.com/>

Online programming tutorials with easy-to-follow instructions, and immediate feedback to determine if code is correct. Excellent resource to self-learn

**BBC micro:bit** - <https://makecode.microbit.org/>