

Fairfield High School Curriculum Overview – KS3: Years 7, 8 & 9

Subject	Computer Science	Why do we study these units at KS3?
Taught in rotation with Art & DT	9 – 14 Lessons per unit	The KS3 Computer Science programme begins with an introduction to the skills required of Computer Scientists. These include the manipulation of data, the use of programming languages: Scratch/HTML/Python, and the safe use of the internet.
Setting	Mixed ability teaching in tutor groups	

Students are encouraged to be Responsible Global Citizens through numerous links to the sustainable development goals embedded within the KS3 programme of study.

We ensure all students experience high challenge by differentiating lessons so that ideas can be extended by all students even those making greater than expected progress.

Literacy work includes the introduction of a wide range of computing vocabulary.

Innovation and Creativity opportunities are included in lessons and via workshops delivered by local universities and employers.

Employability opportunities and skills are highlighted in lessons throughout the course and supplemented with workshops and trips.

Year	Unit title	Knowledge and Understanding/content	Skills	Assessment
7	Introduction to Programming	<ol style="list-style-type: none"> 1. Introduction to ICT suite and rules/Logon procedures (username and password) 2. What do you already know about Scratch?/Game concept (complete worksheet)/Introduction to saving on the school network 3. Set up main sprite (Bird) and background, obstacles and collectibles/Program the bird /Makes improvements based on peer feedback 4. Scratch Interface/Complete programming the bird 5. Program the obstacles (collision) 6. Program scoring system 7. Test, debug and complete the game 8. Add extension elements to game: <ul style="list-style-type: none"> - High score leader board - Ability to select different level of difficulty - Different levels - Game that gets harder as score increases etc - Add a floor which if touched ends the game - Timer - Bonus levels - Customised feedback 9. Complete and submit worksheet with evidence of game 	<ul style="list-style-type: none"> • Safe use of computer systems. • The languages of programming - Scratch. • The literacy of computing 	<p>Baseline Assessment</p> <p>Peer feedback on game design.</p> <p>Self-assessment worksheet</p> <p>Keywords test</p> <p>Evaluation, self-assessment & peer feedback</p> <p>Online assessment</p>
8	Introduction to Web Development	<ol style="list-style-type: none"> 1. Introduction to HTML project/Ideas for website 2. What do you already know about HTML?/ Website concept (complete worksheet)/ Introduction to saving on the school network 3. Basic HTML page and folder structure/Introduction to tags 4. Adding images/Setting up the homepage 5. Formatting webpage content 	<ul style="list-style-type: none"> • Safe internet use • The languages of programming - HTML. 	<p>Baseline Assessment</p>

		<ol style="list-style-type: none"> 6. Additional tags for formatting/Creating new pages 7. Adding content to new pages 8. Introduction to networks and the Internet 9. Build a network practical task 10. Adding interactive elements: <ul style="list-style-type: none"> - Videos - Sound - Forms - Email links 11. Completing the website 12. Complete and submit worksheet with evidence of website 13. <i>Online assessment/Evaluation</i> 14. Introduction to Von Neumann Architecture/Building a computer model 	<ul style="list-style-type: none"> • Modelling computers 	<p>Peer feedback on webpage design.</p> <p>Teacher assessment & feedback</p> <p><i>Self assessment & peer feedback</i></p> <p>Online assessment</p>
9	<p>Programming in Python</p>	<ol style="list-style-type: none"> 1. What do you already know about Python? 2. Python: Introduction to IDLE and interface/Introduction to turtle module/Students write code to draw a square/Extension: draw a red triangle 3. Introduce additional turtle methods/Introduce grid and go through co-ordinates/Draw Olympic rings 4. Introduction to variables/Introduce input and print methods/Students to create a basic program which asks the user a series of questions and responds using the user response (Interactive story) 5. Draw a square (user specifies size)/Peer testing of interactive story 6. Binary and Images: <ul style="list-style-type: none"> - Introduction to binary - How do computers store images/colour? 7. Introduction to selection/Multiple choice quiz/Add score as extension 	<ul style="list-style-type: none"> • The languages of programming - Python. • Binary coding 	<p>Baseline Assessment</p> <p>Self-assessed variable test</p> <p>Teacher feedback on Interactive story code</p>

	<p>8. Test, debug and complete the quiz</p> <p>9. Add extension elements:</p> <ul style="list-style-type: none"> - Score - Name feature - Allow user to select different levels - Allow a user to re-try a question - Adding comments <p>10. Binary and character encoding:</p> <ul style="list-style-type: none"> - Unicode - Encoding and decoding characters <p>11. Complete and submit worksheet with evidence of quiz</p> <p>12. Evaluation</p> <p>13. Data compression:</p> <ul style="list-style-type: none"> - Introduction to Run Length Encryption - Data compression 	<p>Self-assessment & peer feedback</p> <p>Online assessment</p>
<p><u>Revision resources:</u></p> <p>Learn to program in Python:</p>	<p><u>KS3 Computer Science:</u></p> <p>KS3 resource: https://www.pgonline.co.uk/resources/computer-science/gcse-aqa/learning-to-program-in-python/</p>	<ul style="list-style-type: none"> • It is not the expectation that parents buy student books, but you may find it helpful if you are required to study at home for an extended period. • This recommended revision aid introduces the programming language of Python which is the programming language of the GCSE exams in May/June of yr11.