

Computer Science Long Term Plan Year 9

Temperance Term

W/C	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	HALF TERM
Area of Study	Python programming – Part II - Using Trinket.io							
Core Learning	<u>Objectives:</u> <ul style="list-style-type: none"> Use input, assignment and, output statements in sequence Use selection to control the flow of program execution Use iteration to control the flow of program execution Use the importing of libraries to increase the complexity of code. 				<u>Content:</u> Variables, assignment, lists Selection (if-elif-else) Iteration (while and for loops) Using random Arrays and Dictionaries Turtle			
Opportunities for Challenge	More complicated coding, introduction of functions and procedures.							
Assessment	Formative assessment: Through teacher observation, questioning and marked activities Summative assessment: End of Unit assessment							

W/C	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	CHRISTMAS
Area of Study	Data Representation – Part II						
Core Learning	<u>Objectives:</u> <ul style="list-style-type: none"> To be able to add two binary numbers together To understand how images are represented digitally To be able to understand and convert the Hexadecimal number system To investigate how binary is used to represent letters and words. 			Binary Addition Images and how they are represented in Binary. Hexadecimal ASCII			
Opportunities for Challenge	Extension activities include more complicated binary addition using 3 or more binary numbers, understanding of under and over flow, complex hexadecimal conversions, knowledge of Unicode as well as ASCII						
Assessment	Formative assessment: Through teacher observation, questioning and marked activities Summative assessment: End of Unit assessment						

Justice Term

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W/C	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	HALF TERM
Area of Study	Networks						
Core Learning	Objectives: <ul style="list-style-type: none"> To be able to draw the three main network topologies To be able to describe advantages and disadvantages of the three main network topologies. Name and identify the essential hardware for networks To be able to name the main the dangers of using networks 			Content: Types of networks Network topologies & hardware Dangers of public WiFi Introduction to network security and Malware			
Opportunities for Challenge	Teach Computing Curriculum Explorer activities: The building of their own virtual network, choosing the hardware necessary and explaining their choices.						
Assessment	Formative assessment: Through teacher observation, questioning and marked activities Summative assessment: End of Unit assessment						

W/C	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Easter
Area of Study	Cyber Security						
Core Learning	Objectives: <ul style="list-style-type: none"> To understand what cybersecurity is To understand why we need cybersecurity To be able to identify and name various cybersecurity risks and threats. 			Content: Social engineering Hacking, Brute force & DDoS attacks. Computer Misuse Act. Malware Protection (Anti-malware, Firewalls, Authorisation, User permissions)			
Opportunities for Challenge	Teach Computing Curriculum Explorer activities: Linking to careers and what a career Cybersecurity would involve						
Assessment	Formative assessment: Through teacher observation, questioning and marked activities Summative assessment: End of Unit assessment						

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Courage Term

W/C	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	HALF TERM
Area of Study	Encryption						
Core Learning	Understand the role of encryption in maintaining safety online Know about a range of ciphers Understand how encryption works to maintain security on networks.			Caesar ciphers Vignette ciphers Cryptographic keys History of Computing WWII and Alan Turing			
Opportunities for Challenge	Students can continue their understanding of algorithms that sort and search Connecting other encryption in real life environments Creating encryption in python code						
Assessment	Formative assessment: Through teacher observation, questioning and marked activities Summative assessment: End of Unit assessment						

W/C	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	END OF YEAR
Area of Study	Internet of Things & 3D Design						
Core Learning	<u>Objectives:</u> <ul style="list-style-type: none"> To be able to understand a design brief and create a project exploring the elements described To know what the Internet of Things means and how this has developed To describe how the Internet of Things is used in society today To be able to design and create a 3D design project using Sketch-Up 			<u>Content:</u> Internet of things Smart Devices/Homes Eco Homes Ethical use of technology Learning how to use the 3D design program Sketch-up			
Opportunities for Challenge	Teach Computing Curriculum Explorer activities: complex 3D design tools and animations						
Assessment	Formative assessment: Through teacher observation, questioning and marked activities Summative assessment: End of Unit assessment						