Year 8 Curriculum Overview

Rationale: The Year 8 curriculum is designed to give students an introduction to the principles of Computational Thinking and build upon prior learning from Year 7. Students will experience a range of modules which will help them to develop their understanding of abstraction, decomposition, pattern recognition, computer control and algorithms. Students will also gain an introduction to high level programming, binary representation of characters, images and sound plus investigate key moments in computing history and linking this to key computer science concepts such as Boolean logic and cryptography.

Term/Length of Time	Outline	Assessment/Teacher Feedback Opportunities	Homework and Literacy resources
Autumn 1	**Computational Thinking** Students will gain an understanding of the main theoretical concepts of Abstraction, Decomposition, Pattern Recognition and Algorithms.	MS Forms based end of unit assessment. Mixture of Open and Closed questions with an additional focus on keywords/literacy	**Minimum homework expectation - to be set on G4S** Completion of revision activity using Seneca Learning **Optional homework tasks and Literacy resources** Creation of revision resource (e.g. mind map) to be submitted alongside compulsory activity Complete some Bronze Award badges on the iDEA Award to showcase digital literacy and employability skills. Once complete students can move to Silver and then Gold certificates. Follow this scheme of learning on Teach-ICT to embed your HTML learning. Username is **cv326rd** and Password is **student** Access BBC Bitesize and research more into this topic Complete an activity on Hour of Code Watch an episode of BBC Click on the BBC iPlayer Additional Reading for Budding Computer Scientists: Choose a book from this recommended reading list some of which can be found in the department or the library

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Autumn 2	**Computer Control** Students will apply their learning of computational thinking to understand flowchart symbols and create algorithms in the form of flowcharts. Students will use specific software (e.g. Flowol) to apply their learning to create a series of algorithms that solve real life problems	MS Forms based end of unit assessment. Mixture of Open and Closed questions with an additional focus on keywords/literacy	**Minimum homework expectation - to be set on G4S** Completion of revision activity using Seneca Learning **Optional homework tasks and Literacy resources** Creation of revision resource (e.g. mind map) to be submitted alongside compulsory activity Complete some Bronze Award badges on the iDEA Award to showcase digital literacy and employability skills. Once complete students can move to Silver and then Gold certificates. Follow this scheme of learning on Teach-ICT to embed your learning. Username is **cv326rd** and Password is **student** Access BBC Bitesize and research more into this topic Complete an activity on Hour of Code Watch an episode of BBC Click on the BBC iPlayer Additional Reading for Budding Computer Scientists: Choose a book from this recommended reading list some of which can be found in the department or the library
Spring 1	**Introduction to Python Programming** Students learn how to open Python, save, run and retrieve files. Students learn how to create print statements, data types and calculations. Students understand and apply the theory behind variables and	MS Forms based end of unit assessment. Mixture of Open and Closed questions with an additional focus on keywords/literacy	**Minimum homework expectation - to be set on G4S** Completion of revision activity using Seneca Learning **Optional homework tasks and Literacy resources** Creation of revision resource (e.g. mind map) to be submitted alongside compulsory activity

	sequencing. Students understand the need for and importance of commenting on their code.		Complete some Bronze Award badges on the iDEA Award to showcase your digital literacy and employability skills. Once complete students can move to Silver and then Gold certificates. Use the interactive Python tutorials on LGFL to embed and develop knowledge. Follow this scheme of learning on Teach-ICT to embed your learning. Username is **cv326rd** and Password is **student** Access BBC Bitesize and research more into this topic Complete an activity on Hour of Code Watch an episode of BBC Click on the BBC iPlayer Additional Reading for Budding Computer Scientists: Choose a book from this recommended reading list some of which can be found in the department or the library
Spring 2	**Cyber Security** Students will gain an understanding of the main concepts of cyber security through an online platform called 'Cyber Explorers' developed by the Department for Digital, Culture, Media and Sport (DCMS).	MS Forms based end of unit assessment. Mixture of Open and Closed questions with an additional focus on keywords/literacy	**Minimum homework expectation - to be set on G4S** Completion of revision activity using Seneca Learning or bespoke learning activity **Optional homework tasks and Literacy resources** Creation of revision resource (e.g. mind map) to be submitted alongside compulsory activity Complete some Bronze Award badges on the iDEA Award to showcase digital literacy and employability skills. Once complete students can move to Silver and then Gold certificates.

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Summer 1	**Data** Students recap their understanding of data and binary, how to decode denary to binary, convert them to letters using ASCII. Students learn how to add binary numbers including the concept of overflow errors. How computers covert binary to images and sound.	MS Forms based end of unit assessment. Mixture of Open and Closed questions with an additional focus on keywords/literacy/numeracy	**Minimum homework expectation - to be set on G4S** Completion of revision activity using Seneca Learning **Optional homework tasks and Literacy resources** Creation of revision resource (e.g. mind map) to be submitted alongside compulsory activity Complete some Bronze Award badges on the iDEA Award to showcase digital literacy and employability skills. Once complete students can move to Silver and then Gold certificates. Follow this scheme of learning on Teach-ICT to embed your learning. Username is **cv326rd** and Password is **student** Access BBC Bitesize and research more into this topic Complete an activity on Hour of Code Watch an episode of BBC Click on the BBC iPlayer

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Summer 2	**Key Moments in Computing History** This unit aims to provide students with an understanding of the history of computers and famous computer scientists including: Alan Turing and cyphers, Sir Tim Berners Lee and the internet, George Boole and logic gates.	Verbal teacher feedback on production of digital artefacts with a focus on keywords/literacy/numeracy	**Minimum homework expectation - to be set on G4S** Completion of a reading task plus an MS Forms quiz to assess understanding **Optional homework tasks and Literacy resources** Creation of revision resource (e.g. mind map) to be submitted alongside compulsory activity Find out more about Alan Turing here Access more information about the Internet at BBC Bitesize Follow this scheme of learning on Teach-ICT to embed your learning. Username is **cv326rd** and Password is **student** Complete some Bronze Award badges on the iDEA Award to showcase your digital literacy and employability skills. Once complete you can move to Silver and then Gold certificates. Complete an activity on Hour of Code Watch an episode of BBC Click on the BBC iPlayer Additional Reading for Budding Computer Scientists: Choose a book from this recommended reading list some of which can be found in the department or the library

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