Computer Science

Overview of the year: This year we will be studying the key topics for GCSE Computer Science, we will be revisiting these topics during the end of year PPE in year 10 and Y11. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Student will study the framework of the modern computer systems architecture. Explore how computers are networked. Appreciate how data is represented in a computer, and also study logic and programming languages.			**Ways to consolidate and extend your learning in History:** The main resource for learning GCSE Computer Science are the textbooks, Teach-ICT.com website resources and most importantly your Computer science folder (work done in class).You will also be given a revision guide to help your study this year. Pre-reading the textbook before lessons is a great way to help with your learning of the key knowledge required for GCSE. Re-reading the textbook at home after lessons is an important way to revise and consolidate information. Additionally, online resources such as YouTube videos and BBC bitesize can help further your understanding of topics. A wider list of useful resources is available on the school website. Also look at articles and videos posted on the Teams platform regularly. You should also practise programming at home for at least a few hours a week on tasks we worked in school. Test yourself to see if you can independently code the solutions for the problems we worked in class. This strategy will not only build your programming skills but also reinforce your understanding of algorithms.	
Half Term	**Unit title**	**Knowledge**	**Skills**	**Assessment (all modules will have an assessment under controlled conditions when finished)**
1	Computer Systems Architecture and Computer networks	Students explore computer hardware of a computer system. For example, students will explore key components like the CPU, internal registers, input, process. Students will also explore how data is transmitted and received through a computer network.	• Computer hardware • Input, storage and output devices • Computer software (operating system and application software) • Diagnostics • Operating System • Utility Software	Feedback throughout lessons as part of AfL and CfU. Written feedback on class work and unit tests Whole class feedback following each homework and based on the previous lesson's learning
2, 3	Data representation and Algorithms	Students explore how data is represented by a computer system. For example, students will explore how text, images, sound and video is represented by a computer. Students will also explore how computer programs are designed via algorithms.	• Pseudocode • Algorithms • Programming • Debugging • Computational thinking • Problem solving • Creativity • Analysis	Feedback throughout lessons as part of AfL and CfU. Written feedback on class work and unit tests Whole class feedback following each homework and based on the previous lesson's learning
3, 4, 5	Logic and languages and Programming	Logic is concerned with forms of reasoning when designing computer systems or programs. Implementing algorithms in to a programming language (Programming)	All skills from previous modules in Y10 will be revised and practiced	Feedback throughout lessons as part of AfL and CfU. Written feedback on lesson tasks **PPE includes everything we have learnt on GCSE course up until this point.**