KS4 Year 10 – Computer Science Curriculum Map: Autumn Term 2022-23

The Computer Science GCSE course is intended to provide students with the fundamental principles and concepts of computer science including; abstraction, decomposition, logic and algorithms. They will be able to analyse problems in computational terms through problem solving by designing, writing and debugging programs. The course has two units, which are externally examined at the end of the course. Programming is a main element of the course and students will be continually using and practising coding in python.

Learning Unit: Autumn Term	Assessment Deadlines	Homework Areas	Extended Learning opportunity
Key questions How does the architecture of modern computers facilitate software development and design? What are computer networks, where are they used and what are the different types used? What is the main difference between a hub and a switch? How is data transferred over networks? How do I write programs to store input from a user? How could this input be manipulated?	Not applicable	Homework will be set on a weekly basis, which will consist of research to make notes on the topic being covered in class.	Pupils will be advised to research and read further around each topic being covered in the class to increase their knowledge.
Content covered • Know the main components of a modern computer • Understand the FDE cycle in the CPU • Know why protocols are important for communicating data between computers • Understand what main components are needed for a computer network to function.			
Literacy and Numeracy Protocols, LANS, WANS, Networks, Von-Neuman, CPU, Topologies, WiFi, Ethernet, Switch, Hub, Router			

What parents can do to help your child?
Parents can help their child by making sure that they do some work at home towards their revision and reenforcing their knowledge and understanding of topics covered. At least 2-3 hours per week would be sufficient.
Additional resources
Help guides on the public drive for each topic. A subject specific related book will be available in the classroom as well as a website for this unit.
Who to contact if you have any query about the subject: In the first instance we would encourage you to get in touch with the subject teacher – the student planner may be one way of communicating. You may also wish to contact the Curriculum Leader for the subject which is Mr Qureshi who will also be able to help.

KS4 Year 10 – Computer Science Curriculum Map: Spring Term 2022-23

The Computer Science GCSE course is intended to provide students with the fundamental principles and concepts of computer science including; abstraction, decomposition, logic and algorithms. They will be able to analyse problems in computational terms through problem solving by designing, writing and debugging programs. The course has two units, which are externally examined at the end of the course. Programming is a main element of the course and students will be continually using and practising coding in python.

Learning Unit: Spring Term	Assessment Deadlines	Homework Areas	Extended Learning opportunity
Key questions What are the main threats to computer networks? How can computer systems be protected? How do I write programs to store input from a user? Why are algorithms important with program design? How could this input be manipulated? What are the programming fundamentals?	Not applicable	Homework will be set on a weekly basis, which will consist of research to make notes on the topic being covered in class.	Pupils will be advised to research and read further around each topic being covered in the class to increase their knowledge.
Content covered • Know what makes computer systems and networks vulnerable to attack • Know how to make networks and computer systems secure • Know how to create a program to solve a problem computationally			
Literacy Virus, Malware, Vulnerable, Algorithms			
What parents can do to help your child? Parents can help their child by making sure that they do some work at home towards their revision and reenforcing their knowledge and understanding of topics covered. At least 2-3 hours per week would be sufficient.			
Additional resources Help guides on the public drive for each topic. A subject specific related book will be available in the classroom as well as a website for this unit.			
Who to contact if you have any query about the subject: In the first instance we would encourage you to get in touch with the subject teacher – the student planner may be one way of communicating. You may also wish to contact the Curriculum Leader for the subject which is Mr Qureshi who will also be able to help.			

KS4 Year 10 – Computer Science Curriculum Map: Summer Term 2022-23

The Computer Science GCSE course is intended to provide students with the fundamental principles and concepts of computer science including; abstraction, decomposition, logic and algorithms. They will be able to analyse problems in computational terms through problem solving by designing, writing and debugging programs. The course has two units, which are externally examined at the end of the course. Programming is a main element of the course and students will be continually using and practising coding in python.

Learning Unit: Summer Term	Assessment Deadlines	Homework Areas	Extended Learning opportunity
Key questions What impact has technology had on people in the modern era? What are the ethical issues that have come to light due to technology? How is legislation used to address some of the ethical issues of technology? What is the difference between operating system and utility software? How do I write programs to store input from a user? Why are algorithms important with program design? What are the programming fundamentals?	Not applicable	Homework will be set on a weekly basis, which will consist of research to make notes on the topic being covered in class.	Pupils will be advised to research and read further around each topic being covered in the class to increase their knowledge.
Content covered - Know what the main role is of the operating system and why it is important - Understand the main legislation relevant to computer science - Know the purpose of utility software is and some different types - Know how to create a program to solve a problem computationally			
Literacy Operating Systems, Utility Software, Ethical, Environment, Cultural, Legislation, GDPR, Copyright			

What parents can do to help your child?
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Additional resources
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Who to contact if you have any query about the subject: In the first instance we would encourage you to get in touch with the subject teacher – the student planner may be one way of communicating. You may also wish to contact the Curriculum Leader for the subject which is Mr Qureshi who will also be able to help.