Key Stage 4 (10)	
Course title: Computer science	
Exam board: AQA	
Specification code: 8525	
	Topic
Autumn 1 (September-October)	**Fundamentals of data representation** • number bases • conversions • units • binary maths • ascii and unicode • images • audio • compression **Why now?** Data underpins so much of the theory for this course it is necessary to cover it early in the theory stage. It also engages a wide range of pupils as much of it is either new or more in-depth than anything they have done before. **Ethical, legal, and environmental impact** It is vital that pupils have an understanding beyond the classroom of systems that they use and, in the future, create. This topic links well with introducing a wide range of topics to generate discussions that we return to as we progress through the rest of the course.
Autumn 2 (October-December)	**Computer Systems** • boolean logic/truth tables/logic gates • system architecture (hardware) • software Building on the first topic of data representation, the pupils now start to look at how computers work and how data is stored, from a hardware point of view. Naturally following on from this is the topic of software – how computers make use of data and how it interacts with the hardware.
Spring 1 (January-February)	**Computer systems** • software **Cyber security** • threats Protection of data is a vital part of computing, and this term covers the tools that we have available to us, as well as detailed discussions of the developing threats that have to be dealt with.

Spring 2 (February-March)	**Cyber security** • prevention methods Knowing the tools and processes to fight the threats is a key element of a computer scientist's armoury, and leads nicely into the networking topic.
Spring 2 (February-March)	**Ethical, legal, and environmental impact – continued.** It is vital that pupils have an understanding beyond the classroom of systems that they use and, in the future, create. This topic links well with introducing a wide range of topics to generate discussions that we return to as we progress through the rest of the course.
HT 5	**Fundamentals of computer networks** • types • connection methods • topologies • protocols • security • TCP/IP 4-layer model Building on previous topics, especially cyber security, this develops pupil understanding of computer systems beyond their personal use experiences.
HT 6	**Python programming.** From this point in the year, the pupils start to have a coding lesson once per week to gradually build skills and confidence required for paper 1 assessment. **Programming languages and translators** • high and low level • machine code and assembly language • translators, compilers, interpreters, and assemblers This topic teaches the pupils what happens once they have written a piece of code, when they run it. They compare a range of languages.