

Year: 11 - Last cohort of J276

Subject: Computer science

Autumn Term		
Overarching Topic: Ethical, legal, cultural and environmental concerns & Programming fundamentals		
What has come before and what comes later:	In year 10 students focus on paper 1: “Computer systems” whilst continuing to practice programming in Python. Year 11 focuses mainly on paper 2: “Computational thinking, algorithms and programming” Students also have to complete a programming project that is set by the board and this runs concurrently with the theory work.	
	Core	Extension
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> • What are the ethical issues of computing? • What privacy issues does computing give society? • What does the legislation for computing prohibit? • What is the impact of computing on people? • What is the environmental impact of computing? • How can digital technology have an impact on society at a local, national and international level? • What recommendations would you give to someone considering software for their PC? • What terms are associated with programming? • Why are numbers sometimes stored as strings? • What are the steps to using data files with programs? • How is SQL used to search for data? • What does a two dimensional array or list mean? • Why are sub-programs used? • What are the principles of computational thinking? • What is abstraction? • Explain decomposition 	<ul style="list-style-type: none"> • What examples are there of organisations not acting ethically? • Do big tech firms know too much about you? • What can be done to tackle the digital divide? • What do we mean by “thinking algorithmically”? • How can algorithms be described without ambiguity? • Research BigO, what is it used for?

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	<ul style="list-style-type: none">• How does a linear search work?• How does a binary search work?• How does a bubble sort work?• How does a merge sort work? • How does an insertion sort work?• How and why do programmers use a trace table?	
	Skill/Technique	How students will develop and demonstrate this
Key skills	Describe and explain technical terminology and techniques. Apply knowledge to exam style questions. Solve problems Refine and improve work	During assessments, classwork and homework, students will: <ul style="list-style-type: none">• complete a range of activities that test the understanding and application of the topics covered.