Computer Science Intentions

KNOWLEDGE LED

Key Themes	Year 7	Year 8	Year 9	Year 10	Year 11
Online Safety - Networks, Data & Info, Creativity and Global Impacts	How do you write a respectful email? How do you spot the signs of cyberbullying? How do you stay safe on social media/gaming? How do you use office software effectively?	What is an online identity? What is social media validation? How do you have a perfect media balance? What is fake news? Why do people write fake news.	How do businesses/the government use your data? What is social engineering? What is ethical hacking? What is malware? How do you prevent attacks? What is the difference between Dos and DDos?	What are the threats to a computer system? How to identify and prevent vulnerabilities? What are the ethical and cultural issues of surrounding modern technology? What is the impact of technology on the environment?	What are the threats to a computer system? How to identify and prevent vulnerabilities? What are the ethical and cultural issues of surrounding modern technology? What is the impact of technology on the environment?
Data Representation / Computational Thinking – Algorithms, Data & Info, Global Impacts	What is binary? How do you convert rom binary to denary? How do you add binary numbers? What is computational thinking? What are flowcharts? How can use flowcharts to represent algorithms?	What is ASCII and UNICODE? What are the different binary logic gates? How do you solve computational problems? How do you represent a searching algorithm?	How is binary used for images and sound? How do you represent a searching and sorting algorithm?	What units is computer data measured in? How are sound and images stored? What are the two types of compression?	What are the techniques of computational thinking? What are the different types of searching and sorting algorithms?
Programming - Networks, Data & Info, Algorithms, Creativity and Global Impacts	What is programming? How do you use Scratch? What is sequencing, iteration and selection? What are variables? How can you use the same skills to program a Micro-Bit? How do you use Python for printing to screen, calculations, user input?	What is programming? How do you use Python for printing to screen, calculations, user input? What are data types? What are variables? How to independently write Python code.	What is programming? How do you use Python for printing to screen, calculations, user input? What are data types? What are variables? How to independently write Python code. What is iteration.	Python programming fundamentals. String handling	Programming fundamentals. Designing and testing IDE's
Computer Systems- Networks, Data & Info, Algorithms, Creativity and Global Impacts	What are embedded and general-purpose systems? What is the difference between an input and output? What are sensors? How do you build a PC? What is the CPU cycle?	How do we measure the performance of a CPU? What is a network? Which is better wired or wireless networks? How do we improve the performance of a network?	What are the components of a CPU? What are the different types of memory/storage? What is the purpose of an operating system? What are the differences between client server and peer to peer networks? What is packet switching?	What is the architecture of a CPU? How do we measure the performance of a CPU? What are the different types of computer storage? What are the different network topologies? Wired or Wireless? What is the purpose of an operating system? What is utility software?	What is the architecture of a CPU? How do we measure the performance of a CPU? What are the different types of computer storage? What are the different network topologies? Wired or Wireless? What is the purpose of an operating system? What is utility software?
Creativity - Networks, Data & Info, Creativity and Global Impacts	What makes a good website? What is colour psychology? How do you design a website? How do you review the quality of a website design?	What is the purpose of a spread sheet? What is meant by 'Big Data'? How can a business improve its performance using 'Big Data'?	What is a digital graphic? How do you design a mind map and visualisation diagram? How do you effectively use graphic editing software?		Programming project
Skill Development	Using office sofwtare effectively. Solving real life problems. How to program using block based programming software. Creating a well designed website.	Solving computational probelms. How to program using a text based programming language. How to effective use Excel	How to program indpeendtly using a text based programming language. Using alternative text based programming languages. How to use image editing software to produce a well-designed graphic..	Python skills. Binary logic and conversions.	Python and SQL skills.