



Year 11

Algorithms

- To be able to design a solution to a problem that depends on recursion.

Programming

- To be able to design and write nested modular programs that use sub-routines wherever possible.
- To understand the difference between 'While' loop and 'For' loop, which uses a loop counter.

Data

- To perform operations using bit patterns e.g. conversion between binary and hexadecimal, binary subtraction etc.
- To understand and can explain the need for data compression, and performs simple compression methods.
- To know a wide range of system security vulnerabilities and how to avoid them.

Computer

- To understand and explain Moore's Law.
- To be able to explain multitasking by computers.

Communication

- To understand hardware associated with networking computer systems, including WANs and LANs.

Information Technology

- To be able to document user feedback, identify improvements and make refinements to a solution.

Digital literacy

- To be able to recognise that data on the internet requires careful protection of online identity and privacy.

Year 10

Algorithms

- To be able to represent and explain algorithms using structured language i.e. procedures.

Programming

- To understand the effect of the scope of a variable e.g. a local variable can't be accessed from outside its function.
- To be able to apply a modular approach to error detection and correction.

Data

- To understand the relationship between binary and electrical circuits, including Boolean logic.
- To understand how and why values are data typed in many different languages when manipulated within programs.
- To know a wide range of system security vulnerabilities and how to avoid them

Computer

- To understand that processors have instruction sets and that these relate to low-level instructions carried out by a computer

Communication

- To know the purpose of the hardware and protocols associated with networking computer systems.

Information Technology

- To understand the properties of media when importing them into digital artefacts

Digital literacy

- To be to use technologies and online services securely, and know how to identify and report inappropriate conduct.



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Pathway 7

Year 9

Algorithms

- To recognise that some problems share the same characteristics and use the same algorithm to solve both.

Programming

- To understand the difference between, and use appropriately, procedures and functions including use of parameters.
- To be able to detect and correct syntactical errors.

Data

- To understand how numbers, images, sounds and character sets use the same bit patterns.
- To be able to perform simple operations using bit patterns e.g. binary addition.
- To understand the relationship between resolution and colour depth, including the effect on file size.
- To know a wide range of system security vulnerabilities and how to avoid them.

Computer

- To understand the functions of the CPU including the fetch- execute cycle and how data is stored in memory.

Communication

- To know the names of basic network hardware and protocols.

Information Technology

- To be able to evaluate the trustworthiness of digital content and consider the usability for a known audience.

Digital literacy

- To be able to use technologies and online services securely, and know how to identify and report inappropriate conduct.

Year 8

Algorithms

- To understand that iteration is the repetition of a process such as a loop.

Programming

- To understand a textual language, including using standard libraries when programming.
- To be able to use a range of operators and expressions e.g. Boolean, and applies them in the context of program control.

Data

- To understand that digital computers use binary to represent all data.
- To understand threats to data and forms of attack.

Computer

- To understand the function of the main internal parts of basic computer architecture.
- To understand CPU components and their functions and how they relate to memory.

Communication

- To understand how to construct static web pages using HTML and CSS.
- To understand basic network topologies including star and mesh.

Information Technology

- To be able to evaluate the appropriateness of digital devices, internet services and application software.

Digital literacy

- To be able to use technologies and online services securely, and know how to identify and report inappropriate conduct.



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Pathway 7

Year 7

Algorithms

- To be able decompose a problem and create a solution including sub-solutions for each part.

Programming

- To understand the difference between, and appropriately use if and if, then and else statements.
- To be able to use a variable and relational operators within a loop to govern termination.
- To be able to design, write and debug modular programs using procedures.

Data

- To be able to perform more complex searches for information e.g. using Boolean and relational operators.
- To be able to list a wide range of security measures.

Computer

- To understand the main functions of the operating system.
- To know the difference between physical, wireless and mobile networks.

Communication

- To understand how to effectively use search engines and know how search results are selected.

Information Technology

- To be able to make judgements about digital content when evaluating and repurposing it for a given audience.

Digital Literacy

- To be able to demonstrate responsible use of technologies and online services, and know a range of ways to report concerns.