

Subject: Computer Science

Year group: 12 & 13

Department Curriculum Vision: Enabling students to think analytically, logically and critically to solve computing problems. To build competent programmers with the ability to pick up different computing languages with ease.

	Autumn Term 1	Autumn Term 2
Content: (Know what...)	Year 12 Unit 1: Components of a Computer Unit 2: Programming constructs Year 13 Unit 1:Computing related legislation and social ethical, moral cultural impacts Unit 2: Algorithms NEA: Design	Year 12 Unit 1: System Software Unit 2: Programming Year 13 Unit 1: Computing related legislation and social ethical, moral cultural impacts Unit 2: Algorithms NEA: Design
Skills: (know how...)	CISC and RISC processors differ. ALU, Control Unit and Registers, Buses: data, address and control: how this relates to assembly language programs. The Fetch-Decode-Execute Cycle works. The factors affecting the performance of the CPU. The use of pipelining in a processor to improve efficiency. The Von Neumann and Harvard architecture are structured.	The need for, function and purpose of operating systems. How Memory Management works. The role of Interrupts. Describe the scheduling processes. Know the role of Virtual machines, any instance where software is used to take on the function of a machine, including executing intermediate code or running an operating system within another.

Key vocabulary	CISC RISC Registers Cache Pipelining	FIFO LIFO Round robin Bottleneck timeslice
Mid Term Assessment	Topic assessment made up of past paper questions	Topic assessment made up of past paper questions
End Term Assessment	Topic assessment made up of past paper questions	Topic assessment made up of past paper questions
	Spring 1	Spring 2
Content: (Know what...)	Year 12 Unit 1:Data Types Unit 2: Algorithms Year 13 Unit 1:Databases recap Unit 2: Revision and HTML,CSS and Javascript NEA: Programming and Testing	Year 12 Unit 1:Networks Unit 2: Algorithms continued Year 13 Unit 1:Databases Unit 2: Revision and HTML,CSS and Javascript NEA: Programming and Testing

Skills: (Know how...)	Use of sign and magnitude and two's complement are used to represent negative numbers in binary. Addition and subtraction of binary integers. Represent positive integers in hexadecimal. Convert positive integers between binary hexadecimal and denary. Representation and normalisation of floating point numbers in binary. Know how to write and evaluate HTML, JavaScript and CSS code. Know how to create a relational database.	Characteristics of networks and the importance of protocols and standards. Network security and threats, use of firewalls, proxies and encryption. The Network hardware required. The difference between Client-server and peer to peer networks. Know how to write and evaluate HTML, JavaScript and CSS code. Know how to create a relational database.
Key vocabulary	Two's complement Sign and Magnitude Overflow Normalisation Relational database Foreign key Dependency Third normal form	Two's complement Sign and Magnitude Overflow Normalisation Relational database Foreign key Dependency Third normal form
Mid Term Assessment	Topic assessment made up of past paper questions	Topic assessment made up of past paper questions
End Term Assessment	Topic assessment made up of past paper questions	Topic assessment made up of past paper questions
	Summer 1	Summer 2

Content: (Know what...)	Year 12 Unit 1:Databases Unit 2: coding algorithms Year 13 Exam preparation. Past papers	Year 12 End of year exam preparation Year 12 Unit 3: NEA project Year 13 Exam preparation. Past papers
Skills: (Know how...)	Relational database and flat files differ. Know what role the primary key, foreign key, secondary key, entity relationship modelling, normalisation and indexing all play. Methods of capturing, selecting, managing and exchanging data. Normalisation to 3NF. SQL – Interpret and modify. Aware of ACID (Atomicity, Consistency, Isolation, Durability), record locking and redundancy.	Structure the NEA. Revise content and go through past questions.
Key vocabulary	Normalisation Relational database Foreign key Dependency Third normal form Second normal form First normal form	Analysis Design Evaluation Testing
Mid Term Assessment	Topic assessment made up of past paper questions	Topic assessment made up of past paper questions
End Term Assessment	Topic assessment made up of past paper questions	End of year exam: all topics studied

Additional information

Homework	Past exam questions and
Extra curricular and enrichment opportunities	Opportunity to support lower school in a club.
Useful links that will support learning	Isaac website and PMT website to support past exam questions based on topics. OCR A Level Computer Science book PG Online.
How parents can support learning	Encouraging use of PMT and Isaac Computing to do past questions.