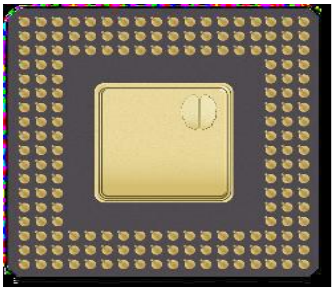


Year 7: Computer Science

Michaelmas 1	Understand what is meant by Esafety and how to be safe and responsible while using different technologies. The impact of the internet and being connected to our wellbeing. Explore different forms of bullying that affect young people: **Computer Systems**: Elements of a computer system
Michaelmas 2	Describe the function of the hardware components of a computer system (CPU, main memory, secondary storage) and how they work together. **Data Representation (binary)** Explain why computers use binary to represent data and program instructions. Convert between binary and denary
Lent 1	HTML (Website creation) Scripts programming Learn HTML and CSS. Develop a basic website with at 3 web pages
Lent 2	**Spreadsheet:** Spreadsheet be formatted, use formulas in spreadsheets, spreadsheet model,
Trinity 1	**Databases (SQL):** •A flat-file or two-table relational database of their own, using suitable field types and adding in appropriate validations •An input form with help text, combo boxes and list boxes •Queries and a report using data from one or both tables a front-end menu for their application linking to the database input form and report
Trinity 2	**Algorithm/Python Programming:** How to create algorithms in a flowchart & Pseudocode. Use selection, sequence and iteration on python. Uses more than two (if, elif and else) conditions to make decisions within a python program

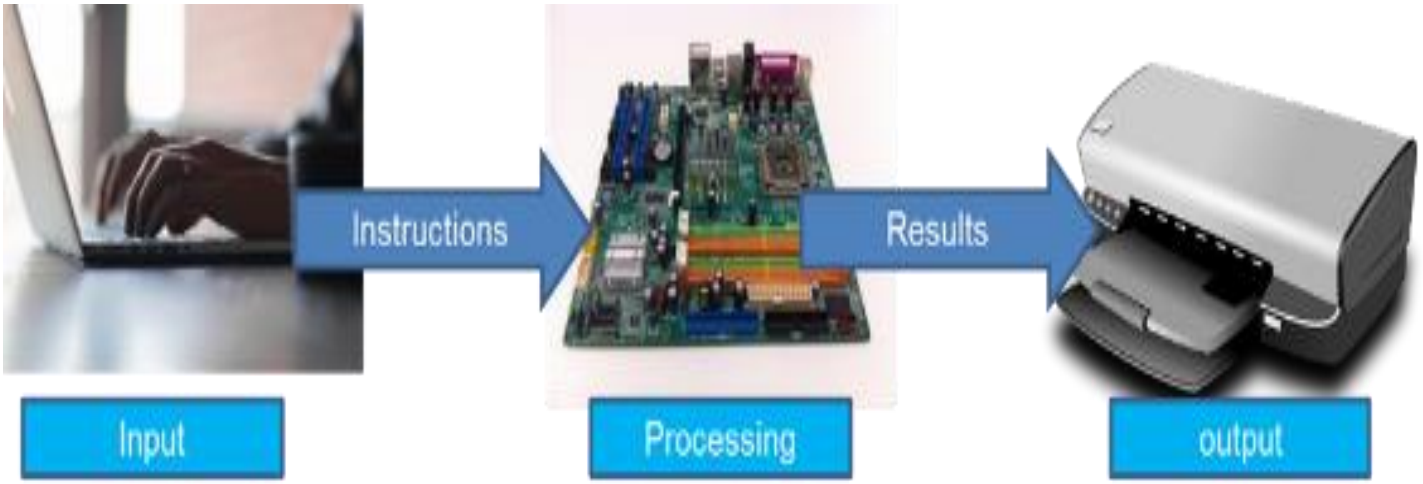
Year 8: Computer Science

Michaelmas 1	Understand what is meant by eSafety and how to be safe and responsible while using different technologies. The impact of the internet and being connected to our wellbeing. Explore different forms of bullying that affect young people: **Computer Systems**: Architecture of the CPU
Michaelmas 2	Describe the function of the hardware components of a computer system (CPU, main memory, secondary storage) and how they work together. **Advance Data Representation (binary)** Explain why computers use binary to represent data and program instructions. Convert between binary and denary
Lent 1	**Advance HTML** (Website creation) Scripts programming Learn HTML and CSS. Develop a basic website with at 3 web pages
Lent 2	**Advance Spreadsheet:** Spreadsheet be formatted, use formulas in spreadsheets, spreadsheet model,
Trinity 1	**Advance Databases (SQL):** •A flat-file or two-table relational database of their own, using suitable field types and adding in appropriate validations •An input form with help text, combo boxes and list boxes •Queries and a report using data from one or both tables a front-end menu for their application linking to the database input form and report
Trinity 2	**Advance Algorithm/Python Programming:** How to create algorithms in a flowchart & Pseudocode. Use selection, sequence and iteration on python. Uses more than two (if, elif and else) conditions to make decisions within a python program

Year 9: Computer Science

Computer

Michaelmas 1	**1.1 -Systems architecture & 2.1 – Algorithms** • Architecture of the CPU • ¨ The purpose of the CPU: • The fetch-execute cycle • ¨ Common CPU components and their function: • ALU (Arithmetic Logic Unit) • CU (Control Unit), Cache, Registers, ¨ Von Neumann architecture: • MAR (Memory Address Register), MDR (Memory Data Register) • Program Counter, o Accumulator • Designing, creating and refining algorithms
Michaelmas 2	**1.1 Systems architecture & 2.1 – Algorithms** • **1.2.1 Primary storage (memory)** • Searching and sorting algorithms • Standard sorting algorithms: Bubble sort, Merge sort, Insertion sort • Sequence, Selection, Iteration (count- and condition-controlled loops) • Create, interpret, correct, complete, and refine algorithms using: • Pseudocode, Flowcharts, o Reference language/high-level programming language
Lent 1	• **– Memory and storage & 2.2 – Programming fundamentals** • The need for primary storage • The difference between RAM and ROM • The purpose of ROM in a computer system • The purpose of RAM in a computer system • Virtual memory, Cache • Optical, Magnetic, Solid state • The common arithmetic operators • The common Boolean operators AND, OR and NOT
Lent 2	**1.2– Memory and storage & 2.2 – Programming fundamentals** • The use of data types: • The advantages and disadvantages of different storage devices and storage media relating to these characteristics: Capacity, Speed, Portability, Durability, Reliability, Cost • The units of data storage: Bit, Nibble (4 bits), Byte (8 bits), Kilobyte (1,000 bytes or 1 KB)
Trinity 1	**1.3 – Computer networks, connections and protocols & 2.2.2 Data types - 2.2.3 Additional programming techniques** • Networks and topologies • The Internet as a worldwide collection of computer networks • Wired and wireless networks, protocols and layers • Open, Read, Write, Close
Trinity 2	**1.3 – Computer networks, connections and protocols & 2.2.2 Data types** • Modes of connection: Wired, Ethernet, Wireless, Wi-Fi, Bluetooth • Common protocols including: • TCP/IP (Transmission Control Protocol/Internet Protocol) • HTTP (Hyper Text Transfer Protocol) • o HTTPS (Hyper Text Transfer Protocol Secure)



Year 10: Computer Science

Michaelmas 1	**1.4 -Network security & 2.3 – Producing robust programs** • Threats to computer systems and networks • Identifying and preventing vulnerabilities • Utility software • Defensive design
Michaelmas 2	**1.4-Network security & 2.3 – Producing robust programs** • Defensive design & Testing • Identify common errors • Trace tables
Lent 1	**1.5 – Systems software & 2.4 – Boolean logic** • Operating systems, The purpose and functionality of operating systems: • User interface, Memory management and multitasking • Peripheral management and drivers • User management, File management • Simple logic diagrams using the operators AND, OR and NOT
Lent 2	**1.5 – Systems software & 2.4 – Boolean logic** • Simple logic diagrams using the operators AND, OR and NOT • The purpose and functionality of utility software • Utility system software: • Encryption software • Defragmentation • Data compression
Trinity 1	**1.6 – Ethical, legal, cultural and environmental impacts of digital technology** **2.5 – Programming languages and Integrated Development Environments** • Ethical, legal, cultural and environmental impact • Legislation relevant to Computer Science: • Characteristics and purpose of different levels of programming language: High-level languages, Low-level languages
Trinity 2	**1.6 – Ethical, legal, cultural and environmental impacts of digital technology** **2.5 – Programming languages and Integrated Development Environments** • The Data Protection Act 2018 • Computer Misuse Act 1990 • Copyright Designs and Patents Act 1988 • Software licences (i.e. open source and proprietary)

Year 11: Revision -Computer Science

Michaelmas 1	**1.1 -Systems architecture & 2.1 – Algorithms** • Architecture of the CPU • ¨ The purpose of the CPU: • The fetch-execute cycle • ¨ Common CPU components and their function: **1.2.1 Primary storage (memory)** • Searching and sorting algorithms • Standard sorting algorithms: Bubble sort, Merge sort, Insertion sort • Sequence, Selection, Iteration (count- and condition-controlled loops) • Create, interpret, correct, complete, and refine algorithms using: • Pseudocode, Flowcharts, o Reference language/high-level programming language **1.2– Memory and storage & 2.2 – Programming fundamentals** • The use of data types: • The advantages and disadvantages of different storage devices and storage media relating to these characteristics: Capacity, Speed, Portability, Durability, Reliability, Cost
Michaelmas 2	**1.3 – Computer networks, connections and protocols & 2.2.2 Data types - 2.2.3** Additional programming techniques • Networks and topologies • The Internet as a worldwide collection of computer networks **1.4 -Network security & 2.3 – Producing robust programs** • Threats to computer systems and networks • Identifying and preventing vulnerabilities
Lent 1	**1.5 – Systems software & 2.4 – Boolean logic** • Operating systems, The purpose and functionality of operating systems: • User interface, Memory management and multitasking **1.6 – Ethical, legal, cultural and environmental impacts of digital technology** **2.5 – Programming languages and Integrated Development Environments** • Ethical, legal, cultural and environmental impact
Lent 2	Exam Practice
Trinity 1	Exam Practice
Trinity 2	Exam practice