

Curriculum Overview – IT

Rationale – why are we teaching this?

Students will learn to think scientifically and mathematically as well as being safe users of technology and questioning sources of information. They will navigate standard software packages and become self directed users. In the current world, this scientific thinking and ability to adapt skills will be the most important aspects they will learn, as by the time they reach the world of work, technology will have changed again beyond our imagination. Based on the concepts within the national curriculum, students will have the opportunity to learn a wide range of technical skills and concepts including the basics of programming. At each of key stages 2 and 3 students will cover the same skills and topics but with greater complexity. Students will also be encouraged to use the well resourced IT room and library in preparing other subject work as appropriate.

Curriculum intent – What are the big ideas in this subject?

- Develop an understanding of the concept of a safe workstation setup
- Quickly adapt to use the main software packages helpful for presenting and analysing information
- Develop a working knowledge of the risks and protective factors of software and the internet
- Learn that all programmes are based on ‘code’ and how code works
- Develop an appreciation of algorithms, logic and routines
- Identify and use a range of hardware
- Learn a specialist piece of software and create an object/programme using this
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Curriculum implementation – How will this subject be delivered?

In lower school students will

- Explore a topic of safety in each lesson, allowing the topic of safety to remain an item of discussion
- Take part in practical lessons aimed at exploring the key themes in a multi sensory way- trying out programmes, collecting data and inputting it, creating graphs based on items they have collected
- Explore the world of the web and learn how to navigate it effectively in a practical manner, carrying out searches and finding information- including that generated by AI
- Draw conclusions from data and review how they should be presented
- Carry out basic coding using a tool such as Logo

In upper school students will

- Explore a topic of safety each lesson, followed by practical computing
 - Take part in practical lessons which are devised to encourage them to research and explore the basics of the range of standard software packages
 - Learn about an aspect of the ethics of some games by exploring the links between gaming and gambling
 - Extend their programming and coding skills to create a simple programme from start to finish
- In KS4 students will
- Learn about networking and networks in a virtual environment
 - Learn about an aspect of security such as ethical hacking

Curriculum impact – What outcomes must the students get from this subject?

In lower school students will be able to

- Write at least one line of code using a coding package (e.g python/logo)
- Identify the main types of cyber crimes and how to reduce the chance to be affected
- Reflect on a trending topic in IT and how it impacts them and the world (e.g big data, AI)

In upper school students will also be able to

- Build on and extend knowledge of coding and software by using a different software package
- Reflect on a trending topic in IT and how it impacts them and the world (e.g big data, AI)
- Learn about the basics of networking and network concepts (CISCO networking academy)
- Some students will be able to demonstrate advanced skills in networking (CISCO networking)
- Some students will be able to demonstrate advanced skills in programming gained by studying the topic in depth (programming essentials, programming 2) during an extended period.
- KS4 students will build a network and look for the vulnerabilities in this in a virtual environment