SUBJECT & QUALIFICATION: KS3 Computing

Why is the study of Computing important?

Computing is about solving problems. It is the principle of making technology work for you, enabling you to find efficient and effective solutions. Throughout your study, you will apply computational thinking and the cornerstones of Computing to a variety of problems. Modern-day societies require people to work in an innovative way and Computing provides you with the foundation to build your learning journey upon.

In Computing you will learn to further consolidate your skills in text-based programming languages, you will also get an opportunity to use block-based programming languages in a variety of different applications.

Computing theory is also explored, looking 'under the bonnet' at the computer system that you use on a day-to-day basis. You will develop an excellent understanding of network security, hardware, representing data in computer systems and fundamentally you will become a responsible e-citizen.

Within the Computing curriculum, we focus on digital literacy, to ensure that you have all the life skills that you require moving forward into the workplace or further education. Whilst Computing focuses on creating, ICT focuses on using. Throughout your study, you will learn valuable ICT skills, such as spreadsheets and document creation. Your Computing lessons will encourage you to think deeply and help you become a more effective and resilient problem solver that doesn't give up. Computing provides a fantastic start to your understanding of the technological world in which we live, a great life skill that all universities and employers will appreciate.

What skills will the study of Computing teach you?

The skills you will learn through KS3 Computing include:

- Applying computational thinking techniques (abstraction, decomposition, pattern recognition, algorithms) in a range of scenarios to solve problems.
- Develop resilience by not being afraid of challenges when solving problems, but to break them down and keep trying.
- How to act responsibly online to ensure that you and others stay safe online.
- Identify the key programming constructs (sequence, selection, iteration) required to solve a problem.
- Apply the key programming constructs (sequence, selection, iteration) to any programming language.
- Work independently and as part of a team to solve complex problems.
- Identify links between different elements of Computing
- Evaluate different methods of representing data and decide on the most suitable method for presentation/storage

Curriculum Progression Pathway

OPEN ELEMENT SUBJECT OVERVIEW

What will you know and understand from your study of Computing?

Our goals for students are to:

- Grasp and apply the fundamental principles of Computing, including abstraction, logic, algorithms, and data representation.
- Analyse problems using computational thinking, gaining practical experience in writing programs to solve these issues in a range of languages (block / text).
- Understand the key roles of hardware and networking.
- Develop skills to confidently use IT applications, creating digital artefacts such as spreadsheets and presentations for a given audience.
- Become safe, respectful and responsible users of a range of technologies including Artificial Intelligence(AI).

Our Computing curriculum is designed to equip students with the skills and experiences necessary to pursue future studies and careers across a broad range of subjects including STEM. This provides opportunities to discover new hobbies and interests within the subject.

This comprehensive study is enhanced through a robust offering that broadens the horizons ensuring all students have a passion for Computing and have every opportunity to excel. By interweaving e-Safety throughout our curriculum, we guide students to navigate the digital world safely and responsibly.

How can you deepen your understanding of Computing?

Study of any subject in our curriculum takes full advantage of links with other subject areas- we term these as interdisciplinary links and we make the most of them because we know that deep learning requires the transference of knowledge and skills from one topic of learning to another. Once you can transfer your learning across topics and subject areas then you are really mastering what you know and how to apply your understanding and skills.

Computing touches on so many other subjects such as mathematics as you develop skills in problem solving, including decomposition (breaking down problems), abstraction (removing unnecessary detail from a problem) and pattern recognition. All of these skills will support your teaching in Mathematics as these are very important in being able to solve mathematics problems in a range of contexts.

There are also links with Science as binary logic can be applied to electrical circuits in Physics and much of the technology from Computing can be mapped back to core principles of Science. For example, how sensors are used to monitor motion, force and/or pressure. You will learn methods of thinking and research that are widely applicable to other subject areas helping your thinking in all subjects.

How are you assessed in Computing?

In KS3, students are accessed through a combination of methods of assessments. Due to the nature of Computing verbal feedback will be the most common type of feedback, alongside questioning, modelling, and self assessment. In addition there is an assessment of skills at the end of each unit of work.

OPEN ELEMENT SUBJECT OVERVIEW

Key Assessment Objectives

The 2 key learning objectives in Computing are;

AO1: Demonstrate knowledge and understanding of the key concepts and principles of Computing.

A02: Apply knowledge and understanding of key concepts and principles of Computing.

A03: Analyse problems in computational terms:

- to make reasoned judgements
- to design, program, evaluate and refine solutions.

Study of Computing can lead to a wide range of careers:

- Secondary School Teacher
- Database administrator
- Software Developer
- Web Application Developer
- Computer Systems Analyst
- Mobile App Developers
- Games Developer
- Games Designer
- Information Security Analyst
- Computer Network Architect
- Software Tester
- Network Manager

Computing Course Overview

Year 7	**The Outwood Welcome** Topic Question: How can we use Google Workspace safely and responsibly to improve our computing skills?"
	Google Workspace Topic Question: How can IT software be used to manage a large project?"
	E-Safety 1
	Computational Thinking Topic Question: How does computational thinking help us to solve problems?"
	E-Safety 2
	Block Based Programming (MicroBit) Topic Question: How can Micro:bit be used to program images, text and functions?"
	E-Safety 3
	Text based Programming (Small Basic) Topic Question: How do I use text based programming languages to solve problems?"
	E-Safety 4
	E-Safety 5

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Year 8	**Data Representation** Topic Question: What is Binary, Denary and Hexadecimal? How can I represent different types of data using binary?
	E-Safety 1
	Python: Part 1a Topic Question: How can I use the Python programming language to solve real world problems?
	E-Safety 2
	People in Technology (Adobe Express) Topic Question: Who are the people who influenced the history of Computing?
	E-Safety 3
	Python: Part 1b Topic Question: How can I use the Python programming language to solve real world problems?
	E-Safety 4
	Encanto Media Project (Adobe Premiere Pro) Topic Question: How can editing tools be used to change the genre of a film trailer?
	E-Safety 5

OPEN ELEMENT SUBJECT OVERVIEW

Year 9	**Digital Forensics** Topic Question: How can digital artefacts be explored and analysed to reveal information about a person?
	Python Part 2 Topic Question: How can I use the Python programming language to solve real world problems?
	User Interface Design RTopic Question: How can user interface design affect how users interact with a product?
	Computer Theory Topic Question: How can I determine what hardware I need to build a school network?
	Computing in Careers Topic Question: How can computing support me in my future career?
	Send Me a Pic Topic Question: How to respond to receiving an inappropriate image?