



Whitby School

Computing

Our Intent

Digital technology is driving extraordinary global changes on a level and speed not seen since the industrial revolution. Navigating these changes effectively and safely requires a significant understanding of digital literacy, information technology and computer science.

At Whitby School we believe it also requires creativity.

Creativity means that children will engage with technology in ways that are more meaningful – they will create exciting digital artefacts and learn to code because they can see the potential of what they can make and do with computers.

In addition, in a world that is increasingly online and digital, we see the ability to use a computer effectively as part of being literate. In the twenty first century, being able to use a computer means having a voice.

Computing is part of our **technical** discipline at Whitby School.

Our Intent

*"I will endeavour to be a person of great **character** who has the **courage** to realise my **ambitions**"*

<p style="text-align: center;">Courage Digitally Literate</p>	<p>The speed at which computing technology continues to advance and an understanding of how to use a computer safely is an essential skill for life.</p> <p>The ever-changing dynamics of the internet mean that consumers of technology need to consider their use and ensure they use that technology and their understanding of it responsibly. This includes understanding concepts such as copyright and intellectual property, the nature of threats and risks online, and how to operate a computer effectively.</p>
<p style="text-align: center;">Character Creative</p>	<p>Creativity in problem solving is an incredibly valuable skill to have in the world of computing and it is a skill we look for our pupils to demonstrate within computing lessons. We also encourage and support children in creating exciting products and projects using recognized graphics and text software.</p> <p>All programmers will need to learn to code. Great programmers will learn to code in ways that are inventive, creative, and move the technology forward.</p>
<p style="text-align: center;">Ambition Problem Solving</p>	<p>Working with computers requires children to understand computational thinking and logic. They will learn to be methodical problem solvers, building their resilience and persistence in the face of challenges.</p>

Our teaching:

A useful way of thinking about progression in computing is to consider the three main content areas that pupils develop knowledge of:

- computer science
- information technology
- digital literacy

Pupils make progress in computing by knowing and remembering more across each of these categories and being able to apply this knowledge. However, these pillars do not sit separately from each other. Digital literacy, as in our intent above, is taught across the curriculum as children become more confident in a range of applications for technology. Information technology – the use of computers to make exciting, interesting, and engaging things – also requires an understanding of computer science.

In our teaching we make use of activities and methods to ensure that children learn through carefully scaffolded tasks that enable them to learn the key information effectively. As creativity is central to our ethos, there are opportunities wherever possible for children to experiment and even play with the technology.

Our curriculum:

Our curriculum follows key themes that are revisited across Key Stage 3. They form the basis for a child's work at the Prospect Hill site and Sixth Form.

Programming

Programming is an important part of the computing curriculum. In the national curriculum, it appears throughout the programmes of study for computing. It allows pupils to apply their knowledge of computer science through writing code to solve problems.

Programming is seen primarily as a skill that pupils develop. However, learning to program successfully involves learning a body of knowledge including knowledge of:

- programming languages
- tools like compilers and development environments
- programming styles
- standardised solutions to programming problems

Computational thinking and problem-solving

When pupils solve problems in computing, this is often described as computational thinking. The core elements of this include:

- logic and logical thinking
- algorithms and algorithmic thinking
- patterns and pattern recognition
- abstraction and generalisation
- evaluation
- automation

Information technology

Information technology provides a context for the use of computers in society. It focuses on how computers are used in different sectors and describes the methods used to create digital artefacts such as presentations, spreadsheets and videos.

Digital artefacts

Digital artefacts are digital objects created by humans. They can be created in a range of media, including text, image, video and sound. It is important that pupils learn the knowledge they need to be confident in using applications in creative projects, including applications that analyse data or manipulate digital artefacts.

Computing contexts

Knowledge of computing contexts chronicles the history of the discipline and explains how computing is used in the modern world. Knowledge of computing contexts also includes emerging technologies and associated fields, such as data science and artificial intelligence, which are set to shape our future.

Digital literacy

Digital literacy includes the 'skills and knowledge required to be an effective, safe and discerning user of a range of computer systems. It covers a range of knowledge and skills, such as using physical devices and at secondary school also has a focus on the features that are likely to mean digital content is reliable.

Why do we sequence the curriculum in this way?

The 'spiral' nature of our curriculum, which revisits these themes systematically throughout their time with us, helps to develop and consolidate their understanding of the three key themes of **digital literacy**, **computer science**, and **information technology**. The content becomes more challenging as they move through the curriculum – moving from still image work in 2D, for example, when they start at secondary school to 3D image rendering in Year 9.

Our Assessment

Computer Science is assessed through projects and tests. The assessments will be project based and will allow pupils time to analyse and implement solutions to a problem. The tests will be focused on theory elements of Computer Science that will assess the pupils' understanding of the theory and mathematical elements of the subject. At each unit we also identify the conceptual prerequisites – they key information they **must** understand for the next topic studied.

Formative assessment is used to identify misconceptions early.

How families can support:

Parents and carers can support pupils who have an interest in computing with any of the following:

Coding Platforms

Scratch: A free, visual programming language perfect for beginners.

Code.org: Offers free coding tutorials and activities suitable for children.

Problem-Solving Games

Educational Games: Use free coding games and apps to develop problem-solving skills.

Examples include CodeCombat and LightBot.