

Computing

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Computing skills will be taught as an integrated part of a theme based curriculum, with skills being applied in relation to each class' current topic.

	Year 3	Year 4	Year 5	Year 6
Computer Science	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts.	When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.	Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts.	Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.
Information Technology	Children can carry out simple searches to retrieve digital content.	Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.	Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.	Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains.
Digital Literacy	Children demonstrate the importance of having a secure password and not sharing this with anyone else.	Children can explore key concepts relating to online safety using concept mapping such as 2Connect.	Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services.	Children demonstrate the safe and respectful use of a range of different technologies and online services.