Computing Curriculum

Purpose of study

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.

Aims

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

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing	Buttons, sliders and/or switches are used to **control** movement with discussion of what happens Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs	Movements of an object are linked together in a **sequence** to solve a problem. Create and debug simple programs Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	Movements are linked together in a **sequence**, They are **stored/saved** so they can be **repeated** again Solve problems by decomposing them into smaller parts	A sequence of instructions are created and **adapted** to vary outputs Design, write and debug programs that accomplish specific goals, including controlling or **simulating physical systems**;	A sequence of instructions are created that allow outputs to be **repeated** Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Awareness of the structure of a program including the creation of **subroutines** where a process happens [is nested] within the main program Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Differentiated through the use of software and understanding of algorithms.
Information Technology	Digital content is **created** Recognise common uses of information technology beyond school.	Digital content is created with **discussion** of the reasons for the work.	Digital content is created, discussed **and saved** for **use at a different time.** Use technology purposefully to create, organise, store,	Digital content is created and saved. The content is **analysed** Use technology purposefully to create, organise, store, manipulate and	Digital content is created and analysed. **Improvements** are made if necessary Understand computer networks including the internet; how they can provide multiple	Digital content is **shared with others** with an awareness of the needs of the user Select, use and combine a variety of software (including internet services) on a range of

			manipulate and retrieve digital content	retrieve digital content	services, such as the worldwide web; and the opportunities they offer for communication and collaboration	digital devices to design and create a range of programs, systems (a system includes everything required to complete a task: hardware and software and connectivity) and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
Digital Literacy	An awareness that information can be found using the internet that can be **used to learn from** Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	Awareness that a **variety of websites** may need to be used and that **not everything on the internet is true** Use technology safely and respectfully, keeping personal information private	Awareness of why people **share information** and the dangers of sharing personal information Use technology safely and respectfully, keeping personal information private	**Safe communication tools are used** with an awareness of benefits and dangers Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	Online tools are **evaluated** with some consideration of how people are perceived online	Online tools are **evaluated** with some consideration of how people are perceived online The positive and negative effects of adding content online (Digital footprint) are **analysed** Use technology safely, respectfully and responsibly; Recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact