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

	KS1 NC	R	Y1	Y2	KS2 NC	Y3	Y4	Y5	Y6
Use a computer	*Pupils should be taught to:* - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs – use logical reasoning to predict the behaviour of simple programs – use technology purposefully to create, organise, store, manipulate and retrieve digital content – recognise common uses of information technology beyond school	I can - recognise and identify familiar letters and numbers on a keyboard. - develop basic mouse skills such as moving and clicking.	I can - log in and out using a whole class login - drag objects using a touchpad I know - where keys are located on the keyboard	I can - make text a different style, size and colour. - use "copy and paste" to insert images from another place I know - that "copy and paste" is a quick way of duplicating text.	*Pupils should be taught to:* - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - use sequence, selection, and repetition in programs; work with variables and various forms of input and output	I can - log in and out using a personal login - log in and out of an email account. - write an email including a subject, 'to' and 'from'. - reply to an email. I know - the purpose of emails. - about cyberbullying. - that not all emails are genuine, recognising when an email might be fake and what to do about it	I know - that software can be used collaboratively online to work as a team. - what type of comments and suggestions on a collaborative document can be helpful. - that you can use images, text, transitions and animation in presentation slides.	I know - how search engines work. - that anyone can create a website and therefore we should take steps to check the validity of websites. - that web crawlers are computer programs that crawl through the internet. - what copyright is.	I know - the importance of having a secure password - about some of the historical figures that contributed to technological advances in computing. - what techniques are required to create a presentation - about the history of computers and how they have evolved over time. I can - use search engines safely and effectively.
Programming		I can - use forward, backward, right and left commands to control a device along a given path. I know that listening is important how to describe events using my voice	I can - understand the basic functions of a Bee-Bot. I know - that algorithms move a Bee-Bot accurately to a chosen destination.	I know - that coding is writing in a special language so that the computer understands what to do. - that Scratch is a programming language and some of its basic functions. - that the character in Scratchir is controlled by the programming blocks. - that we can write a program to perform a chosen function.	- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Ⓑ understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration - use search technologies effectively, appreciate how results are selected and	N/A	I know - how to use loops to improve programming (robots) - how decomposition is used in programming. - that you can remix and adapt existing code. - what a variable is and how it can be used I can - use decomposition to solve a problem by finding out what code was used. - use decomposition to understand the purpose of a script of code. - create algorithms for a specific purpose. - coding a simple game. - incorporating variables to make code more efficient.	N/A	I can - write increasingly complex algorithms for a purpose. - debug quickly and effectively to make a program more efficient. - remix existing code to explore a problem. - evaluate code to understand its purpose. > Predicting code and adapting it to a chosen purpose.
Online safety	- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	N/A	I know - that the internet is many devices connected to one another. - what to do if you feel unsafe or worried online – tell a trusted adult. - that people you do not know on the internet (online) are strangers and are not always who they say they are. - that to stay safe online it is important to keep personal information safe. - that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.	I know - the difference between online and offline. - what information I should not post online. - what the techniques are for creating a strong password. - that you should ask permission from others before sharing about them online and that they have the right to say 'no.' - that not everything I see or read online is true.	ranked, and be discerning in evaluating digital content - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	I can - recognise how social media platforms are used to interact - recognise that different information is shared online including facts, beliefs and opinions. - identify reliable information when searching online. I know - learn how to stay safe on social media. - cnsider the impact technology can have on mood	I know - why some results come before others when searching. - that information found by searching the internet is not all grounded in fact. I can - make judgements about the accuracy of online searches. - identify forms of advertising online. - reflect on the positives and negatives of time online. - dentifying respectful and disrespectful online behaviour. - recognise that information on the Internet might not be true or correct and that some sources are more trustworthy than others	I can - Identifying possible dangers online and learning how to stay safe. - evaluating the pros and cons of online communication. - recognising that information on the Internet might not be true or correct and learning ways of checking validity. I know - learn what to do if they experience bullying online. - learn to use an online community safely.	I know - that a digital footprint means the information that exists on the internet as a result of a person's online activity. - what steps are required to capture bullying content as evidence. - that it is important to manage personal passwords effectively. - what it means to have a positive online reputation. - some common online scams.
Data Handling		I know - how to sort objects and put them into groups - how to show my groups using a pictogram	- that a computer can represent my data in a way which is easy to understand - that data can be shown in different ways I can - answer questions about my data	N/A		I know - that a database is a collection of data stored in a logical, structured and orderly manner. - that computer databases can be useful for sorting and filtering data. - that different visual representations of data can be made on a computer.	N/A	N/A	N/A
Wider use of Technology		N/A	N/A	N/A		I know - that software can be used collaboratively online to work as a team. - what type of comments and suggestions on a collaborative document can be helpful. - that you can use images, text, transitions and animation in presentation slides.	I know - that decomposition of an idea is important when creating stop-motion animations. - that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. - that editing is an important feature of making and improving a stop motion animation.		