Computing National Curriculum

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.
Subject Content
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 • 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.

Computing Long Term Plan

Term	**Year 1**	**Year 2**
	Technology around us	**IT around us**

Autumn 1	Children will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of devices by developing their keyboard and mouse skills. Children will also consider how to use technology responsibly.	Children will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. Children will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.
Autumn 2	**Digital Painting**	**Digital photography**
	Children will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with children considering their preferences when painting with and without the use of digital devices.	Children will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.
Spring 1	**Moving a robot**	**Robot algorithms**
	Children will be introduced to early programming concepts. Children will explore using individual commands, both with other children and as part of a computer program. They will identify what each command for the floor robot does, and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming, and builds knowledge in a structured manner. Children are also introduced to the early stages of program design through the introduction of algorithms.	This unit develops children' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Children will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.
Spring 2	**Grouping data**	**Pictograms**
	This unit introduces children to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data.	Children will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Children will use the data presented to answer questions.

Summer 1	**Digital writing**	**Digital music**
	Children will develop their understanding of the various aspects of using a digital device to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Children will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, children will consider the differences between using a digital device to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.	In this unit, children will be using a digital device to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Children will compare creating music digitally and non-digitally. Children will look at patterns and purposefully create music.
Summer 2	**Programming animations**	**Programming quizzes**
	Children will be introduced to on-screen programming through ScratchJr. Children will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Children will also be introduced to the early stages of program design through the introduction of algorithms.	This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations'. Children begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. Finally, children evaluate their work and make improvements to their programming projects.