

Barwick and Stoford Key Stage 2 Curriculum Progression: COMPUTING

National Curriculum Skills: Key Stage 2

- 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.
- Pupils should be able to create and debug simple programs
- Pupils should use logical reasoning to predict the behaviour of simple programs.
- Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.
- Pupils should recognise common uses of information technology beyond school.
- Pupils should 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.

Key Stage 2: Cycle A (2024 – 2025)

CHESTNUT CLASS (Key Stage 1)					
NCCE Coverage– Computing systems and networks / Creating media A & B/ Programming A & B/ Data and information			Autumn	Spring	Summer
Overview: Technology around us; Digital painting; Moving a robot; Grouping data; Digital writing; Programming animations.					
NCCE Projects	National Curriculum Skill	Specific Knowledge			
Technology around us	Pupils should 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.	Develop your learners' understanding of technology and how it can help them. They will become more familiar with the different components of a computer by developing their keyboard and mouse skills, and also start to consider how to use technology responsibly.			
Digital painting	Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.	Explore the world of digital art and its exciting range of creative tools with your learners. Empower them to create their own paintings, while getting inspiration from a range of other artists. Conclude by asking them to consider their preferences when painting with, and without, the use of digital devices.			
Moving a robot	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.	This unit introduces learners to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command 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. Learners are also introduced to the early stages of program design through the introduction of algorithms.			
Grouping data	Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.	This unit introduces pupils to data and information. They will begin by using labels to put objects into groups and labelling these groups. Pupils will demonstrate that they can count a small number of objects, before and after the objects are grouped. They will then begin to demonstrate their ability to sort objects into different groups, based on the properties they choose. Finally, pupils will use their ability to sort objects into different groups to answer questions about data.			
Digital writing	Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.	Promote your learners' understanding of the various aspects of using a computer to create and change text. Learners will familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, and then they will consider the differences between using a computer and writing on paper to create text.			
Programming animations	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. Pupils should be able to create and debug simple programs.	This unit introduces learners to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.			

Key Stage 2: Cycle B (2023 – 2024)

CHESTNUT CLASS (Key Stage 1)					
NCCE Coverage– Computing systems and networks / Creating media A & B/ Programming A & B/ Data and information			Autumn	Spring	Summer
Overview: IT around us; Digital photography; Robot algorithms; Pictograms; Digital music; Programming quizzes.					
NCCE Projects	National Curriculum Skill	Specific Knowledge			
IT around us	Pupils should recognise common uses of information technology beyond school. Pupils should 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.	How is information technology (IT) being used for good in our lives? With an initial focus on IT in the home, learners explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of technology, and how to make smart choices when using it.			
Digital photography	Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.	Learners 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.			
Robot algorithms	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. Pupils should be able to create and debug simple programs. Pupils should use logical reasoning to predict the behaviour of simple programs.	This unit develops learners' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners 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.			
Pictograms	Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.	This unit introduces the learners to the term 'data'. Learners will begin to understand what data means and how this 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. Learners will use the data presented to answer questions.			
Digital music	Pupils should use technology to purposefully create, organise, store, manipulate and retrieve digital content.	Learners will explore how music can make them think and feel. They will make patterns and use those patterns to make music with both percussion instruments and digital tools. They will also create different rhythms and tunes, using the movement of animals for inspiration. Finally, learners will share their creations and compare creating music digitally and non-digitally.			
Programming quizzes	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. Pupils should be able to create and debug simple programs.	This unit initially recaps on learning from the Year 1 Scratch Junior unit 'Programming B - Programming animations. Learners 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, learners evaluate their work and make improvements to their programming projects.			