

West Malling Church of England Primary School

Whole School Computing

Year 1

Unit overview

Computing Systems and Networks -Technology around us

Learners will develop their understanding of technology and how it can help them in their everyday lives.

Learners will start to become familiar with the different components of a computer by developing their keyboard and mouse skills.

Learners will also consider how to use technology responsibly and who to ask for help if they see any content or comments online that make them feel uncomfortable.

Programming A – Moving a robot

Learners will be introduced to early programming concepts.

Learners will explore using individual commands, both with other learners and as part of a computer program.

Learners 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.

Learners are also introduced to the early stages of program design through the introduction of algorithms.

Creating Media – Digital painting

Learners will develop their understanding of a range of tools used for digital painting.

Learners then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work.

The unit concludes with learners considering their preferences when painting with and without the use of digital devices.

Data and Information – Grouping data

This unit introduces learners 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.

Year 2	
	Unit Overview
Computing Systems and Networks -Technology around us	Learners 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. Learners will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.
Programming A – Robot Algorithms	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. Learners will also learn about design in programming. They will develop artwork and test it for use in a program. Learners will design algorithms and then test those algorithms as programs and debug them.
Creating Media – Digital Photography	Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Learners will use this knowledge to recognise that images they see may not be real.
Data and information - Pictograms	Learners will begin to understand what the term data means and how data can be collected in the form of a tally chart. Learners will learn the term ‘attribute’ and use this to help them organise data. Learners will then progress onto presenting data visually using software. Learners will use the data presented to answer questions.
Year 3	
	Unit Overview
Computer Systems and Network – Connecting Computers	Learners will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Next, learners will be introduced to computer networks, including devices that make up a network’s infrastructure, such as wireless access points and switches.

	Learners will discover the benefits of connecting devices in a network.
Programming A– Sequencing sounds	This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most learners. Learners will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit.
Creating Media – Stop-frame animation	Learners will use a range of techniques to create a stop-frame animation. Learners will apply those skills to create a story-based animation. This unit will conclude with learners adding other types of media to their animation, such as music and text. This unit uses the context of Romans, but this can be adapted to suit your curriculum topics.
Data and information – Branching databases	Learners will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Learners will create physical and on-screen branching databases. To conclude the unit, they will create an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching databases.
Year 4	
	Unit Overview
Computing Systems and Network – The Internet	Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. Learners will learn that the World Wide Web is part of the internet, and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.
Programming A – Repetition in shape	Learners will create programs by planning, modifying, and testing commands to create shapes and patterns.

	Learners will use Logo, a text-based programming language. This unit is the first of the two programming units in Year 4 and looks at repetition and loops within programming.
Creating Media – Photo Editing	Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have and evaluate the effectiveness of their choices.
Data and Information – Data Logging	In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.
Year 5	
	Unit Overview
Computing Systems and Network – Systems and Searching	Learners develop their understanding of computer systems and how information is transferred between systems and devices. Learners will consider small-scale systems as well as large-scale systems. They explain the input, output, and process aspects of a variety of different real-world systems. Learners discover how information is found on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines.
Programming A – selection in physical computing (crumbles)	In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program it to control components (including output devices — LEDs and motors). Learners will be introduced to conditions as a means of controlling the flow of actions in a program. Learners will make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the 'if...then...' structure) and write algorithms and programs that utilise this concept.

	To conclude the unit, learners will design and make a working model of a fairground carousel that will demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model. Throughout this unit, learners will apply the stages of programming design.
Creating Media – Video Production	Learners will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Learners are guided with step-by-step support to take their idea from conception to completion. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.
Data and Information – Flat-file databases	This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. Learners will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question, and present their work to others.

Year 6

	Unit Overview
Computing Systems and Network – Communication and collaboration	In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet.
Programming A – Variables in games	This unit explores the concept of variables in programming through games in Scratch. First, learners find out what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, learners experiment with variables in an existing project, then modify them, before they create their own project. In Lesson 4, learners focus on design. Finally, in Lesson 6, learners apply their knowledge of variables and design to improve their games in Scratch.
Creating Media – Webpage creation	Learners will be introduced to creating websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process, learners pay specific attention to

	copyright and fair use of media, the aesthetics of the site, and navigation paths.
Data and Information – Introduction to Spreadsheets	This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked.
Using the microbit for primary to secondary transition	Using the micro:bit and Make code environment, this transition project aims to support students moving from Key Stage 2 to Key Stage 3, facilitating a smooth progression between primary and secondary computing education. This unit ensures curriculum continuity by aligning teaching approaches and learning objectives between the two stages, whilst also familiarising students with the new school environment, teachers, and classmates. Additionally, it challenges students academically, which subsequently prepares them for the challenges of KS3, allowing them to adjust gradually and build confidence. More information on how to organise this project within your school setting can be found through the free 'Effective transition from KS2 to KS3 in computing' remote CPD.
Daisy Class	
	Unit Overview
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Programming A – Repetition in Shapes	Learners will create programs by planning, modifying, and testing commands to create shapes and patterns. Learners will use Logo, a text-based programming language. This unit is the first of the two programming units in Year 4 and looks at repetition and loops within programming.

Creating Media – Audio Production	Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers. This unit uses 'school news' as a context for the podcasts, but this can be changed to suit your curriculum.
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Data and Information – Data logging	In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.