

Computing Progression of Skills

	Computer Systems & Networks	Creating Media	Data & Information	Programming	Safe Use
Nursery	<p>Technology Around Us</p> <p>Name some technology around them in the classroom and its uses.</p> <p>Operating Hardware</p> <p>Know how to operate simple equipment – stop and start the story phones and skip the story. Know how to operating sound buttons to hear recordings. Know how to record their voice on a talking tin.</p>	<p>Digital Drawing</p> <p>Draw a picture on the IWB app and know how to erase it.</p>		<p>Moving a Robot</p> <p>Program a BeeBot to go forwards.</p>	<p>Internet Safety Day</p> <p>Know how to handle equipment safely. Begin to know they shouldn't use devices without supervision.</p>
Reception	<p>Technology Around Us</p> <p>Name different technology in their home and its uses. Discuss who uses technology in the world around us and its uses.</p> <p>Operating Hardware</p> <p>Know how to switch an iPad on and select an app. Know how to take a picture on an iPad. Know how to record a video on an iPad. Know how to use a QR code with the iPads to access stories & nursery rhymes. Know how to operate a simple game on the iPad.</p>	<p>Digital Drawing</p> <p>Draw a picture on the IWB app and know how to create a shape and fill it. Know how to change the colour of the pen and erase it.</p>		<p>Moving a Robot</p> <p>Program a BeeBot to go forwards, backwards, left and right. Program a BeeBot to go along a path using different directions.</p> <p>Coding</p> <p>Complete a simple coding game on an iPad.</p>	<p>Internet Safety Day</p> <p>Begin to give reasons why we need to stay safe online. Use the internet with adult supervision to find and retrieve information of interest to them.</p>

<p>KS1 Cycle A</p>	<p>IT around us</p> <p>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.</p> <p>This unit progresses learners' understanding of technology and how they interact with it. They will develop this understanding to become familiar with the term information technology and will be able to identify common features of IT. This unit also builds on the learners' understanding of using technology safely and responsibly.</p>	<p>Digital Photography</p> <p>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.</p> <p>This unit begins the learners' understanding of how photos are captured and can be manipulated for different purposes. Following this unit, learners will develop their photo editing skills in Year 4.</p>	<p>Pictograms</p> <p>Learners 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. Learners will use the data presented to answer questions.</p> <p>This unit progresses students' knowledge and understanding of grouping data. It builds on the Year 1 Data and Information unit where learners labelled objects and grouped them based on different properties. In Year 3 learners develop their understanding of attributes (properties) using branching databases to structure data according to different object attributes.</p>	<p>Robot Algorithms</p> <p>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.</p> <p>In advance of the lessons in this Year 2 unit, learners should have had some experience of creating short programs using floor robots and predicting the outcome of a simple program. This unit progresses learners' knowledge and understanding of algorithms and how they are implemented as programs on digital devices. Learners will spend time looking at how the order of commands affects outcomes. Learners will use this knowledge and logical reasoning to trace programs and predict outcomes.</p>	<p>Internet Safety Day</p> <p>Understand where to go for help and support when he/she has concerns about content or contact on the internet and other online technologies. • Identify trusted adults within the family, school and emergency services • Know that strangers who ask questions may be dangerous • Know that it's good to check with someone before accessing something online • Know that being patient with devices is a good choice • Know the difference between a device being on and on 'standby' • Know to check before giving permission.</p>
<p>KS1 Cycle B</p>	<p>Technology around us</p> <p>Learners will develop their understanding of technology</p>	<p>Digital Painting</p> <p>Learners will develop their understanding of a range of</p>	<p>Grouping Data</p> <p>This unit introduces learners to data and information.</p>	<p>Introduction to Animation</p> <p>Learners will be introduced to on-screen programming</p>	<p>Internet Safety Day</p> <p>Identify trusted adults within their family and school.</p>

	<p>and how it can help them in their everyday lives. They 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.</p> <p>This unit progresses students' knowledge and understanding of technology and how they interact with it in school. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse. This unit directly precedes the Y2 Computer systems and networks unit, IT around us.</p>	<p>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 learners considering their preferences when painting with and without the use of digital devices.</p> <p>Learners will be familiar with:</p> <ul style="list-style-type: none"> • How to switch their device on • Usernames • Passwords 	<p>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.</p> <p>This unit will introduce learners to data and information. It will introduce learners to the concept of labelling and grouping objects based on their properties. Learners will develop their understanding that objects can be given labels, which is fundamental to their future learning concerning databases and spreadsheets. In addition, learners will begin to improve their ability to use dragging and dropping skills on a device. Following this unit, in year 2, learners will present data graphically in pictograms.</p>	<p>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.</p> <p>This unit progresses learners' knowledge and understanding of programming.</p>	<p>Know that strangers use online services. Know that some online content is inappropriate. Know that damaged or strange devices should not be touched. Know that there are good choices about when and where to use a device. Know that personal information should not be shared with strangers.</p>
LKS2 – Cycle A	<p>The Internet</p> <p>Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be</p>	<p>Photo Editing</p> <p>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</p>	<p>Data Logging</p> <p>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</p>	<p>Repetition in Games</p> <p>Learners will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.</p>	<p>Internet Safety Day</p> <p>Identify a wider range of places/ways to report concerns • Know that going online in a private place is a bad idea • Know that not everything online is true • Know that devices can be distracting • Understand that</p>

	<p>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.</p> <p>This unit progresses students' knowledge and understanding of networks in Year 3. In Year 5, they will continue to develop their knowledge and understanding of computing systems and online collaborative working. Following this unit, learners will explore the internet as a network of networks.</p>	<p>can have and evaluate the effectiveness of their choices.</p> <p>This unit progresses students' knowledge and understanding of digital photography and using digital devices to create media. Learners will have had some exposure to images and their manipulation through the Teach Computing Digital Photography- Year 2 unit. Following this unit, learners will further develop their image editing skills in Year 5 – Vector drawing.</p>	<p>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.</p> <p>This unit progresses learners' knowledge and understanding of data and how it can be collected over time to answer questions. Specifically, it builds on the concept of answering questions with data which is first introduced in the KS1 data and information units. The unit also introduces the idea of automatic data collection. Learners are also introduced to data in tables and graphs, knowledge they will build on in the Year 5 unit (flat file databases) and the Year 6 unit (spreadsheets).</p> <p>Branching Databases</p> <p>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</p>	<p>This unit progresses students' knowledge and understanding of programming. It progresses from the sequence of commands in a program to using count-controlled loops. Pupils will create algorithms and then implement those algorithms as code.</p>	<p>using a device at certain times can be disrespectful • Know what makes an effective password</p>
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LKS2 – Cycle B					<p>Internet Safety Day</p> <p>know how to use a wider range of places/ways to report concerns • Know that online gifts aren't always what they seem • Know that opinions should be supported by facts • Know that devices can be distracting to other people# • Understand that breaking age limits can have consequences • Know what a digital footprint is.</p>
Year 5	Sharing Information	Video Editing	Flat file databases	Selection in Quizzes	Safety Internet Day

	<p>Learners develop their understanding of computer systems and how information is transferred between systems and devices. Learners 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.</p> <p>This unit progresses learners' knowledge and understanding of computing systems.</p>	<p>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.</p> <p>This unit progresses learners' knowledge and understanding of creating media by guiding them systematically through the process involved in creating a video. The unit builds on the Year 4 unit 'Photo editing' where composition is introduced and the Year 3 unit 'Stop-frame animation' where learners explored some of the features of video production. By the end of this unit, learners will have developed the skills required to plan, record, edit, and share a video.</p>	<p>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. They 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.</p> <p>This unit progresses learners' knowledge and understanding of why and how information might be stored in a database, and looks at how tools within a database can help us to answer questions about our data. It moves on to demonstrate how a database can help us display data visually, and how real-life databases can be used to help us solve problems. Finally, the learners create a presentation showing understanding and application of all the tools used within the unit.</p>	<p>Learners will develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if... then... else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program. To conclude the unit, learners evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.</p> <p>This unit focuses on developing learners' understanding of selection in an on-screen context. It highlights what 'conditions' are and how they are used as part of 'selection'. This unit also develops learners' understanding of design in programming, using the approach outlined below.</p>	<p>Understand the different benefits of reporting systems</p> <ul style="list-style-type: none"> • Know that asking permission before capturing an image is important. • Know that people can learn to show respect and self-control • Know what to do if they find a lost device • Understand how using a device at night can affect their wellbeing • Know that apps may collect lots of data.
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<p>Year 6</p>	<p>Communication and collaboration</p> <p>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.</p> <p>This unit progresses learners' knowledge and understanding of computing systems and online collaborative working.</p>	<p>Web page creation</p> <p>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.</p> <p>This unit progresses students' knowledge and understanding of the following: digital writing, digital painting, desktop publishing, digital photography, photo editing, and vector drawing.</p>	<p>Introduction to Spreadsheets</p> <p>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.</p> <p>This unit progresses students' knowledge and understanding of data, and teaches them how to organise and modify data within spreadsheets. Specifically, learners will have experienced data in tables and charts in the Y4 data logging and Y5 branching database units.</p>	<p>Variables in Games</p> <p>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.</p> <p>This unit assumes that learners have some prior experience of programming in Scratch. Specifically, they should be familiar with the programming constructs of sequence, repetition, and selection. These constructs are covered in the Year 3, 4, and 5 National Centre for Computing Education programming units respectively. Each year group includes at least one unit that focuses on Scratch.</p>	<p>Internet Safety Day</p> <p>Understand how reporting a concern works at a new school • Know that sharing images can have consequences. • Know that some content can promote stereotypes. • Understand that losing patience with a device can have bad consequences. • Understand that devices cost valuable resources • know their data rights and responsibilities</p>
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