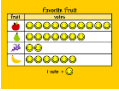





# Computing Sticky Knowledge Tracker


Year Group	Rec	Y1	Y2	Y3	Y4	Y5	Y6
<b>Substantive concepts</b> <b>Data handling</b> 	<b>Simple databases</b> Children organise a range of objects in various ways.	<b>Teach Computing-Grouping Data</b> 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.	<b>Teach Computing-Pictograms.</b> 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.	<b>Teach Computing-Branching</b> <b>Databases</b> 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.	<b>Teach Computing-Data Logging</b> In this unit, pupils will consider how and why data is collected over time. Pupils 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. Pupils 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. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit,	<b>Teach Computing-Flat-File Databases</b> This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.	<b>Teach Computing-Spreadsheets</b> 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

					pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.		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.
<b>Programming</b> 	<b>Bee-Bots</b> Children practice programming a bee-bot. They create stories based on their bee-bots trips.	<b>Teach Computing- Moving a Robot</b> 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.	<b>Discovery Coding- On the move unit.</b> Learn that programs execute by following clear instructions. Understand that programs respond to inputs to do different things.  <b>Discovery Coding- Simple Inputs unit.</b> Learn to combine start and input events to create more advanced apps and programs using precise instructions.	<b>Discovery Coding- Different sorts of inputs.</b> Learn that programs respond to different sorts of inputs, and that the keyboard can be used to control objects on screen, not just by clicking them directly.  <b>Discovery Coding- Buttons and Instructions.</b> Learn that one object can be used to control another object, e.g. writing code so clicking a button gives an instruction to make a lorry move.	<b>Discovery Coding- Sequence and animation.</b> Learn to make things happen in a sequence, creating simple animations and simulations.  <b>Discovery Coding- Conditional events</b> Learn to code with 'if statements', which select different pieces of code to execute depending on what happens to other objects.	<b>Discovery Coding- Introduction to Variables</b> Learn how computers use variables to count things and keep track of what is going on, then create simple games which use a score variable.  <b>Discovery Coding- Repetition and Loops</b> Learn how computers use repetition and loops to do things over and over again (and again!).	<b>Discovery Coding- Speed, Direction and Coordinates</b> Learn how computers use numbers to represent things such as how fast things are moving, and where they are.  <b>Discovery Coding- Random Numbers and Simulations.</b> Learn how computers can generate random numbers and how these can be used in simulations.

		<p><b>Teach Computing- Introduction to Animation</b></p> <p>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.</p>					
<p><b>Multimedia</b></p> 	<p><b>Digital painting</b> Children create simple pieces of art on touch-screen devices exploring a range of different tools.</p> <p><b>Digital photography</b> Children will gain experience using tablet devices to take photos.</p> <p><b>Music</b> Children explore making music on</p>	<p><b>Teach Computing- Digital Painting</b> 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</p>	<p><b>Teaching Computing- Digital Photography</b> 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><b>Teach Computing- Animation</b> Learners will use a range of techniques to create a stop-frame animation using tablets. Next, they 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.</p>	<p><b>Teach Computing- Audio Editing</b> 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</p>	<p><b>Teach Computing- Vector Drawing</b> In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object.</p>	<p><b>Teach Computing- Web Page Creation</b> This unit introduces learners to the creation of 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</p>

	<p>apps such as 'Garage Band'.</p> <p><b>Digital writing</b> Children will begin to familiarise themselves with typing on a keyboard.</p>	<p>without, the use of digital devices.</p> <p><b>Teach Computing-Digital Writing</b> 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.</p>	<p><b>Teach Computing-Making music.</b> 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.</p>	<p><b>Teach Computing-Desktop Publishing</b> During this unit, learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and</p>	<p>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.</p> <p><b>Teach Computing-Photo Editing</b> 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.</p>	<p>Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work. This unit is planned using the Google Drawings app, other alternative pieces of software are available.</p> <p><b>Teach Computing-Video Editing</b> This unit gives learners the opportunity to learn how to create short videos in 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. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software. Learners are guided with step-by-step support to take their idea from</p>	<p>attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.</p> <p><b>Teach Computing-3D Modelling</b> Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.</p>
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				evaluate how and why desktop publishing is used in the real world.		conception to completion. At the teacher's discretion, the use of green screen can be incorporated into this unit. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.	
	<b>E-safety stories</b>	<p>E-safety slide used in every lesson using technology.</p> <p><b>Teach Computing-Using a computer responsibly</b> (part of the Technology around us unit). Learners will be introduced to the concept of using computers safely, within the context of a school setting. They will explore why we have rules in school and how those rules help us, and then apply this understanding to rules needed for using computer technology safely</p>	<p>E-safety slide used in every lesson using technology.</p> <p><b>Teach Computing-Using IT safely</b> (part of IT around us unit) Learners will consider how they use different forms of information technology safely, in a range of different environments. They will list different uses of IT and talk about the different rules that might be associated with using them. Learners will then say how rules can help keep them safe when using IT.</p>	<p>E-safety slide used in every lesson using technology.</p>	<p>E-safety slide used in every lesson using technology.</p> <p><b>Teach Computing-Can I believe what I read?</b> (part of The Internet unit) 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 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</p>	<p>E-safety slide used in every lesson using technology.</p>	<p>E-safety slide used in every lesson using technology.</p> <p><b>Teach Computing-Communicating Responsibly</b> (part of the Communication unit). Learners use information provided in the lesson and their own prior knowledge to categorise different forms of internet communication. They then choose which method(s) they would use for the scenarios discussed in the previous lesson. Through these activities, learners explore issues around privacy</p>

					create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information. This unit requires devices with an internet connection. Chrome Music Lab is used in one lesson to demonstrate content which can be produced on the World Wide Web.		and information security.
<p><b>Technology in our lives</b></p> 	<p><b>Understanding the World</b> Role play using model devices. Use of a range of electronic devices such as remote-controlled cars and walkie-talkies.</p>	<p><b>Teach Computing-Technology around us.</b> 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.</p>	<p><b>Teach Computing-IT around us.</b> 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.</p>	<p><b>Teach Computing-Connecting Computers.</b> Challenge your learners to develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. Start by comparing digital and non-digital devices, before introducing them to computer networks that include network infrastructure devices like routers and switches.</p>	<p><b>Teach Computing-The Internet</b> 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 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</p>	<p><b>Teach Computing-Sharing Information</b> In this unit, learners will 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 will explain the input, output, and process aspects of a variety of different real-world systems. Learners will also take part in a collaborative</p>	<p><b>Teach Computing-Communication</b> 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</p>

					<p>create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information. This unit requires devices with an internet connection. Chrome Music Lab is used in one lesson to demonstrate content which can be produced on the World Wide Web.</p>	<p>online project with other class members and develop their skills in working together online.</p>	<p>how to communicate responsibly by considering what should and should not be shared on the internet. Note: Some of the content in this unit was previously included in the Year 5 – 'Computer systems and networks' unit, so some learners may have already completed similar activities. Where this is the case, the context for the activity has been changed.</p>