

Computing Skills & knowledge in Year 4

National Curriculum Objectives: In this unit, children will be taught to:

Unpacking hardware and software		Animation	
Skills	Knowledge	Skills	Knowledge
- Identify whether an item is an example of technology. - Decide whether an item is an example of electrical, digital or smart technology - Define what is meant by hardware, components and peripherals. - Name hardware components of a computer system. - Describe the function of these different parts. - Identify the functions and common components of different software tools and relate them to the tasks those tools perform. - Describe a process in terms of inputs, hardware and software processing and outputs.	- The word 'technology' describes using scientific knowledge to design and make tools, systems or machines that help solve problems or make tasks easier. - Electrical, digital and smart technology are sub-sets of technology. - Hardware describes the physical parts of a computer. - Software describes the programs that instruct a computer to complete computational tasks. - Software and hardware operate together to follow processes that assist in completing tasks.	- Describe how hand drawn animation is created. - Make a simple flick animation book. - Contrast the process of animating by hand to the use of animation technology. - Use 2Animate to make simple animations using the specific animation functionality. - Choose appropriate sound effects and speeds for animations. - Use storyboarding to plan an animation.	- Some animations are created by hand and others with the help of technology. - Animation software has specific functions that support the animation of still images such as static backgrounds, onion skinning and copying frames. - Choices of sound effects, their timing and frames per second settings can enhance an animation. - Storyboarding is a process that supports planning an animation.
Logo		Sound stories	
Skills	Knowledge	Skills	Knowledge
- Input commands in the Logo tool to make the turtle move in a particular direction towards a goal. - Input directional commands (FD, BK, RT, LT) and more abstract, non-directional commands (such as PU and PD). - Space commands correctly and debug with a consideration for spacing when errors occur. - Alter line properties to explore visual effects. - Use the line commands to achieve desired visual effects from the code. - Identify where the repeat command would be efficient to use. - Create regular shapes using the repeat command. - Anticipate the effect of the repeat when used in example code.	- Logo is a text-based coding language in which commands are written to control the movement of a screen turtle. - Commands in Logo consist of directional or rotational commands that include a direction and a distance in spaces or degrees, and operational commands that alter how the output looks or how the code runs. - Spacing of commands in Logo is important. - Visual effects can be achieved by using the PU, PD, SETPC and SETPS commands. - Logo commands can be repeated a set number of times using the repeat command.	- Explain the differences between an audiobook and a physical book. - Explain the advantages and disadvantages of an audiobook over a physical book. - Recognise the features that makes an audiobook engaging. - Identify where a voice or sound effect might make a recorded story more exciting and engaging. - Create a range of sound effects using everyday items. - Use the library of music and sound effects on 2Cast. - Read and understand cues on an audiobook script. - Contribute to writing a successful script for an audiobook.	- An audiobook is a story or book read aloud and recorded for people to listen to. - As well as being an enjoyable way to access a story, audiobooks make texts more accessible for a range of people. - Audiobooks can be made more interesting by adding expression, different voices, sound effects and background music - An audiobook script may contain notes on the speaker, the text spoken and how the sound effects are created and used. - There are specific roles within the group when creating an audiobook with recording software. - Exciting audiobook narration will contain clear pronunciation, a range

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• Write and save Logo procedures. • Call the procedures within their code. • Consider how best to use procedures to make their code efficient. • Make logical attempts to debug Logo code. • Make use of multi-line mode for more complex code to enable easier debugging	• A procedure is a named set of Logo commands that will be run in the program when referred to by name. • Errors (bugs) occur because commands have been input incorrectly. • Fixing the errors is called debugging.	• Explain the roles of a narrator, a sound technician, an editor and a sound effects manager. • Take a role within the team and contribute to the recording and editing of an audiobook extract. • Experiment with a variety of voice tones and effects within the narration of audiobooks, refining the overall effect. • Use the editing tools within 2Cast, including cutting, copy and paste, duplication and moving segments on the timeline. • Reflect on their work and think about any improvements which could be made using the criteria from the lesson	of tone and pitch to show emotion, and pauses to create dramatic effect. • Editing is the process of polishing and improving an audiobook to ensure it is the best it can be. • Reviewing and evaluating is an important step when creating any digital content including audiobooks.
Effective searching		Coding	
Skills	Knowledge	Skills	Knowledge
• Recognise and find a search engine on the internet. • Explain the uses of a search engine. • Recognise and name some popular search engines. • Explain the different stages of how a search engine works to find relevant information. • Select appropriate key words to use in a search to answer a particular question. • Perform a keyword search when looking for information online. • Explain how information on webpages is gathered, copied and stored by a search engine's program known as web crawlers or spiders. • Explain that when a search is made, a search engine searches through its index rather than through the pages of the internet.	• The internet is a global network of computers that share information from one device to another, anywhere in the world. • We can search for information on the internet using a tool called a search engine. • A search engine works by collecting and organising vast amounts of data from webpages across the internet. • Typing in keywords rather than a whole question can be a quicker and more effective way of finding the correct information • Search engines send out programs called web crawlers or spiders to explore the web for information. They make a copy of it and store it on their database called an index. • When you type a query into a search engine, it searches its index for relevant information and ranks it according to how useful it thinks it	•	•

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• Explain how search results are selected and ranked. • Look through search results and evaluate which could be the most useful. • Use techniques such as quotes, the minus sign and filters to refine a search query. • Explain the importance of questioning where information online has actually come from. • Explain the differences and identify examples of facts, options and beliefs. • Identify the difference between real news and 'fake news'. • Understand the reasons why someone might want to put fake news online. • Check whether information online is reliable and true by checking if it sounds real, checking the source, checking the date and checking if the news is also reported by other sources.	is. This is the order in which the information is displayed. • A search engine bases its ranking on the relevance of the information, the popularity of the website the information is from and whether the business has paid for the information to rank higher. This means the higher ranked results are not always the best. • There are a range of techniques you can use to refine a search query, including using quotes, using the minus sign and using filters. • Information can be put online by anyone so we should not take everything we read as fact. • A fact is something that is true and provable, an opinion is something that someone feels and a belief is something that someone accepts to be true based on their faith or tradition. • Fake news is information that might look real but isn't. Sometimes people make fake news for fun, to make money or try and change the way people think. • It is important to evaluate the reliability of any information that we find online.		
Composing beats		Introduction to AI	
Skills	Knowledge		
• Recognise, demonstrate and explain the different elements of music. • Clap the pulse in a piece of music. • Explain what sounds and instruments they can hear in a piece of music. • Explain what they like and dislike about a piece of music.	• Music is built of different elements which create the feel and mood. These include the pulse, rhythm, tempo, pitch, melody, texture and dynamics. • Rhythm is the pattern of long and short sounds and silences in music. • In digital music, rhythm is made up of sample sounds.	•	•

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• Identify simple rhythms in everyday life and in music. • Clap back a simple rhythm. • Create their own simple rhythms on Busy Beats by using samples. • Adjust the tempo of a rhythm by changing the BPM. • Identify simple melodies in a piece of music. • Hum or sing back a simple melody. • Create their own simple melodies on Busy Beats using synths. • Adjust the pitch of a note using the synth board on Busy Beats. • Experiment with different samples and synths to create a certain feel or mood. • Create and record their own piece of music on Busy Beats. • Create and switch between multiple patches to build up a piece of electronic music.	• A sample is a short recording of a sound that can be used in music, such as a drumbeat. • The tempo of a piece of music is how slow or fast it is. • On Busy Beats, the tempo is changed by altering the BPM (Beats per minute). • The melody is the tune of the music made up of notes. It is the part which can be sung or hummed. • In digital music, a melody is made up of synths. These are electronic music instrument sounds. • The pitch of a sound is how high or low it is. • In Busy Beats, the higher the number on the synth, the higher the pitch of the note. • A piece of music on Busy Beats is created with a range of samples and synths. • A piece of music can be created and arranged on Busy Beats by building up and switching between multiple patches.		
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