



The Big Picture

With the right E-safety knowledge, children can better understand the dangers of releasing personal information, as well as how to recognise unethical behaviours or prevent cyberbullying.

Also in this unit, children will search effectively. They will understand the significance of using appropriate words and terminology to narrow searches to find relevant information.

What do we already know?

Knowledge Retrieval:

- To know what makes a strong, secure password to protect our personal information.
- To suggest ways to stay safe online.
- To be able to report anything that makes children feel uncomfortable.
- To recognise and use a keyboard.
- To begin to use search engines.
- To understand how search results are ranked.

Year 4 Computing–
Online Safety (see E-safety
overview) & Effective searching

NC objectives

Pupils should be taught to:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Key unit objectives

- To understand how children can protect themselves from online identify theft.
- To identify the risks and benefits of installing software including apps.
- To identify the positive and negative influences of technology on health and the environment.
- To locate information on the search results page.
- To use search effectively to find out information.
- To assess whether an information source is true and reliable.

Key Questions

- Can they use a search engine to find a specific website?
- Can they use tabbed browsing to open two or more web pages at the same time?
- Can they open a link to a new window?
- Can they open a document (pdf) and view it?
- Can they structure search queries to locate specific information?
- Can they use search to answer a series of questions?
- Can they analyse the contents of a web page for clues about the credibility of the information?

Key vocabulary and understanding for concept connectors

Internet – a global computer network providing a variety of information and communication facilities.

Internet browser – a software application used to locate and display Web pages.

Search – to look for information. In this case on the internet.

Website – a set of related web pages located under a single domain name.

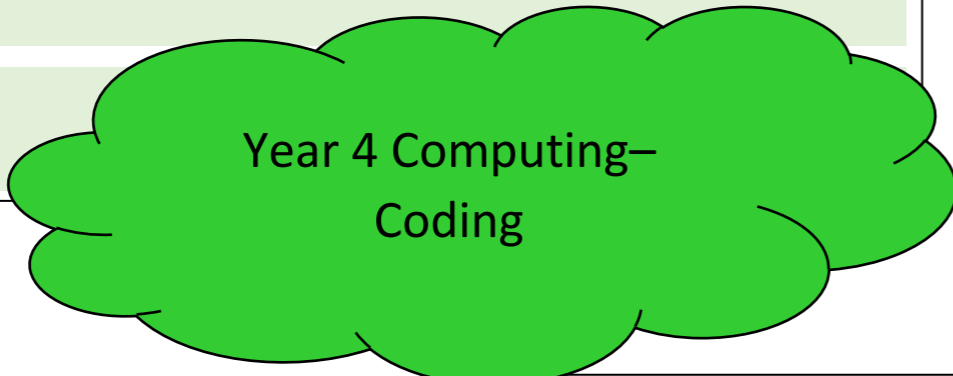
Search engine – a program that searches for and identifies items in a database. Used especially for finding sites on the World Wide Web.

Spoof website – website spoofing is the act of creating a website, as a hoax, with the intention of misleading readers that the website has been created by a different person or organisation.



The Big Picture

This unit helps children to develop problem-solving skills. They will begin to learn to quickly fix and try again in different ways when something doesn't work out. Coding also equips children with the ability to stick with a problem and work on finding a solution. This problem-solving technique is transferable to a lot of other aspects of their learning.



Year 4 Computing - Coding

What do we already know?

Knowledge Retrieval:

- To review previous coding knowledge.
- To understand what a flowchart is and how they are used in computer programming.
- To understand there are different types of timers.
- To be able to select the right type of timer for a purpose.
- To understand how to use the repeat command.
- To understand the importance of nesting.

Key vocabulary and understanding for concept connectors

Algorithm – a precise step by step set of instructions used to solve a problem or achieve an objective.

Button – an object on the screen which can be clicked.

Command – a single instruction in a computer program.

Execute – to run a computer program.

Event – something that causes a block of code to be run.

Nesting – when you write a command inside something else.

Debug/Debugging – looking for any problems in the code, fixing and testing them.

Run – to cause the instruction in a program to be carried out.

Test – when code is run to check that it works correctly.

Design mode – used to create the look of a 2Code computer program when it is run.

Repeat – this command can be used to make a block of commands run a set number of times or forever.

Sequence – when a computer program runs commands in order.

Timer – use this command to run a block of commands after a timed delay or at regular intervals.

If/Else – a conditional command. This tests a statement. If the statement is true, then the commands inside the 'if block' will be run. If the condition is not met, then the commands inside the 'else block' are run.

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Key unit objectives

- To review coding vocabulary and knowledge.
- To create a simple computer program.
- To begin to understand selection in computer programming.
- To understand how an IF statement works.
- To understand the Repeat until command.
- To understand how an IF/ELSE statement works.
- To understand what a variable is in programming.

Key Questions

- Can they experiment with variables to control models?
- Can they give an on-screen robot specific directional instruction that takes them from x to y?
- Can they make accurate predictions about the outcome of a program they have written?
- Can they plan an algorithm for their scene and use 2Code to program it?
- Can they use an IF statement in their program?
- Can they read code that includes repeat until and IF/ELSE and explain how it works?
- Can they include an IF/ELSE statement?
- Can they explain what a variable is in programming?



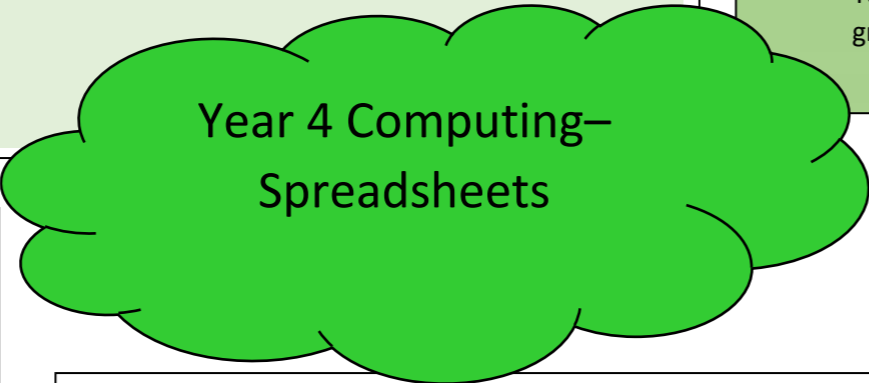
The Big Picture

This unit is very purposeful for children as they are likely to use spreadsheets in future projects, careers and in personal life. Spreadsheet programs are enormously flexible, familiar, and relatively easy to use. As such, they can increase both the breadth and depth of the topics covered in class.

What do we already know?

Knowledge Retrieval:

- To add and edit data in a table layout.
- To find out how spreadsheet programs can automatically create graphs from data.
- To introduce the 'more than', 'less than' and 'equals' tools.
- To learn about describing cells using their addresses.
- To enter data into a graph and answer questions.
- To solve an investigation and present the results in graphic form.



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Key unit objectives

- To explore how the numbers are entered into cells can be set to either currency or decimal.
- To explore the use of the display of decimal places.
- To find out how to add formulae to a cell.
- To explore the use of the timer, random number and spin button tools.
- To use the line graphing tool in 2Calculate with appropriate data.
- To interpret a line graph to estimate values between data readings.

Key Questions

- Can they input data into a prepared spreadsheet?
- Can they use the terms cells, rows, and columns?
- Can they enter data, highlight it and make bar charts?
- Do they recognise what a spreadsheet is?
- Can they use number formatting tools within 2Calculate?
- Can they add a formula to a cell to automatically make a calculation in that cell?
- Can they use the time, random number and spin button tools?
- Can they use a series of data in a spreadsheet to create a line graph?

Key vocabulary and understanding for concept connectors

Average – a feature that allows a user to find the average values of selected cells.

Copy and paste – a way to copy information from the screen into the computer's memory and paste it elsewhere without re-typing.

Charts – use this button to create a variety of graph types for the data in the spreadsheet.

Formula – use the formula wizard or type into the formula bar to create a formula in a cell, this will calculate the value for the cells based upon the value of other cells in the spreadsheet.

Formula wizard – the wizard guides you in creating a variety of formulae for a cell.

Random tool – click to give a random value between 0 and 9 to the cell.

Spin tool – adds or subtracts 1 from the value of the cell to its right.

Timer – when placed in the spreadsheet, click the time to add 1 to the value of the cell to its right every second until it is clicked again.

Spreadsheet – a computer program that represents information in a grid of rows and columns.

Columns – vertical reference points for the cells in a spreadsheet.

Rows – vertical reference points for the cells in a spreadsheet.

Cells – an individual section of a spreadsheet grid.



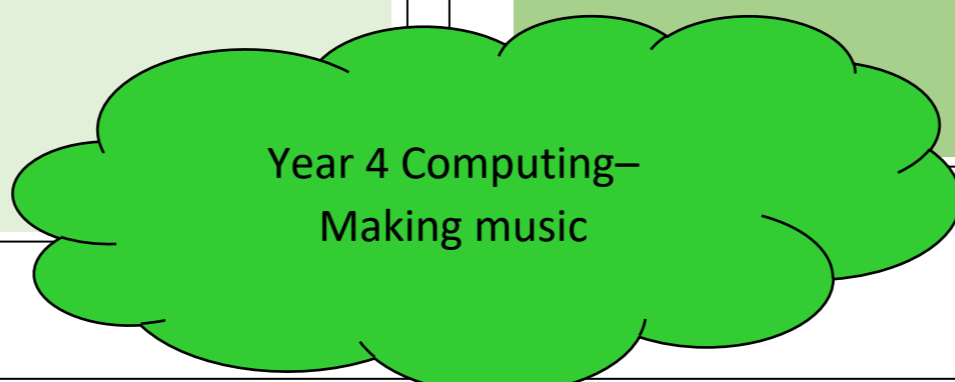
The Big Picture

This unit provides children with new 'learning pathways' which inspire the digital skills and willingness to experiment new programs and applications. It encourages children to be creative by composing, improvising, and performing simultaneously, introducing a driving force of change in digital music learning pathways.

What do we already know?

Knowledge Retrieval:

- To be introduced to making music digitally using 2Sequence.
- To explore, edit and combine sounds using 2Sequence.
- To add sounds to a tune to improve it.
- To think about how music can be used to express feelings and create tunes with portray feelings.
- To upload a sound from a bank of sounds.
- To create own music using sounds added to the Sounds section.



Year 4 Computing-
Making music

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Key unit objectives

- To identify and discuss the main elements of music: pulse, rhythm, tempo, pitch, and texture.
- To understand and experiment with rhythm and tempo.
- To create a melodic phrase.
- To compose a piece of electronic music.

Key Questions

- Can children use appropriate musical language to discuss a piece of music?
- Can they identify sounds in a piece of music?
- Can they explain how it makes them feel?
- Can they identify and recall a simple rhythm?
- Can they create their own simple rhythm using Busy Beats?
- Can they use a variety of notes, experimenting with pitch?
- Can they explore and understand how music is created?

Key vocabulary and understanding for concept connectors

Pitch – how high or low the sound of a note is.

Rhythm – a pattern of long and short sounds and silences.

Pulse – the steady beat of a piece of music.

Tempo – how slow or fast a piece of music is.

Dynamics – how loud or quiet a sound is.

Melody – a sequence of notes which make up a tune.

Rippler – the tool which when clicked, begins the ripple of sound.

Texture – the way that different sounds and music elements are layered together to create a piece of music.



The Big Picture

This unit is one of those basic skills that goes hand-in-hand with today's technology world. It is a valuable skill to have for future careers as almost all types of industries nowadays are dependent on computers.

Children will also have the opportunity to explore and experiment with iMovie which supports project-based learning and builds skills with digital storytelling, involving photos, videos and audio.

What do we already know?

Knowledge Retrieval:

- To know what digital technology is.
- To use a mouse confidently.
- To know most keys on a keyboard.
- To know how to save an image to a folder.
- To be able to capture images and videos using a camera.

Key vocabulary and understanding for concept connectors

Mother board – a printed circuit board containing the main parts of a computer or other device, with connectors for other circuit boards to be slotted into.

CPU – the part of a computer in which operations are controlled.

RAM – allows programs to store information to help the computer run more quickly.

Graphics card – a printed circuit board that controls the output to a display screen.

Network card – an electronic device that connects a computer to a computer network.

Monitor – a screen which displays an image generated by a computer.

Speakers – a device for letting you hear sounds generated by the computer.

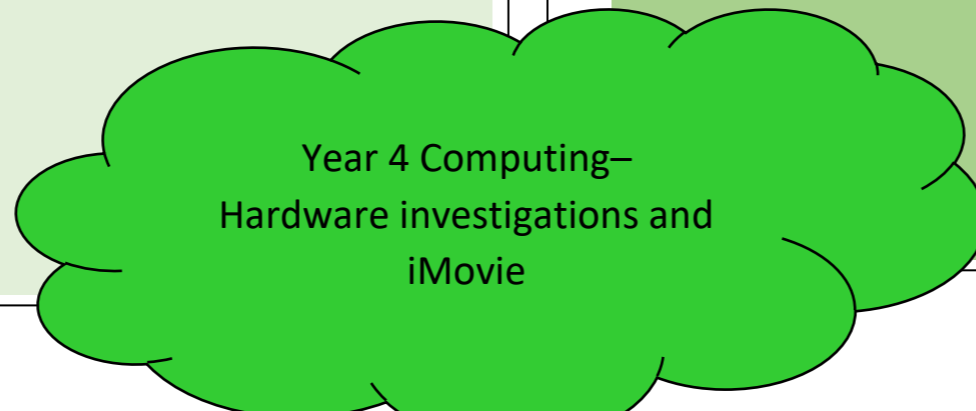
Keyboard and mouse – external devices.

Clips – audio and video segments that make up a digital movie.

Timeline – where you edit the video and audio tracks.

Audio – lets you add sound effects to your video.

Editing mood – cropping, adding, deleting your movie clips.



Year 4 Computing-
Hardware investigations and
iMovie

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Key unit objectives

- To understand the different parts that make up a desktop computer.
- To recall the different parts that make up a computer.
- To add images and videos to iMovie and crop or trim accordingly.
- To add text titles to an image within iMovie.
- To include background music to an image or video and adjust the volume.

Key Questions

- Can they name the different parts of a desktop computer?
- Can children know what the function of the different parts of a computer is?
- Can they find photos and videos and include them in an iMovie project?
- Are they able to add text where appropriate within an iMovie?
- Can they choose appropriate background music and include in their iMovie?



The Big Picture

In this unit, children will learn to explain and discuss ideas which allows children to learn about and interact with the world around them. These skills form a foundation for children’s engagement with learning, building knowledge, and making connections to real-world experiences. Not only is this unit beneficial to their education, but it also helps to boost their confidence as they progress throughout the school. Children will also gain a good understanding of their audiences.

NC objectives

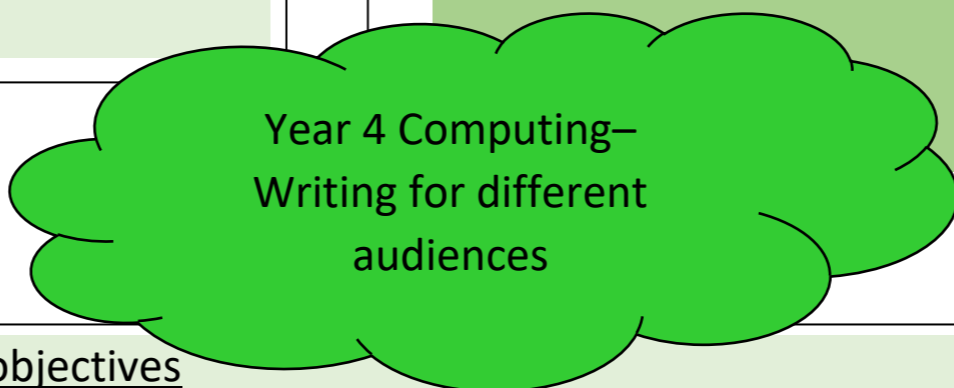
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What do we already know?

Knowledge Retrieval:

- To know technology can be used to help with our learning in other subjects.
- To understand we can connect with people and places across the world.
- To highlight text to change its format (**B**, U, *I*)
- To consider an audience when presenting information.



Key unit objectives

- To explore how font size and style can affect the impact of a text.
- To use a simulated scenario to produce a news report.
- To consider the audience when writing for a purpose.

Key Questions

- Can they create a lengthy presentation that moves from slide to slide and is aimed at a specific audience?
- Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?
- Can they use automatic spell checker to edit spellings?
- Can children assess their texts using criteria to judge their suitability for the intended audience?

Key vocabulary and understanding for concept connectors

Font – the style of writing one can use when typing on a document.

Bold – makes the text stand out.

Italic – a style of formatting when the text is at an angle.

Underline – to draw a line underneath the font.

Audience – a group that listens or watches.