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 develop their touch-typing skills. This will enable children to improve the speed at which they type and help them to work comfortably on the computer whilst also preparing them for regular internet communication in later life.

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 identify the home, backspace and spacebar keys.

Year 3 Computing–
Online Safety (see E-safety overview) & Touch typing

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 typing terminology.
- To understand the correct way to sit at a keyboard.
- To learn how to use the home, top and bottom row keys.
- To practise the keys typed with the left hand.
- To practise the keys typed with the right hand.
- To practise and improve typing for home, bottom, and top rows.

Key Questions

- Do children understand the names of the fingers?
- Can children understand what is meant by the home, bottom, and top rows?
- Can children use two hands to type the letters on the keyboard?
- Can they touch type using the left hand?
- Can they touch type using the right hand?
- Do they recognise ways to stay safe online?
- Do they understand what makes a secure password?
- Do they understand the need to change their passwords regularly?

Key vocabulary and understanding for concept connectors

Posture – the correct way to sit at the computer.

Top row keys – the keys on the top row of the keyboard.

Home row keys – the keys on the middle row of the keyboard.

Bottom row keys – the keys on the bottom row of the keyboard.

Space bar – the bar at the bottom of the keyboard.

E-safety – the safe and responsible use of technology.

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 3 Computing– Coding

What do we already know?

Knowledge Retrieval:

- To understand what an algorithm is.
- To understand that algorithms follow a sequence.
- To design an algorithm that follows a timed sequence.
- To create a program using a given design.
- To know what debugging means.
- To debug simple programs.
- To understand the need to test and debug a program repeatedly.

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
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Key unit objectives

- 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 Questions

- Can children read and explain a flow chart?
- Can they create a computer program that uses click events and timers?
- Can they use the repeat command with an object?
- Can they run, test, and debug their programs?
- Do they consider nesting when debugging programs?
- Can they experiment with variables to control models?
- Can they give an on-screen robot directional instructions?
- Can they begin to write more complex programs?
- Can they debug simple programs?

Key vocabulary and understanding for concept connectors

Action – types of commands, which are run on an object.

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.

Flowchart – a diagram which represents an algorithm.

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

Predict – say what you think will happen when a piece of code is run.

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.

Year 3 Computing– Spreadsheets and Graphing

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.

Graphing activities in the classroom can easily incorporate real-life concepts with math standards. Children will create bar graphs, pie charts, and more.

What do we already know?

Knowledge Retrieval:

- To understand what a spreadsheet looks like.
- To be able to navigate around a spreadsheet and enter data.
- To learn new vocabulary related to spreadsheets.
- To use the 'move cell' tools.
- To use copying, cutting, and pasting shortcuts in 2Calculate.
- To use 2Calculate to solve a simple puzzle.
- To add and edit data in a table layout.

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
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Key unit objectives

- 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.

Key Questions

- Can children create a table of data on a spreadsheet?
- Can they use a spreadsheet program to automatically create charts and graphs from data?
- Can children use the 'more than', 'less than' and 'equals' tools?
- Can they describe a cell location in a spreadsheet using the letter and number?
- Can they set up a graph with the given number of fields?
- Can they enter data for a graph?
- Can they use the sorting option to make analysis of their data easier?

Key vocabulary and understanding for concept connectors

< > = - symbols used to represent comparing two values.

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

Cells – an individual section of a spreadsheet grid.

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

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

Equals tool – tests whether the entered calculation in the cells to the left of the tool has the correct answer in the cell to the right of the tool.

Graph – a diagram showing the value of objects.

Field – a part of a record.

Data – facts and statistics collected together for reference.

Bar chart – a graph in which the numerical amounts are shown by the height or length of lines or rectangles.

Block graph – a graph where a block represents one item.

Line graph – a graph where a line is use to show an amount.

The Big Picture

Databases are a core component of virtually every single business and touch hundreds of everyday transactions more than most people realise. For children growing up today, learning the fundamentals of databases, what they do, and how you can manipulate them is a core skill that will help set them for a future career path.

What do we already know?

Knowledge Retrieval:

This is a starter unit, there is no knowledge needed to begin this unit.

Year 3 Computing– Branching databases

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
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Key unit objectives

- To sort objects using YES/NO questions.
- To complete a branching database using 2Question.
- To create a branching database of the children's choice.

Key Questions

- Can they input data into a prepared database?
- Can they sort and search a database to answer simple questions?
- Can they use a branching database?
- Can they understand how YES/NO questions are structured and answered?
- Can they explain why they choose a particular question to split their database?
- Can they choose a suitable topic for a branching database?

Key vocabulary and understanding for concept connectors

Branching database – a way to sort information by asking questions that are normally answered 'yes' or 'no'.

Data – facts and statistics collected together for information.

Database – a collection of data organised in such a way that it can be searched, and information found easily. Database usually refers to data stored on computers.

Question – something that is asked or written to try and gain information.

The Big Picture

When used properly, Email encourages collaboration among people, making it an integrated curriculum simpler than ever. Email is an important form of fast communication that allows people to contact one another and share information all over the world. Not only does it develop children's computing skills, but has a significant impact on their writing skills which further develops their intelligence and prepares them for job opportunities where frequent communication is required.

What do we already know?

Knowledge Retrieval:

- To know what digital technology is.
- To use a mouse confidently.
- To know what a cursor is.
- To know most of the keys on a keyboard and their uses.
- To know we can connect with people and places across the world using the internet.
- To recognise different methods of communicating.

Year 3 Computing– Email

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
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Key unit objectives

- To think about the different methods of communication.
- To open and respond to an email.
- To write an email to someone from the address book.
- To learn how to use email safely.
- To add an attachment to an email.
- To explore a simulated email scenario.

Key Questions

- Can they use the email address book?
- Can they open and send an attachment?
- Can they independently open and respond to an email?
- Can they recognise and discuss different methods of communication?
- Can they suggest ways to use email safely?

Key vocabulary and understanding for concept connectors

Communication – the sharing or exchanging of information by speaking, writing, or using some other medium such as email.

Email – messages sent by electronic means from one device to one or more people.

Compose – to write or create something.

Send – to make an email be delivered to the email address it is addressed to.

CC – a way of sending a copy of your email to other people so they can see the information in it.

Attachment – a file, which could be a piece of work or a picture, that is sent with the email.

Password – a secret word, phrase or combination of letters, numbers and symbols that must be used to protect personal information.

Address book – a list of people who you regularly send an email to.

Year 3 Computing– Presenting ideas (Microsoft PowerPoint)

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.

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 use the shape tools to draw.
- To insert/delete a word using the mouse and arrow keys.
- To consider an audience when presenting information.

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
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- 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 create a page in presentation.
- To add media to a presentation.
- To add animations to a presentation.
- To add timings into a presentation.
- To use skills learnt in previous weeks to design and present an effective presentation.

Key Questions

- Can they create a presentation that moves from slide to slide and is aimed at a specific audience?
- Can they combine text, images, and sounds and show awareness of audience?
- Do they know how to manipulate text, underline text, centre text, change front and size and save text to folder?
- Can they search for an image, copy and paste it into a document?
- Can they use 'save picture as' to save an image to the computer?
- Can they copy and paste text into a document?

Key vocabulary and understanding for concept connectors

Animation – visual effects used on objects which allow them to appear and disappear in a certain way.

Font – a set of type which shows words and numbers in a particular style and size.

Media – images, videos or sounds which can be added to a presentation.

Presentation – a visual way of displaying information to an audience that is clear and engaging.

Slide – a single page within a presentation.

Slideshow – a collection of pages arranged in a sequence that contains text an image to present to an audience.

Text box – a box in which text can be inputted and formatted.

Text formatting – when you change the format of text on a page.

Transition – the interesting effect used when one slide moves onto the next.