



Early Learning Goal

Computing is not explicitly mentioned in the EYFS.

Related ELGs:

Be confident to try new activities and show independence, resilience and perseverance in the face of challenge;

Use a range of small tools, including scissors, paint brushes and cutlery

National Curriculum Subject Content

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Expected Knowledge and Skills by the end of EYFS:

- I know some common uses of digital equipment, such as watching a video clip or listening to music
- I know that information (such as videos, music, text, images) can be retrieved from digital devices and the internet
- I know how to operate simple equipment with support, e.g. how take a photograph with a camera or tablet, navigate touch-capable technology, or play with a floor robot
- **Online Safety:** I know some simple ways that we use digital equipment safely and with respect (i.e. by following our 'Online Safety Code')

Early 'Computational Thinking' is embedded in other areas of the EYFS:

By the end of the EYFS, children should have developed skills in:

Tinkering: Playing and exploring; **Creating:** Creating, checking and fixing things; **Collaboration:** Playing and working collaboratively; **Persevering:** Not giving up; **Logic:** Anticipating and explaining; **Pattern:** Grouping things, comparing, spotting similarities and differences, working out rules; **Abstraction:** Naming and labelling, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary; **Algorithms and Decomposition:** Responding to instructions, ordering things, sequencing things, introducing storylines, working out different ways to do things, breaking problems down into steps. From: 'Early Years Computational Thinking' (<https://www.barefootcomputing.org/>)

Vocabulary: buttons, on, off, switch, backwards, forwards, instruction, computer, keyboard, type, screen, mouse, sound, music, volume, louder, quieter, video, camera, photo, iPad/tablet, phone, internet (a world-wide network of computers used for sharing information), information, website, online (accessing things over the internet), online safety.

<p>Year 1 Autumn 1 Grouping data</p> <p>This unit introduces learners to data and information. 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>Previous learning revisited:</p> <ul style="list-style-type: none"> • Online Safety: I know how to use digital equipment safely and with respect (i.e. by following our 'Online Safety Code') • I know that information (such as videos, music, text, images) can be retrieved from digital devices and the internet <p>Previous vocabulary revisited: sort, group, information, internet, online</p> <p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • I know that objects can be counted • I know that objects can be described in different ways according to their properties • I know that computers are not intelligent, and require input from humans to perform tasks. • Online Safety: I know that I can get help from a trusted adult if I see content that makes me feel sad, uncomfortable, worried or frightened • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) <p>Skills:</p> <ul style="list-style-type: none"> • I know how to label objects • I know how to count objects with the same properties • I know how to compare groups of objects <p>New vocabulary: object, property, label, data, search, image</p>
<p>Year 1 Autumn 2 Technology around us</p> <p>Learners will develop their understanding of technology 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</p>	<p>Previous learning revisited:</p> <ul style="list-style-type: none"> • I know that computers are not intelligent, and require input from humans to perform tasks • Online Safety: I know that I can get help from a trusted adult if I see content that makes me feel sad, uncomfortable, worried or frightened • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) <p>Previous vocabulary revisited: Data, keyboard, mouse, computer, screen,</p> <p>New knowledge:</p> <p>Knowledge:</p>

<p>consider how to use technology responsibly.</p>	<ul style="list-style-type: none"> • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) • I know that technology can be described as something made by people that helps us • I know and can name the main parts of a computer • I know what a mouse is for • I know what a keyboard is for <p>Skills:</p> <ul style="list-style-type: none"> • I know how to use a mouse to click and drag • I know how to type my name on a computer • I know how to use the arrow keys to move the cursor • I know how to delete letters <p>New vocabulary:</p> <p>technology, trackpad, typing, click, drag, double-click, click and drag</p>
<p>Year 1 Spring 1 Creating media – Digital painting</p> <p>Learners will develop their understanding of a range of 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>Previous learning revisited:</p> <ul style="list-style-type: none"> • I know what a mouse is for • I know what a keyboard is for • I know how to use a mouse to click and drag • I know how to type my name on a computer • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) <p>Previous vocabulary revisited:</p> <p>Data, keyboard, image, mouse, trackpad, screen</p> <p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • Online Safety: I know that passwords are used to protect information, accounts and devices • Online Safety: I know some simple examples of personal information (<i>e.g. name, address, birthday, age, location.</i>) • I know that computers can be used to create images • I know and can describe some common tools for digital painting: <i>brush/pencil, lines, shapes, fill</i> • I know that a computer can be used to store/save and retrieve data such as images

	<p>Skills:</p> <ul style="list-style-type: none"> • I know how to use common tools to create a digital painting: <i>brush/pencil, lines, shapes, fill</i> • I know how to save my work <p>New vocabulary:</p> <p>Brush/pencil, lines, shapes, fill, undo, save</p>
<p>Year 1 Spring 2 Programming A – Moving a robot</p> <p>Learners will be introduced 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 command for the floor robot 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.</p>	<p>Previous learning revisited:</p> <ul style="list-style-type: none"> • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) • Year R: I know how to operate simple equipment with support, e.g. how take a photograph with a camera or tablet, navigate touch-capable technology, or play with a floor robot <p>Previous vocabulary revisited: buttons, on, off, switch, backwards, forwards, instruction</p> <p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • Online Safety: I know that there may be people online who could make someone feel sad, embarrassed or upset. • Online Safety: I know that, online or offline, I can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' • I know what the commands on a floor robot (BeeBot) will do (<i>'Forwards', 'backwards', 'right turn', 'left turn', 'clear memory', 'run program'</i>) • I know that commands can be combined to make a sequence <p>Skills:</p> <ul style="list-style-type: none"> • I know how to give and follow instructions • I know how to predict an outcome of a sequence of commands (<i>up to four commands</i>) • I know how to plan a program • I know how to test and debug a program <p>New vocabulary: algorithm, program, programming, code, bug, debug, predict</p>

Year 1
Summer 1
Creating media – Digital writing

Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.

Previous learning revisited:

- **Online Safety:** I know and can describe some rules for keeping myself safe when using technology (Online Safety Code)
- I know and can name the main parts of a computer: mouse/trackpad, keyboard, screen, base unit
- I know what a mouse is for: select and move objects
- I know what a keyboard is for: typing letters and numbers
- I know how to use a mouse to click and drag
- I know how to type my name on a computer
- I know how to use the arrow keys to move the cursor
- I know how to delete letters

Previous vocabulary revisited:

keyboard, type, mouse

New knowledge:

Knowledge:

- **Online Safety:** I know that it is important to balance our use of devices.
- I know that text can be created on a computer
- I know and can identify the following keys on a keyboard: letters, numbers, space bar, backspace, caps lock
- I know what a toolbar is (*a strip of icons that can be clicked to perform certain functions.*)
- I know what a font is

Skills:

- **Online Safety:** I know how to say 'goodbye' when it is time to stop using a device.
- I know how to use a keyboard to type letters, numbers and spaces
- I know how to use the keyboard to remove text
- I know how to type capital letters
- I know how to use tools such as bold, italic, and underline
- I know how to change the font

New vocabulary:

Word processor, keys, letters, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, select, font

Year 1
Summer 2
Programming B –
Programming animations

Learners will be introduced 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.

Previous learning revisited:

- I know what the commands on a floor robot (BeeBot) will do ('Forwards', 'backwards', 'right turn', 'left turn', 'clear memory', 'run program')
- I know that commands can be combined to make a sequence
- I know how to give and follow instructions
- I know how to predict an outcome of a sequence of commands (up to four commands)
- I know how to plan a program
- I know how to test and debug a program

Previous vocabulary revisited:

Bee-Bot, algorithm, program, programming, code, bug, debug, predict, instructions

New knowledge:

Knowledge:

- **Online Safety:** I know that the internet can be used to visit faraway places and learn new things.
- **Online Safety:** I know some rules for travelling safely on the internet.
- I know some commands for moving a sprite (*in ScratchJr*)
- I know that some commands have numbers and can say what happens when I change the value.
- I know that a project can have more than one sprite.

Skills:

- I know how to use more than one block by joining them together (*in ScratchJr*)
- I know how to run my program.
- I know how to give instructions to more than one sprite.
- I know how to create an algorithm for different sprites
- I know how to add programming blocks based on my algorithm
- I know how to test the programs I have created

New vocabulary:

ScratchJr, command, sprite, compare, programming area, block, joining, start, run, background, delete, reset, effect, change, value,

<p>Year 2 Autumn 1 Information technology 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>Previous learning revisited:</p> <ul style="list-style-type: none"> • Online Safety: I know that I can get help from a trusted adult if I see content that makes me feel sad, uncomfortable, worried or frightened • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) <p>Previous vocabulary revisited: technology, computer, information, data, internet, online</p> <p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • I know some examples and uses of computers • I know some examples and uses of information technology in school • I know some examples and uses of information technology out of school • Online Safety: I know and can describe some rules for keeping myself safe when using technology (Online Safety Code) <p>Skills:</p> <ul style="list-style-type: none"> • Online Safety: I know how I can get help from a trusted adult if I see content that makes me feel sad, uncomfortable, worried or frightened • Online Safety: I know how I can to ask permission from others and how to say ‘no’ to others <p>New vocabulary: information technology (IT)</p>
<p>Year 2 Autumn 2 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>Previous learning revisited:</p> <ul style="list-style-type: none"> • Online Safety: I know that I need to ask permission from others and that I have the right to say ‘no’ to others (<i>when taking photos of each other in Year 2 Aut 1</i>) • I know some examples and uses of information technology in school • I know some examples and uses of information technology out of school <p>Previous vocabulary revisited: image, digital image, camera, photo</p>

	<p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • I know some devices that can take digital photos: e.g. <i>iPad/tablet, phone, digital camera, laptop</i> • I know what the words <i>portrait</i> and <i>landscape</i> mean • I know that images can be changed, e.g. <i>brightness</i> or <i>black & white effect</i> • Online safety: I know that some images I find may not be real <p>Skills:</p> <ul style="list-style-type: none"> • I know the steps to take a photograph: <i>hold and point the device at the object, look into the screen/viewing window, move the device until you can see everything clearly, press the capture button</i> <p>New vocabulary: photograph/photography, capture, composition, portrait/landscape, lighting, blur, filter</p>
<p>Year 2 Spring 1 Programming A – Robot algorithms 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>Previous learning revisited:</p> <ul style="list-style-type: none"> • I know some commands for moving a sprite (in ScratchJr) • I know that some commands have numbers and can say what happens when I change the value. • I know how to run my program. • I know how to give instructions to more than one sprite. • I know how to create an algorithm for different sprites • I know how to add programming blocks based on my algorithm • I know how to test the programs I have created • Online Safety: I know some simple examples of personal information (<i>e.g. name, address, birthday, age, location.</i>) • Online Safety: I know that passwords are used to protect information, accounts and devices <p>Previous vocabulary revisited: algorithm, program, programming, code, bug, debug, predict</p> <p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • I know that it is possible to predict the outcome of a program • I know that programs can have 'bugs' and need debugging • Online safety: I know more detailed examples of information that is personal to someone (<i>e.g. where someone lives and goes to school, family names</i>). • Online safety: I know how passwords can be used to protect information, accounts and devices. • Online safety: I can explain how some people may have devices in their homes connected to the internet and give examples (<i>e.g. lights, fridges, toys, televisions</i>). <p>Skills:</p>

	<ul style="list-style-type: none"> • To know how to choose a series of instructions that can be run as a program • I know how to debug a program <p>New vocabulary: Consolidate previous vocabulary</p>
<p>Year 2 Spring 2 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>Previous learning revisited:</p> <ul style="list-style-type: none"> • I know that objects can be counted • I know that objects can be described in different ways according to their properties • I know that computers are not intelligent, and require input from humans to perform tasks • I know how to label objects • I know how to count objects with the same properties • I know how to compare groups of objects • Online Safety: I know that passwords are used to protect information, accounts and devices • Online Safety: I know some simple examples of personal information (<i>e.g. name, address, birthday, age, location.</i>) <p>Previous vocabulary revisited: data</p> <p>New knowledge:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • I know that pictures can represent objects • I know that objects can be grouped • I know that people can be described by attributes • Online safety: I know some simple examples of why information should not be shared <p>Skills:</p> <ul style="list-style-type: none"> • I know how to record data in a tally chart • I know how to create a pictogram • I know how to group objects by an attribute • I know how to describe people by attributes <p>New vocabulary: attribute, pictogram</p>

Year 2

Summer 1

Programming quizzes

This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations'. Learners begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.

Previous learning revisited:

- I know that it is possible to predict the outcome of a program
- I know that programs can have 'bugs' and need debugging
- I know how to choose a series of instructions that can be run as a program
- I know how to debug a program
- I know some commands for moving a sprite (in ScratchJr)
- I know that some commands have numbers and can say what happens when I change the value.
- I know that a project can have more than one sprite.
- I know how to use more than one block by joining them together (in ScratchJr)
- I know how to run my program.
- I know how to give instructions to more than one sprite.
- I know how to create an algorithm for different sprites
- I know how to add programming blocks based on my algorithm
- I know how to test the programs I have created
- Online safety: I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).

Previous vocabulary revisited:

program, run, start, command, predict, blocks, algorithm

New knowledge:

Knowledge:

- **Online safety:** I know what to do when I don't have a good feeling when using technology.
- I know that a program needs to be started
- I know what different 'blocks' do (*in ScratchJr*).

Skills:

- **Online safety:** I can recognise the different kinds of feelings I can have when using technology.
- I know how to run my program.
- I know how to predict the outcome of a sequence of commands.
- I know how to choose which blocks I need to use.
- I know how to choose and change a visual design.
- I know how to create a program by building sequences to match my design

New vocabulary:

Sequence, outcome, actions, sprite, project, design, modify, change, build, match

Year 2

Summer 2

Making music

In this unit, learners will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.

Previous learning revisited:

- I know that text can be created on a computer
- I know what a toolbar is (a strip of icons that can be clicked to perform certain functions.)
- I know how to use tools such as bold, italic, and underline
- I know that computers can be used to create images
- I know that a computer can be used to store/save and retrieve data such as images
- I know how to use common tools to create a digital painting: brush/pencil, lines, shapes, fill
- I know how to save my work

Previous vocabulary revisited:

toolbar, internet, online

New knowledge:

Knowledge:

- **Online safety:** I know that some websites and apps are "just right" and some "not right" for me.
- I know what a pattern is
- I know that music can be created using a computer

Skills:

- **Online safety:** I know how to get help from an adult if I am unsure about a website or app.
- I know how to create a rhythm pattern
- I know how to experiment with sound using a computer
- I know how to use a computer to create a musical pattern
- I know how to review and refine my computer work

New vocabulary:

Pattern, rhythm, pulse, pitch, tempo, notes, instrument, create, emotion, beat, open, edit