



## Computing Progression of Skills



### Early Years Foundation Stage

Although the ‘Technology’ strand has now been removed from ‘Understanding the World’ section in Development Matters we know how important technology is and will be for the lives of the children we teach.

Birth – 3	3 and 4 year olds	Children in Reception	Early Learning Goals
<ul style="list-style-type: none"> <li>• I can anticipate repeated sounds, sights and actions, e.g. when an adult demonstrates an action toy several times</li> <li>• I show interest in toys with buttons, flaps and simple mechanisms and begins to learn to operate</li> </ul>	<ul style="list-style-type: none"> <li>• Seeks to acquire basic skills in turning on and operating some digital equipment</li> <li>• Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support</li> <li>• Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets</li> <li>• Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images</li> <li>• Knows that information can be retrieved from digital devices and the internet</li> </ul>	<ul style="list-style-type: none"> <li>• Completes a simple program on electronic devices</li> <li>• Uses ICT hardware to interact with age-appropriate computer software</li> <li>• Can create content such as a video recording, stories, and/or draw a picture on screen</li> <li>• Develops digital literacy skills by being able to access, understand and interact with a range of technologies</li> <li>• Can use the internet with adult supervision to find and retrieve information of interest to them</li> </ul>	

## Computers and Networks

**Year 1**

**Year 2**

**Year 3**

**Year 4**

**Year 5**

**Year 6**

### Overview

**Year 1** pupils will know examples of technology around them and learn how to use a keyboard for typing letters and numbers.

**Year 2** pupils will find out about technology in the wider world and understand how technology can make tasks easier and safer.

**Year 3** pupils will learn about how a school network works and what a url is. Pupils will begin to learn how to use a search engine effectively.

**Year 4** pupils will explore online safety by learning what to share, how to share images, when it's okay to reuse them, and how images can be manipulated.

**Year 5** pupils will explore and/or search to find information and know which factors determine a website's ranking.

**Year 6** pupils will investigate how to check the credibility of information on the world Wide Web and explore how to evaluate a website. They will learn more about copyright.

### Key knowledge

1.1 Know that technology can help us.

1.2 Know and can name examples of technology.

1.3 Know that a keyboard is used for typing letters and numbers.

1.4 Know how to type my name using a tablet keyboard.

1.5 Know how to tap a screen on an iPad to make something

2.1 Know that digital technology is used in school to make tasks easier.

2.2 Know that different people in school use technology for different purposes.

2.3 Know that digital technology is used widely in our world to make tasks easier and safer.

2.4 Know that barcodes and QR codes can communicate

3.1 Know how school networks work.

3.2 Know and can name some input and output devices

3.3 Know what the internet is.

3.4 Know that the internet provides multiple services.

3.5 Know how to use a search engine to access a website.

3.6 Know how to begin to refine

4.1 Know that photo editing can be used to alter images.

4.2 Know that some things can and cannot be shared on the World Wide Web.

4.3 Know how to access the World Wide Web.

4.4 Know that images and content on the internet have owners.

4.5 Know that owners need to be credited and give permission

5.1 Know what a Boolean search is and why they are useful.

5.2 Know how to identify the purpose, content and design of a website.

5.3 Know how to use advanced search operators.

6.1 Know that it is important to check a website for credibility and reasonableness.

6.2 Know that users can compare websites and identify hoaxes.

6.3 Know that media can be copyrighted and not used without permission.

6.4 Know how to evaluate a website.

6.5 Know how to identify false or

	happen.	information very quickly.  2.5 Know how to use a QR code.	searches	for their photos to be used.  4.6 Know how to identify features of photo editing.  4.7 Know how to use editing techniques to improve the composition of photos.  4.8 Know how to use editing techniques to create a series of images.  4.9 Know how to explain the techniques chosen and why they have been used.		misleading information.  6.6 Know how to search for appropriate images to use.
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### Word Processing & Functional Knowledge

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Overview</b>	<p><b>Year 1</b> pupils add simple captions and images to a document and make changes to the font. They will learn some of the keys on the keyboard.</p> <p><b>Year 2</b> pupils will look at how text and images can be laid out on a digital book and how content can be moved around.</p> <p><b>Year 3</b> pupils will learn how to add text into a word processing document. They will choose fonts that suit the purpose of the document and increase their knowledge of the keyboard. They will learn how to use numbered and bullet pointed lists.</p> <p><b>Year 4</b> pupils will use tables and learn how to insert images into word processing documents. They will change the formatting of the whole document to suit its purpose. They will learn to copy and paste appropriate text and images.</p> <p><b>Year 5</b> pupils will learn how to use formatting and transitions to design the layout of a presentation and use hyperlinks to move easily within the presentation.</p> <p><b>Year 6</b> pupils will learn how documents are stored on the World Wide Web to help work collaboratively</p>					

<b>Key knowledge</b>	1.1 Know that text and images should communicate information clearly.	2.1 Know that text should stand out.	3.1 Know that it is important to edit fonts to suit the audience and purpose of a document.	4.1 Know that it is necessary to change the formatting of text to suit the document.	5.1 Know some ways a presentation is different from a word-processed document.	6.1 Know that the internet relies on sending complex messages between computers.
	1.2 Know that images and text can be inserted into a digital device.	2.2 Know that digital books can be easily edited.	3.2 Know how to enter text into a word processing document and change the font.	4.2 Know that tables can be used to organise information.	5.2 Know that hyperlinks can be used as shortcuts to move between slides.	6.2 Know that packets of information are sent between routers using the shortest route.
	1.3 Know that changing the font, size and colour of text can make it easier to read.	2.3 Know that pages in books can be designed with different layouts.	3.3 Know how to select text.	4.3 Know how to enter text and images into a word processing document.	5.3 Know that effective formatting and slide masters can improve a presentation.	6.3 Know that the internet can be used for collaborative working.
	1.4 Know how to use a digital device to take a photograph.	2.4 Know how to add and edit text and images.	3.4 Know how to use numbered and bullet pointed lists.	4.4 Know how to copy and paste into a word processing document.	5.4 Know how to create a new presentation with text and images.	6.4 Know how to access shared files stored online.
	1.5 Know how to use the shift, spacebar and delete keys.	2.5 Know how to make text and images stand out.			5.5 Know how to use formatting options.	
		2.6 Know how to add and edit layouts.			5.6 Know how to add hyperlinks to a presentation.	
		2.7 Know how to add audio content to a digital book.				

<b>Creating Media</b>						
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Overview</b>	<b>Year 1</b> pupils will learn about the basic multimedia tools of video and audio and how to record video and audio.					
	<b>Year 2</b> pupils will investigate how to take photographs and make simple edits.					
	<b>Year 3</b> pupils will explore the difference between print and video presentations and how to edit video and audio.					

<b>Key knowledge</b>	<p><b>Year 4</b> pupils will build on prior learning from Year 2 to create moving pictures through animation and understand terms such as ‘frames’ and ‘onion skinning’.</p> <p><b>Year 5</b> pupils will record a series of video clips and edit them appropriately into a video, adding and recording suitable sounds.</p> <p><b>Year 6</b> pupils will plan and add multimedia content to a website.</p>					
	<p>1.1 Know that adding audio to an image can make it more interesting.</p> <p>1.2 Know that voices can be recorded and played back using a digital device.</p> <p>1.3 Know how to animate a picture.</p> <p>1.4 Know how to play back an animation.</p> <p>1.5 Know how to record the movements made on a screen and play them back.</p>	<p>2.1 Know that different devices can be used to take photographs.</p> <p>2.2 Know that photos can be taken in both landscape and portrait formats.</p> <p>2.3 Know that digital images can be changed.</p> <p>2.4 Know that different photos will look better in portrait or landscape format.</p> <p>2.5 Know how to use a tool to achieve a desired effect.</p>	<p>3.1 Know that good designs need careful choices for fonts, colours and layouts.</p> <p>3.2 Know that there are differences between print and video presentations.</p> <p>3.3 Know how to use graphic design features to create a poster.</p> <p>3.4 Know how to use a range of video, presentation and audio tools.</p>	<p>4.1 Know that onion skinning can be used to help create a stop-motion animation.</p> <p>4.2 Know that editing can affect the effectiveness of an animation.</p> <p>4.3 Know that storyboards can be used to plan animations.</p> <p>4.4 Know how to film a stop-motion animation.</p> <p>4.5 Know how to edit and improve an animation.</p> <p>4.6 Know how to add effects to a project.</p>	<p>5.3 Know how to record a video.</p> <p>5.4 Know how to create a series of scenes and videos.</p> <p>5.5 Know how to make use of a range of visual effects and filming techniques .</p> <p>5.6 Know how to create and add text, video, sound and other effects to a video presentation.</p>	<p>6.1 Know that websites have different purposes.</p> <p>6.2 Know that interactive features can improve a website.</p> <p>6.3 Know how to identify features of website layouts.</p> <p>6.4 Know how to layout a website to make it visually appealing.</p> <p>6.5 Know how to add text, images and layout features to a website.</p>

<b>Data and Information</b>						
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Overview</b>	<p><b>Year 1</b> pupils will collect data using simple tally charts and organise using pictograms.</p> <p><b>Year 2</b> pupils will learn to use bar graphs to sort data by attributes.</p> <p><b>Year 3</b> pupils will learn about branching databases and how data can be sorted into groups using their attributes through simple yes/no questions.</p>					

**Year 4** pupils will learn how to gather data using data loggers and view and interpret data from a graph. They will learn that data can be collected digitally.

**Year 5** pupils will learn to sort and filter data by their attributes and create a flat-file searchable database

**Year 6** pupils will organise data in a spreadsheet and learn how to use formulae to sort and manipulate data

**Key knowledge**

1.1 Know that objects can be sorted into different groups.

1.2 Know that pictograms can be used to answer questions about data.

1.3 Know that data in digital pictograms can be changed easily.

1.4 Know how to label objects.

1.5 Know how to explain how objects have been grouped.

1.6 Know how to create a digital pictogram.

2.1 Know that data can be presented in different ways

2.2 Know how to record data in a tally chart.

2.3 Know how to collect and organise data.

2.4 Know how to use a computer to create a bar chart.

3.1 Know that it is helpful to group items evenly using common features.

3.2 Know how to create closed questions.

3.3 Know how to create and use an online branching database.

4.1 Know that tables can be used to organise data.

4.2 Know that data loggers use sensors to collect data.

4.3 Know how to identify data attributes and values.

4.4 Know how to use a stopwatch to collect data.

4.5 Know how to use a range of data loggers to gather data.

4.6 Know how to work with various forms of input.

4.7 Know how to use a computer to view data in different ways.

4.8 Know how to interpret data that has been collected using a data logger

5.1 Know that information can be recorded as data.

5.2 Know that a database can contain records cards, fields and attributes

5.3 Know that a database can be sorted using filters.

5.4 Know how to use common operands to filter data.

5.5 Know how to query a database using keywords and filters, for example using 'greater than', 'equal to' and 'contains'.

5.6 Know how to organise data by designing fields and entering records in a database, checking for accuracy.

6.1 Know that spreadsheets can be used to perform calculations.

6.2 Know that spreadsheets can be used to create charts.

6.3 Know how to organise and present data in a spreadsheet.

6.4 Know how to write a formula to answer a question

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Overview	<p><b>Year 1</b> pupils begin to explore how data can be represented by sounds and know how to make simple sounds and rhymes using technology.</p> <p><b>Year 2</b> pupils will look at data that can be represented as drawings and create raster images.</p> <p><b>Year 3</b> pupils will create a video and add appropriate audio.</p> <p><b>Year 4</b> pupils will investigate vector graphics and use layering and grouping to draw images.</p> <p><b>Year 5</b> pupils will edit data as sound through podcasts.</p> <p><b>Year 6</b> pupils will use layering and grouping on a computer to produce 3D models through CAD</p>					
Key knowledge	<p>1.1 Know that sounds can be recorded.</p> <p>1.2 Know that sounds can be arranged to create tracks.</p> <p>1.3 Know how to make a rhythmic pattern using a music app.</p> <p>1.4 Know how to record and save sounds.</p> <p>1.5 Know how to use recorded sounds in a music editing app.</p>	<p>2.1 Know that paint tools can be used to draw a digital picture.</p> <p>2.2 Know that it is possible to change digital colours and brush sizes.</p> <p>2.3 Know how to make marks on a screen.</p> <p>2.4 Know how to explain which tools have been used.</p> <p>2.5 Know how to use the shape and line tools.</p> <p>2.6 Know how to use the fill tool.</p> <p>2.7 Know how to create a picture in the style of an artist.</p>	<p>3.1 Know that storyboards can be used to plan films.</p> <p>3.2 Know how to record a film clip.</p> <p>3.3 Know how to edit a video using appropriate software.</p> <p>3.4 Know how to choose an appropriate soundtrack to convey emotion in a film.</p>	<p>4.1 Know that vector graphics can be used to create designs.</p> <p>4.2 Know that layering can be used to create depth in a design.</p> <p>4.3 Know that grouping can be used to support designs.</p> <p>4.4 Know how to draw and fill basic shapes on screen.</p> <p>4.5 Know how to draw and layer objects to form an image.</p> <p>4.6 Know how to copy and paste a design.</p>	<p>5.1 Know that loops can be edited and layered to create different effects.</p> <p>5.2 Know how to record a voice and edit it.</p> <p>5.3 Know how to layer sounds and music to enhance a voice recording.</p> <p>5.4 Know how to download a podcast as an MP3 or AAC (Advanced Audio Coding) file.</p>	<p>6.1 Know that objects can be manipulated by resizing, moving and rotating them.</p> <p>6.2 Know that there are some benefits to using 3D computer designs.</p> <p>6.3 Know how to create objects on screen as part of a 3D model.</p> <p>6.4 Know how to use grouping as part of a 3D model.</p> <p>6.5 Know how to create a 3D design with a purpose.</p>

Online Safety						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Overview</b>	<p>Pupils receive a dedicated lesson each half term that is specifically centred around one of the 8 themes of 'Education for a Connected World'. These lessons serve as an introduction to the range of issues they will explore in their information technology or digital literacy units that term. Links to the 8 themes of Education for a Connected World framework are made at the bottom of each of the Common Sense Media Lessons.</p>					
	<p><b>Education for a Connected World</b></p> <p>Self Image &amp; Identity -----            Online Relationships -----            Online Reputation -----            Online Bullying -----            Managing Online Information -----            Health, Wellbeing and Lifestyle -----            Privacy and Security -----            Copyright and ownership -----</p>			<p><b>Common Sense Education</b></p> <p>Media Balance &amp; Well-Being            Relationships &amp; Communication            Relationships &amp; Communication            Cyberbullying, Digital Drama &amp; Hate Speech            News &amp; Media Literacy            Media Balance &amp; Well-Being            Privacy &amp; Security            News &amp; Media Literacy</p>		
<b>Key knowledge</b>	<p>1.1 Know when and why to take breaks from device time.</p> <p>1.2 Know that it is important to consider the feelings of people around me, even when using fun online activities.</p> <p>1.3 Know that it's important to be aware and respectful of people while using devices.</p> <p>1.4 Know that the internet can be used to visit faraway places and learn new things.</p> <p>1.5 Know how staying safe online is similar to</p>	<p>2.1 Know that it is important to be safe, responsible and respectful online.</p> <p>2.2 Know what to do when they don't have a good feeling when using technology.</p> <p>2.3 Know how to identify websites and apps that are "just right" and "not right" for us.</p> <p>2.4 Know how to get help from an adult if they are unsure about a website.</p>	<p>3.1 Know that being a good digital citizen means being safe and responsible online.</p> <p>3.2 Know how to recognise the ways in which digital devices can be distracting.</p> <p>3.3 Know how to recognise the kind of information that is private.</p> <p>3.4 Know that they should never give out private information online.</p> <p>3.5 Know that information shared online leaves a digital footprint or "trail".</p>	<p>4.1 Know how to identify examples of online responsibilities to others.</p> <p>4.2 Know that a strong password is important.</p> <p>4.3 Know how to create a memorable and strong password.</p> <p>4.4 Know how posting selfies or other images will lead others to make assumptions about them.</p> <p>4.5 Know how to identify ways they can post online to best reflect who they are.</p> <p>4.6 Know what a</p>	<p>5.1 Know how to evaluate how healthy different types of media choices are.</p> <p>5.2 Know some of the reasons why people share information about themselves online.</p> <p>5.3 Know that there is a difference between private and personal information.</p> <p>5.4 Know that it is risky to share private information online.</p> <p>5.5 Know what a digital footprint is and how to contribute to it.</p>	<p>6.1 Know what "media balance" means and how it applies to them.</p> <p>6.2 Know how clickbait uses the curiosity gap to get your attention.</p> <p>6.3 Know how to use strategies for avoiding clickbait.</p> <p>6.4 Know how to define "gender stereotypes" and describe how they can be present online.</p> <p>6.5 Know how gender stereotypes can lead to unfairness or bias.</p>

	staying safe in the real world.	2.5 Know when and why to take breaks from device time.	3.6 Know what information is OK to be shared online.	community is, both in person and online.	5.6 Know how to describe the positives and negatives of social interaction in online games.	6.6 Know that there are benefits and risks of online-only friendships.
	1.6 Know how to explain rules for travelling safely on the internet.	2.6 Know why it is important to not share passwords.	3.7 Know how people can connect on the internet.	4.7 Know that it's important to think about the words we use, because everyone interprets things differently.	5.7 Know what cyberbullying is.	6.7 Know how to respond to an online-only friend if the friend asks something that makes them feel uncomfortable.
		2.7 Know how to explain rules for travelling safely on the internet.	3.8 Know what online meanness can look like and how it can make people feel.	4.8 Know how to decide what kinds of statements are OK to say online and which are not.	5.8 Know what "copyright" is and explain how it applies to creative work.	6.8 Know that there are similarities and differences between in-person bullying, cyberbullying and being mean.
			3.9 Know how to respond to mean words online.	4.9 Know that photos and videos can be altered digitally.	5.9 Know how to apply copyright principles to real-life scenarios.	6.9 Know how to identify strategies for dealing with cyberbullying and ways they can be an upstander for those being bullied.
			3.10 Know how giving credit is a sign of respect for people's work.	4.10 Know how to identify different reasons why someone might alter a photo or video.		6.10 Know the purposes of different parts of an online news page.
			3.11 Know how to give credit for content used from the internet.			6.11 Know about things to watch out for when reading online news pages, such as sponsored content and advertisements.

<b>Physical Computing</b>					
<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>

<b>Key knowledge</b>	1.1 Know that predictions can be made about what might happen.	2.1 Know that an algorithm is a series of instructions.	3.1 Know that loops can be used to repeat commands	4.1 Know that conditionals will only run if something is 'true'.	5.1 Know that conditionals can be used in order to trigger events.	6.1 Know how to create a variable to track and record data.
	1.2 Know that a command is an instruction for controlling a robot.	2.2 Know how to follow multi-step instructions given by someone else.	3.2 Know that a variable holds changing information	4.2 Know that loops can be used to indicate how often a sequence will run.	5.2 Know how to program multiple inputs and outputs.	6.2 Know how to connect a Micro:bit.
	1.3 Know that robots can follow a sequence of instructions.	2.3 Know how to give clear instructions.	3.3 Know how to use sequencing to create an animation.	4.3 Know that variables can be used to trigger outputs.	5.3 Know how to use loops with conditionals.	6.3 Know how to program multiple inputs.
	1.4 Know how to run a command.	2.4 Know how to write an algorithm.	3.4 Know how to program multiple inputs.	4.4 Know how to use sensors as inputs.		6.4 Know what a variable is and how they can be used in a program.
	1.5 Know how to follow a series of instructions.	2.5 Know how to test and debug part of a program.		4.5 Know how to use loops when programming.		6.5 Know how to create a variable and link it to different events.
	1.6 Know how to program a robot to follow instructions.					

<b>Computer Science</b>						
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Key knowledge</b>	1.1 Know that blocks of code can be used to control an on-screen sprite.	2.1 Know that loops can be used to reduce the number of blocks of code used.	3.1 Know that predictions can be used to help find solutions to problems.	4.1 Know that bugs are errors in a program and can be fixed with debugging.	5.1 Know how to create new sprites and assign them costumes and behaviours.	6.1 Know that computer simulations can be used to collect data about a model.
	1.2 Know that commands must be sequenced in a logical order.	2.2 Know that there are benefits of loops rather than manual repetition.	3.2 Know that programs can be modified to remove bugs.	4.2 Know that nested loops can make a program more efficient.	5.2 Know that prior knowledge can be applied in different environments.	6.2 Know that AI plays a role in everyday life.
						6.3 Know that events

	<p>1.3 Know that codes can be repeated.</p> <p>1.4 Know that a loop block can be used to repeat instructions.</p> <p>1.5 Know how to program a virtual robot to follow instructions.</p> <p>1.6 Know how to click and drag blocks.</p> <p>1.7 Know how to begin to debug a simple program.</p> <p>1.8 Know how to break down a long sequence of instructions.</p>	<p>2.3 Know that blocks of code can be used to create sequences.</p> <p>2.4 Know how to break down long sequences using loops.</p> <p>2.5 Know how to use simple event blocks.</p> <p>2.6 Know that event blocks can trigger behaviours.</p>	<p>3.3 Know how to find a bug and attempt to fix it.</p> <p>3.4 Know how to use loops to make a program more efficient.</p> <p>3.5 Know how to make a game using multiple event blocks</p>	<p>4.3 Know that conditionals only run if something is 'true'.</p> <p>4.4 Know how to find and correct bugs in a program.</p> <p>4.5 Know how to use a greater range of event blocks.</p> <p>4.6 Know how to use nested loops.</p> <p>4.7 Know how to use conditionals.</p>	<p>5.3 Know how to create an interactive computer program.</p> <p>5.4 Know how to create groups of sprites, and control a single sprite from the group using events.</p> <p>5.5 Know how to use a conditional statement to check for a winning score</p> <p>5.6 Know how to use a variable that stores information and changes over time.</p> <p>5.7 Know how to assign sprites and develop game mechanics.</p> <p>5.8 Know that functions can be used to simplify complex programs.</p> <p>5.9 Know how to use predetermined functions to complete tasks.</p> <p>5.10 Know how to code simple functions to complete tasks.</p>	<p>are actions which trigger behaviours in a program.</p> <p>6.4 Know, and be able to give examples of, what a variable is.</p> <p>6.5 Know how to use more complex events to change how a program runs.</p> <p>6.6 Know how to recognise a variable in a program.</p> <p>6.7 Know how to create and control multiple sprites.</p> <p>6.8 Know how to train and test an AI machine.</p>
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					<p>5.11 Know that conditionals can be used to trigger events.</p> <p>5.12 Know how to use loops with conditionals.</p>	
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