

## Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- responsible, competent, confident and creative

## Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

### Key stage 1

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

## **Key stage 2**

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.

## **Inclusion**

Information taken from the Teacher Handbook: SEND – Embedding inclusive practice pg 109

### **Planning inclusive lessons**

Tasks – Incorporate learning materials that are accessible for learners of all abilities using specific resources or approaches that allow everyone to access the curriculum. Scaffold learning so that learners benefit from support in the initial stages of learning.

Problem Solving – Encourage learners to take ownership of their own learning. If the learner struggles with a multi-step problem, allow for additional support at the beginnings and slowly remove support as their skill set grows.

High Expectations – Challenge learners (and yourself) to keep high expectations and look for opportunities to connect learning to personal experience, meaning learning is relatable and purposeful.

Vocabulary – Find opportunities for learners to encounter tier 2 words. This will empower them to access their learning and communicate and understand ideas across the curriculum.

Vision impairment – Consider the use of braille where necessary, consider colours of resources, using screen readers and magnifier aids.

Space – Arrange the workspace so that children can fully engage with their learning, including children who need support with mobility.

**Reception** – See curriculum – EYFS Computing curriculum 23-24

Curriculum strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Digital Literacy</b>  <b>Information Technology</b>  <b>PowerPoint</b>	Turning the device on and off  Logging onto the device  Loading PowerPoint  Insert an image  Enter text into a text box  Open folders	Turning the device on and off  Logging onto the device  Loading PowerPoint  Change font size and style  Add pages/slides  Open folders  Insert an image  Manipulate a text box and enter text	Computing systems and networks. Children to develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. Also compare digital and non-digital devices.	Open and save files  Cut and paste images  Create and manipulate a text box  Change font size and style  Add pages/slides  Add transitions and effects to images and text.  Change background  Change themes	Open and save files  Cut and paste images  Create and manipulate a text box  Change font size and style  Add pages/slides  Add transitions and effects to images and text.  Change background  Add sound/movie  Change themes  Add buttons and page links  Add animations/transitions from slide to slide.	Use skills learned from previous years to create a presentation.
				Year4/5 Children to be taught all points with the		

				expectation that Year 5 have the opportunity to complete additional points		
<b>Vocabulary</b>	Cut, Paste, PowerPoint	Cut, Paste, PowerPoint ,Font, Edit	Cut, Paste, PowerPoint ,Font, Edit, Input, Output, Process, Digital device	Cut, Paste, PowerPoint ,Font, Edit, Input, Output, Process, Digital device, theme	Cut, Paste, PowerPoint ,Font, Edit, Input, Output, Process, Digital device, theme, Animations, Transitions, Links, Buttons	Cut, Paste, PowerPoint ,Font, Edit, Input, Output, Process, Digital device, theme, Animations, Transitions, Links, Buttons
<b>Assessment Questions</b>	How do you insert an image?  How do you enter text into a text box?	Can you explain how to open folders?  How do you manipulate a text box?  How do you add slides to a PowerPoint presentation?	What is an input?  What is a process?  What is an output?	How do you add animations to your PowerPoint?  How do you add transitions?  How do you add a theme to your presentation?	How do you add buttons and page links?  How do you add transitions between slides?	How do previous skills learnt help you to create an effective presentation?
<b>Knowledge</b>	I know that I need a password and username to log	I know that I need a password and username to log	I can explain that digital devices accept inputs	I know that to add animations I need to select the add animation button and	I know that to add buttons and links I need to add an action button and assign a	I know how to use all previous skills and knowledge to create a

	<p>onto a device</p> <p>I know that I need to double click to open a folder</p> <p>I know that I need to click inside a text box before I am able to enter text</p>	<p>onto a device</p> <p>I know that I need to right click to copy and image and right click again to paste</p> <p>To be able to navigate to 'change font style' and to then select the desired font and style of the text</p> <p>I know that to add a slide I need to click the add slide button</p>	<p>I can explain that digital devices produce outputs</p> <p>I can recognise different connections</p> <p>I can demonstrate how information can be passed between devices</p>	<p>apply my chosen animation to my text/image</p> <p>I know that to change the background I need to select the design tab and select my preferred background</p>	<p>specific action to that button</p> <p>I know that to add animations I need to select the add animation button and apply my chosen animation to my text/image</p> <p>I know that to add transitions I need to select the animations tab and select my desired transition</p> <p>I know that to add sound I must select insert – sound – and select a clip art sound or a sound file I have saved</p>	<p>presentation on a topic of my choice</p>
<p><b>Digital Literacy</b></p> <p><b>Research</b></p>	<p>Turning the device on and off</p> <p>Logging onto the device</p> <p>Using the user interface (mouse</p>	<p>Logging onto the device</p> <p>Using the user interface (mouse pad and keyboard) to navigate dashboard/internet</p>	<p>Learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider</p>	<p>Use a safe search for images</p> <p>Use a safe search to locate specific information on a given topic</p>	<p>Use a safe search for images</p> <p>Use a safe search to locate specific information on a given topic</p>	<p>Use a safe search for images</p> <p>Use a safe search to locate specific information on a given topic</p>

	<p>pad and keyboard) to navigate dashboard</p> <p>Scrolling up and down</p> <p>Clicking left and right buttons</p> <p>Become familiar with the keyboard (enter/space/caps lock)</p>	<p>Scrolling up and down</p> <p>Clicking left and right buttons</p> <p>Become familiar with the keyboard (enter/space/caps lock)</p> <p>Use a safe search for images</p> <p>Use a safe search to locate specific information on a given topic</p>	<p>careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms ‘templates’, ‘orientation’, and ‘placeholders’ and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.</p>	<p>Use a safe search to answer a given question.</p> <p>How to spot a reliable source</p> <p>Use a safe search to find information to support a subject area</p>	<p>Use a safe search to answer a given question.</p> <p>How to spot a reliable source</p> <p>Use a safe search to find information to support a subject area</p> <p>How to filter and use certain words to support to develop an efficient search</p>	<p>Use a safe search to answer a given question.</p> <p>How to spot a reliable source</p> <p>Use a safe search to find information to support a subject area</p> <p>How to filter a search</p> <p>How to use certain words to support to develop an efficient search</p> <p>Cross reference information found to determine validity</p>
				Year4/5 Children to be taught all points with the expectation that Year 5 have the opportunity		

				to complete additional points		
<b>Vocabulary</b>	Click, Screen Mouse pad, Space bar, Computer, world wide web	Interface, Navigate, Safe, Click, Screen , Mouse pad, Screen, Shift, Space bar Computer Technology, world wide web	Interface, Navigate, Safe, Click, Screen , Mouse pad, Screen, Shift, Space bar Computer Technology, Password, personal information, private. World wide web	Interface, Navigate, Safe, Click, Screen , Mouse pad, Screen, Shift, Space bar Computer Technology, Password, personal information, private. World wide web, command, evaluating	Interface, Navigate, Safe, Click, Screen , Mouse pad, Screen, Shift, Space bar Computer Technology, Password, personal information, private. World wide web, command, evaluating, acceptable/unaccept able behaviours	Interface, Navigate, Safe, Click, Screen , Mouse pad, Screen, Shift, Space bar Computer Technology, Password, personal information, private. World wide web, command, evaluating, acceptable/unacce ptable behaviours, encryption
<b>Assessment Questions</b>	How do you log onto a device?  How do you turn on caps lock?	How do you log onto a device?  How do you search the internet for something specific?  How do you know if a search is safe?	How can text and images be used to communicate messages?  Why is size, font type, colour important when creating a document for a specific purpose?  How do 'templates', 'orientation', and 'placeholders' support	How do you ensure you use a safe search for specific information?  What can you do to ensure your searches are relevant to your subject areas? (E.G. searching for key words etc.)	How do you ensure you use a safe search for specific information?  How do you filter a search?  How can you use key words to support an effective search?	How could you help to determine validity of information found? (Cross referencing)  Do you know how to filter a search?  How can you use key words to support an

			you in making your own template for a magazine front cover?			effective search?
<b>Knowledge</b>	<p>To navigate using the keyboard and mouse pad I must use the tips of my fingers gently</p> <p>I understand when and why to use the left and right click buttons</p> <p>To ensure I search safely for images I must use a safe search engine, such as Kiddle</p>	<p>I know that I can use 2 fingers on the mouse pad to scroll up and down or I can use the scroll bar</p> <p>I understand when and why to use the left and right click buttons</p> <p>I know that I need to use key words to find information about a certain topic</p>	<p>I know that size,, font and colour are important because it helps to make the document reach a specific target audience depending on the way it is designed</p>	<p>To spot a reliable source I must cross-reference with other sources and check the author is trustworthy</p> <p>I know that to ensure my search is relevant I need to include key words in my search</p>	<p>To spot a reliable source I must cross-reference with other sources and check the author is trustworthy</p> <p>To filter a search I must select the options most relevant to me and use key words most relevant to my search</p>	<p>To spot a reliable source I must cross-reference with other sources and check the author/URL is trustworthy/valid</p>
<b>Computer Science</b>  <b>Coding</b>	<b>Coding on Scratch Junior</b>  Grab and move the 'move blocks' and click them to run them	<b>Coding on Scratch Junior</b>  Using blockly write a sequence of code for a sprite to follow (create and	Sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most learners. They will be	<b>Code for life</b> Levels 44-60  Understand what algorithms are; how they are implemented as programs on digital	<b>Code for life</b> Levels 61- 79  Understand what algorithms are; how they are implemented as	<b>Code for life</b> Levels 80 – 109 (and create own levels)  Understand what algorithms are;



	Follow the 'get started' tutorial to learn the basics of scratch junior	debug simple programs).  Add and animate a sprite (tutorial videos)	introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit.  This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They then explore movement within the	devices; and that programs execute by following precise and unambiguous instructions  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	programs on digital devices; and that programs execute by following precise and unambiguous instructions  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	how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions  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
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			context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of <b>Pen</b> blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze-tracing program.			how some simple algorithms work and to detect and correct errors in algorithms and programs
				Year4/5 Children to be taught all points with the expectation that Year 5 have the opportunity to complete additional points		
<b>Vocabulary</b>	Algorithm, create, command, organise, sequence, software, store, program	Algorithm, blocks, command, debug, execute, manipulate, organise, scripted, sequence,	Algorithm, block language, command, debug execute, input, output, loops, manipulate organise, program, repetition, scripted, sequence,	Algorithm, block language, command, collaboration, debug, encrypted, execute, HTTP, input, output, loops,	Algorithm, block language, command control, collaboration, debug, decomposition, encrypted, execute,	Algorithm, block language, command, control, collaboration, debug, decomposition,

		software, sprite, store, predict, program, retrieve, reverse, engineer	simulation, sprite, software, store program, physical system, repetition, retrieve, reverse, engineer	manipulate, organise, program, repetition ,scripted, selection, sequence, simulation, sprite, software, store, packets of data, program, physical system, repetition, retrieve, reverse engineer, URL	HTTP, input, output loops, manipulate, organise, program, repetition, scripted, selection, sequence, simulation, sprite, software, store, packets of data, program, physical system, repetition, retrieve, reverse, engineer ,URL, variables	encrypted, execute, hardware, HTTP input, IP address, output, loops, manipulate, organise, program, repetition, scripted, selection, sequence, simulation, sprite, software, store, packets of data, program, physical system, repetition, retrieve, reverse, engineer, URL, variables
Assessment Questions	What are the move blocks for?	<p>What is coding?</p> <p>What does it mean to debug a programme?</p>	<p>What is technology?</p> <p>What are some of the common uses of technology outside of school?</p> <p>Can you design, write and debug programmes? How?</p>	<p>What is an algorithm?</p> <p>How do algorithms work?</p> <p>How do you know if there is an error within an algorithm?</p>	<p>What is an algorithm?</p> <p>How do algorithms work?</p> <p>How do you know if there is an error within an algorithm?</p>	<p>What is an algorithm?</p> <p>How do algorithms work?</p> <p>How do you know if there is an error within an algorithm?</p> <p>How do you fix</p>

						that error?
Knowledge	<p>I know that I have to enter and order instructions to move the sprite</p>	<p>I know that I have to enter and order instructions to move the sprite</p> <p>I know when I need to debug my programme and how to do it</p>	<p>I know what technology can be used for</p> <p>To solve problems I need to ensure I break them into smaller, more manageable parts</p>	<p>I know that to execute a programme, precise and unambiguous instructions need to be followed</p> <p>To solve problems I need to ensure I break them into smaller, more manageable parts</p> <p>I know how simple algorithms work</p> <p>To detect errors in my algorithms and programmes I need to test and evaluate my work</p>	<p>I know that to execute a programme, precise and unambiguous instructions need to be followed</p> <p>To solve problems I need to ensure I break them into smaller, more manageable parts</p> <p>I know how simple algorithms work</p> <p>To detect errors in my algorithms and programmes I need to test and evaluate my work</p>	<p>I know that to execute a programme, precise and unambiguous instructions need to be followed</p> <p>To solve problems I need to ensure I break them into smaller, more manageable parts</p> <p>I know how simple algorithms work</p> <p>To detect errors in my algorithms and programmes I need to test and evaluate my work</p> <p>To create my own, challenging levels on code4life I must use previous knowledge to</p>

						challenge my understanding
<b>Information Technology</b>  <b>Spreadsheets</b>	Explore spreadsheets in paper form  Using Textease CT create a 5 x 5 grid  Enter titles  Enter information	Explore spreadsheets in paper form  Using Textease CT create a 5 x 5 grid  Enter titles  Enter information  Add and remove rows and columns  Edit information on spreadsheet	Branching databases. Develop their understanding of what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. Create physical and on-screen branching databases. Finally, they will evaluate the effectiveness of branching databases and will decide what types of data should be presented as a branching database.	Excel  Create a table of information  Enter titles for rows and columns  Enter information  Use a formula to calculate  Create a graphical representation of the data.	Excel  Create a table of information  Enter titles for rows and columns  Enter information  Use a formula to calculate  Use an 'if' query  Create a graphical representation of the data.	Create a table of information  Enter titles for rows and columns  Enter information  Use a formula to calculate  Use an 'if' query  Answering a question using excel  Create a graphical representation of the data.
				Year4/5 Children to be taught all points with the expectation that Year 5 have the opportunity to complete additional points		

<b>Vocabulary</b>	digital content, digital devices, computer, network	Data, digital content, digital devices, network	Data, digital content, digital devices, network, safe search, mode search, technologies, software	Cached, collecting data, digital content, digital devices, network, safe search, mode search, technologies, server, software	Cached, collecting data, digital content, digital devices, evaluating, network ,safe search, mode search, technologies, server, software	Cached, collecting data, digital content, digital devices, evaluating, network ,safe search, mode search, technologies, server, software
<b>Assessment Questions</b>	What is a spreadsheet used for?  Why do you need to use titles?	How do you create a grid using Textease?  How do you enter information into your Textease table?	<b>How to do convert your table of information into a graphical representation?</b>  <b>How do yes/no questions help with the organising of data?</b>	How do you create a table of information?  How do you use a formula to calculate	How do you create a table of information?  What is an 'if' query?	How do you create a table of information?  What is an 'if' query?  How do you answer a question using excel?
<b>Knowledge</b>	I know that a spreadsheet is used for displaying information  I know that to create a grid using Textease I	I know that to enter information, I need to select the appropriate cell before adding the desired text  I know that to add rows and columns	To create questions with yes/no answers  To identify the object attributes needed to collect relevant data	I know that to create a table of information I need to create a table and enter the information into the desired cells	I know that an 'if' query is used to run a logical test, and reacts differently depending on whether the result is TRUE or FALSE and I use it to test for a specific condition	I know that an 'if' query is used to run a logical test, and reacts differently depending on whether the result is TRUE or FALSE and I use it to test

	need to...	I need to...				for a specific condition
<b>Digital Literacy</b> <b>Photo/Video</b>	Taking photos using learn pads and navigate to the gallery to view them	Taking photos and sending them to a shared area (class cloud)	Creating media – animation. Children will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with learners adding other types of media to their animation, such as music and text	Taking photos/videos and reviewing them  Video an interview and send it via a class cloud  Adding stickers and effects to the photo and video  Use a photo editing package to alter a photo.	Taking photos/videos and reviewing them  Video an interview and send it via a class cloud  Adding stickers and effects to the photo and video  Edit the video using Moviemaker	Taking photos/videos and reviewing them  Video an interview and send it via a class cloud  Adding stickers and effects to the photo and video  Edit the video using Moviemaker  Split and snip video on Moviemaker
				Year4/5 Children to be taught all points with the expectation that Year 5 have the opportunity to complete additional points		
<b>Vocabulary</b>	Review, Device, camera, photograph, capture, image, digital	Review, Device, camera, photograph, capture, image, digital	Review, Device, camera, photograph, capture, image, digital Software, Animation	Review, Device, camera, photograph, capture, image, digital Software, Animation, Effects,  Image, search, save, copyright,	Review, Device, camera, photograph, capture, image, digital Software, Animation, Effects,  Image, search, save, copyright,	Review, Device, camera, photograph, capture, image, digital Software, Animation, Effects,

				composition, edit, save, pixels, crop, rotate, flip  Video, audio, recording, capture, zoom, storage, digital, tape	composition, edit, save, pixels, crop, rotate, flip  Video, audio, recording, capture, zoom, storage, digital, tape	Image, search, save, copyright, composition, edit, save, pixels, crop, rotate, flip  Video, audio, recording, capture, zoom, storage, digital, tape, split and snip
<b>Assessment Questions</b>	How do you take a photo?  How do you view your photos?	How do you share that photo to a shared area such as class cloud?  How do you access the class cloud?	What is an animation?  How do you plan an animation?	How do you share that photo or video to a shared area such as class cloud?  How do add stickers and effects to your photo and video?  What effect does this have on the video?	How do add stickers and effects to your photo and video?  Why would someone need to edit a video?  What affect does different video editing software have on the ability to edit a video?	What affect does different video editing software have on the ability to edit a video?  How do you cut and snip a video?  Why would you need to do this?
<b>Knowledge</b>	I know that to take a photo I need to select the camera option on my device  I know that to	I know that to upload my photo to class cloud, I need to...	To explain that animation is a sequence of drawings or photographs  To relate animated movement with a sequence of images	To upload my photo or video to a shared drive I need to...  I know that to adding effects to my photo or video can help	I know that to adding effects to my photo or video can help improve the quality of the photo or video	I know that to cut and snip I video I need to upload it to a video editing software and chose appropriate sections of the



	view photos I need to select 'gallery' on my device		<p>To plan an animation</p> <p>To identify the need to work consistently and carefully</p> <p>To review and improve an animation</p>	improve the quality of the photo or video		video to cut out that are not needed
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### Year 7 Expectations

- design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching; use logical reasoning to compare the utility of alternative algorithms for the same problem]
- use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions
- understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]
- understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
- understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form

of binary digits

- undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
- create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
- understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns