

Computing curriculum overview

FOUNDATION STAGE

Computing and online safety taught through continuous provision where they explore how technology is used in their everyday life.

YEAR 1

Programming	Creating media	Digital literacy (technology in our lives)	Data and information	Online safety
<p>I can predict the outcome of a command on a device. I can match a command to an outcome. I can choose a series of commands that can be run as a programme.</p> <p>Programming B – Introduction to animation (teachcomputing.org)</p> <p>Resource: Scratch/laptops.</p> <p>Oracy Links: I can use different sentence stems. I can say why I think something. I can have a discussion without the help of an adult.</p> <p>Assessment opportunities: Group discussion throughout each lesson. Add ideas in groups to a padlet at the end of each lesson. Screenshot of commands/scratch.</p>	<p>I can recognise that a keyboard is used to enter text into a computer. I can use letter, number and space keys to enter text into a computer. I can consider the impact of choices made.</p> <p>Creating media – Digital writing (teachcomputing.org)</p> <p>Resource: laptops/keyboards.</p> <p>Oracy Links: I can say why I think something. I can take turns in a group discussion. I can ask for help when I do not understand.</p> <p>Assessment opportunities: Group discussion throughout each session. Add ideas to a padlet at the end of each lesson.</p>	<p>I can explain that technology is something that can help us. I can explain how examples of technology help us. I can identify the main parts of a computer.</p> <p>Computing systems and networks – Technology around us (teachcomputing.org)</p> <p>Resource: Laptops/keyboards/mouse.</p> <p>Oracy Links: I can agree or disagree and say why. I can say why I think something. I can take turns in a group discussion.</p> <p>Assessment opportunities: In groups, children to discuss ideas and these are to be added to the padlet at the end of each lesson.</p>	<p>I can identify some attributes of an object. I can group objects to answer questions. I can describe a group of objects.</p> <p>Data and information – Grouping data (teachcomputing.org)</p> <p>Resource: object/labels/presentation/worksheets.</p> <p>Oracy Links: I can build on other points of view. I can challenge points of view. I can take turns in a group discussion.</p> <p>Assessment opportunities: Group discussion throughout each session on findings and groupings. Add ideas to a padlet at the end of each lesson.</p>	<p>I am kind and responsible. I am safe and secure. I am healthy.</p> <p>See individual half termly lesson plans for progression and learning objectives.</p> <p>Oracy Links: I can say why I think something. I can take turns in a group discussion. I can have a discussion without the help of an adult.</p> <p>Assessment opportunities: Group discussion throughout each session. Teacher to observe and facilitate discussions.</p>
Key vocabulary:	Key vocabulary:	Key vocabulary:	Key vocabulary: Organise, sort	Key vocabulary:

Algorithm, program, programming	Camera roll, photo, save, picture	Phone, tablet, laptop, PC, internet, technology		Trusted adult, online, internet, app/application, permission
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YEAR 2

Programming	Creating media	Digital literacy (technology in our lives)	Data and information	Online safety
<p><u>An introduction to quizzes</u> I can predict the outcome of a sequence of commands I can match two sequences with the same outcome I can change the outcome of a sequence of commands</p> <p>https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms</p> <p>Resource: Scratch, ipads</p> <p>Oracy link: I can use subject specific vocabulary. I can use make appropriate connections between what has been said and my/owns experiences.</p> <p>Assessment opportunities: add to Padlet at the end of each session, group discussion throughout each session, verbal exit ticket at the end of session.</p>	<p><u>Digital photography</u> I can recognise what devices can be used to take photographs I can talk about how to take a photograph I can explain what I did to capture a digital photo</p> <p>https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography</p> <p>Resource: ipads</p> <p>Oracy link: I can use subject specific vocabulary. I can use make appropriate connections between what has been said and my/owns experiences.</p> <p>Assessment opportunities: add to Padlet at the end of each session, group discussion throughout each session, verbal exit ticket at the end of session.</p>	<p><u>Computing systems & networks</u> I can understand what is meant by IT. I know the benefits of IT in the wider world. I can explain how IT is used in different ways.</p> <p>https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us</p> <p>Resource: powerpoint presentation.</p> <p>Oracy link: I can use subject specific vocabulary. I can ask relevant question.</p> <p>Assessment opportunities: add to Padlet at the end of each session, group discussion throughout each session, verbal exit ticket at the end of session.</p>	<p><u>Pictograms</u> I can organise data in a tally chart. I can create a pictogram. I can explain what the pictogram shows.</p> <p>https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms/creating-pictograms</p> <p>Resource: j2e pictograms, laptops</p> <p>Oracy link: I can use subject specific vocabulary.</p> <p>Assessment opportunities: - add to Padlet at the end of each session using target vocabulary - end of session self-assessment in the Excel document itself by adding text comment - Teach Computing summative assessment at end of unit.</p>	<p><u>Online safety</u> I am kind and responsible. I am safe and secure. I am healthy.</p> <p>See individual half termly lesson plans for progression and learning objectives.</p> <p>https://staffonly.somerset.org.uk/sites/edtech/Pages/ActiveBYTES.aspx</p> <p>Oracy link: I can elaborate using detailed descriptions, reasons and examples.</p> <p>Assessment opportunities: group discussion throughout each session, teacher observation throughout each session, exit ticket strategy with a given question linked to session to form a plenary.</p>
Key vocabulary:	Key vocabulary:	Key vocabulary:	Key vocabulary:	Key vocabulary:

Task, Design, Code Running the code, algorithm	Photograph, photo, landscape, portrait.	Browser, website, benefit, reliable	Information, pictogram, branching data, block graph/bar graph	Attachment, block, browser, console, chat, log off/on, consent
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YEAR 3

Programming	Creating media	Digital literacy (technology in our lives)	Data and information	Online safety
<p>I can build a sequence of commands. I can combine commands in a program. I can order commands in a program. I can create a sequence of commands to produce a given outcome (a musical instrument).</p> <p>Programming A – Sequence in music (teachcomputing.org)</p> <p>Oracy link: I can use specialist vocabulary.</p> <p>Assessment opportunities: add to Padlet at the end of each session using target vocabulary, peer assessment using comments on blocks in Scratch.</p>	<p>I can show that page orientation can be changed. I can move, resize and rotate images. I can add and edit text to a placeholder. I can organise text and images placeholders in a page layout. I can review a document.</p> <p>Creating media – Desktop publishing (teachcomputing.org)</p> <p>Oracy links: I can vary the tone of my voice for effect I can consider my position and posture when addressing an audience.</p> <p>Assessment opportunities: Add to Padlet at the end of each session, save PPT presentations.</p>	<p>Dance Mat Typing (10 minutes per lesson)</p> <p>Search for information online (warm ups).</p> <p>Look at age appropriate search engines (English and linked through all lessons)</p> <p>I can describe what an input is. I can explain how computer systems can change the way that we work. I can recognise that computers can be connected to each other.</p> <p>https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers</p> <p>Oracy link: I can use speech to reach a shared agreement.</p> <p>Assessment opportunities: add to Padlet at the end of each session, group discussion throughout each session, verbal exit ticket at</p>	<p>Collect and show data using Excel (3x lessons with statistics in Spring).</p> <p>I can create questions with yes/no answers. I can choose questions that will divide objects into evenly sized subgroups. I can repeatedly create subgroups of objects. I can identify an object using a branching database. I can retrieve information from different levels of the branching database.</p> <p>nccce.io/minibtree</p> <p>Creating media – Desktop publishing (teachcomputing.org)</p> <p>Oracy link: I can use specialist vocabulary.</p> <p>Assessment opportunities: Add to Padlet at the end of each session using target vocabulary, end of session self-assessment in the Excel document itself by adding text comment, save Excel documents.</p>	<p>I am kind and responsible. I am safe and secure. I am healthy.</p> <p>See individual half termly lesson plans for progression and learning objectives.</p> <p>Oracy link: I can summarise a discussion. I can use speech to reach a shared agreement. I can value other people's contributions to a discussion I can invite others to join a discussion.</p> <p>Assessment opportunities: group discussion throughout each session, teacher observation throughout each session, exit ticket strategy with a given question linked to session to form a plenary</p>

		the end of session (identify which words are key for a given search).		
Key vocabulary: Animate, sequence, sprite, Scratch, software	Key vocabulary: Touch type, eBook, PowerPoint, narration	Key vocabulary: Search engine, search, age appropriate, search query	Key vocabulary: Collect, show, table, data	Key vocabulary: Pop up, forum, cookie, cyberbullying, link, password

Key skills to cover across all areas:

- *File management* (naming conventions, saving work, saving images, organising folders)
- *Microsoft Word:* inserting pictures which are saved as files on the computer into a word document; copying and pasting pictures from the internet; inserting text boxes; inserting tables; changing font style and colour; formatting text.
- *Microsoft Excel:* data input and creation of graphs; reading data.

YEAR 4

Programming	Creating media	Digital literacy (technology in our lives)	Data and information	Online Safety
<p>I can identify patterns in sequence. I can identify a loop within a program. I can identify patterns in a sequence</p> <p>Programming B – Repetition in games (teachcomputing.org)</p> <p>Oracy links: I can use age related sentence structures when speaking.</p> <p>Assessment opportunities: add to Padlet at the end of each session. Summative assessment quiz. Screenshot of commands with padlet explanation post-its.</p> <p>Resource: Scratch</p>	<p>I can use an application to change a whole image. I can apply effects to a digital image. I can choose the most appropriate tool for a particular purpose.</p> <p>Creating media – Photo editing (teachcomputing.org)</p> <p>Oracy links: I can speak fluently in Standard English. I can make effective language choices.</p> <p>Assessment opportunities: add to Padlet at the end of each session. Summative assessment quiz. Screenshot of commands with padlet explanation post-its.</p>	<p>I can explain that the global interconnection of networks is the internet. I can explain how the content of the World Wide Web is created, owned, and shared by people. I can explain the benefits of the World Wide Web.</p> <p>Computing systems and networks – The Internet (teachcomputing.org)</p> <p>Oracy link: I can understand when others disagree without taking it personally.</p> <p>Assessment opportunities: complete a table of online do's and don'ts when online (link to E-Safety lesson).</p> <p>Resource: world wide web, computer systems, search engines</p>	<p>I can suggest questions that can be answered using a table of data. I can use a digital device to collect data automatically. I can use a computer program to sort data by one attribute.</p> <p>Data and information – Data logging (teachcomputing.org)</p> <p>Oracy links: I can establish roles within formal discussions.</p> <p>Assessment opportunities: Add to Padlet at the end of each session using target vocabulary.</p>	<p>I am kind and responsible. I am safe and secure. I am healthy.</p> <p>See individual half termly lesson plans for progression and learning objectives.</p> <p>Oracy links: I can speak fluently in Standard English. I can justify my opinions. I can establish roles within formal discussions.</p> <p>Assessment opportunities: group discussion throughout each session, teacher observation throughout each session, exit ticket strategy with a given question linked to session to form a plenary</p>

	Resources: Get paint www.getpaint.net BeFunky app (www.befunky.com) LunaPic (www341.lunapic.com/editor)			
Key vocabulary: Scratch, programming, sprite, blocks, code, loop, repeat, value	Key vocabulary: Image, edit, digital, crop, rotate, undo, save	Key vocabulary: Internet, network, router, network security	Key vocabulary: Data, table, layout	Key vocabulary: Download, in-app purchasing, selfie, post

Key skills to cover across all areas:

- *File management* (naming conventions, saving work, saving images, organising folders)
- *Microsoft Word*: inserting pictures which are saved as files on the computer into a word document; copying and pasting pictures from the internet; inserting text boxes; inserting tables; changing font style and colour; formatting text.
- *Microsoft Excel*: data input and creation of graphs; reading data.

YEAR 5

Programming	Creating media	Digital literacy (technology in our lives)	Data and information	Online safety
<p><u>Selection in physical computing</u> I can design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts I can use sequence, selection, and repetition in ograms; work with variables and various forms of input and output I can use logical reasoning to explain how some simple algorithms work and to detect and</p>	<p><u>Vector drawing:</u> I can add, select and delete objects. I can group and reposition objects. I can create a vector drawing for a given purpose and consider the impact of choices made. https://teachcomputing.org/curriculum/key-stage-2/creating-media-vector-drawing Resource: Google Drawings Oracy links:</p>	<p><u>Computing systems and networks – sharing information</u> I can understand computing systems and the wider world of computing. They explain the input, output, and process aspects of a variety of different real-world systems. <u>Computing systems and networks – Sharing information</u> (teachcomputing.org) Oracy link: I can direct discussions.</p>	<p><u>Data and information – Flat-File databases</u> I can create a short video I can be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. <u>Data and information – Flat-file databases</u> (teachcomputing.org) Oracy link: I can apply a range of sentence stems. I can explore different perspectives.</p>	<p>I am kind and responsible. I am safe and secure. I am healthy. See individual half termly lesson plans for progression and learning objectives. eLIM Education Technology New Wessex Planning (somerset.org.uk) Oracy link: I can direct discussions. I can ensure discussion remains on track. I can elaborate on my ideas and those of others.</p>

<p>correct errors in algorithms and programs. Programming A – Selection in physical computing (teachcomputing.org)</p> <p>Oracy link: I can apply a range of sentence stems. I can make sophisticated vocabulary choices. I can elaborate on my ideas and those of others.</p> <p>Assessment opportunities: add to Padlet at the end of each session. Summative assessment quiz. Screenshot of commands with padlet explanation post-its.</p> <p>Resource: Scratch</p> <p><u>Selection in quizzes</u></p> <p>Programming B – Selection in quizzes (teachcomputing.org)</p> <p>I can use a selection of quizzes to create a simple programmes using specific conditions by selecting outcomes and designing a quiz.</p> <p>Oracy link: I can apply a range of sentence stems. I can elaborate on my ideas and those of others.</p>	<p>I can use specialist vocabulary</p> <p>Assessment opportunities Peer assessment</p> <p><u>Creating multimedia</u></p> <p>Creating media – Video editing (teachcomputing.org)</p> <p>I can use text, photo, sound and video editing tools to refine my work. I can use appropriate keyboard commands to amend text on my device. I can evaluate my work and improve its effectiveness.</p> <p>Oracy link: I can speak with passion and flair.</p> <p>Assessment opportunities: add to Padlet at the end of each session. Peer assess and give feedback on each other's outcomes.</p> <p>https://staffonly.somerset.org.uk/sites/edtech/New%20Wessex/Year%205/Y5%20Multimedia%201%20Core%20Presenting%20learning.pdf</p> <p>Resource: PowerPoint</p>	<p>I can ensure discussion remains on track. I can elaborate on my ideas and those of others. I can use speech to come to a compromise.</p> <p>Resource: world wide web, computer systems, search engines</p> <p>Assessment opportunities: complete a table of online do's and don'ts when online (link to E-Safety lesson).</p>	<p>Assessment opportunities: add to Padlet at the end of each session.</p> <p>Cross-curricular links with Science – graphs in books as evidence.</p> <p>Summative assessment – database quiz.</p> <p>Resource: Excel</p>	<p>I can use speech to come to a compromise.</p> <p>Assessment opportunities:</p> <p>Peer assessment, the right thing or wrong things to do. Links with PSHE making right choices online quiz.</p>
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<p>I can explore different perspectives.</p> <p>Resource: Scratch</p> <p>Assessment opportunities: add to Padlet at the end of each session.</p> <p>Summative assessment quiz.</p> <p>Scenshot of commands with padlet explanation post-its.</p> <p>Peer assessment – did the quiz work?</p>				
<p>Key vocabulary: Decomposition</p>	<p>Key vocabulary: Object, layer, resize, duplicate, rotate, edit, keyboard commands and shortcuts.</p>	<p>Key vocabulary: World wide web, accuracy</p>	<p>Key vocabulary: Record, interrogate, appropriate, compare</p>	<p>Key vocabulary: File sharing, history, malware, upload</p>
<p>Key skills to cover across all areas:</p> <ul style="list-style-type: none"> • <i>File management</i> (naming conventions, saving work, saving images, organising folders) • <i>Microsoft Word:</i> inserting pictures which are saved as files on the computer into a word document; copying and pasting pictures from the internet; inserting text boxes; inserting tables; changing font style and colour; formatting text. • <i>Microsoft Excel:</i> data input and creation of graphs; reading data. 				
<p>YEAR 6</p>				
<p><i>Programming</i></p>	<p><i>Creating media</i></p>	<p><i>Digital literacy (technology in our lives)</i></p>	<p><i>Data and information</i></p>	<p><i>Online safety</i></p>
<p><u>Variables:</u> I can define a variable as something that is changeable. I can use a variable in a program. I can define the way that a variable is changed or set it as a constant.</p>	<p><u>3D modelling:</u> I can create 3D graphical objects. I can modify and combine objects. I can recognise similarities and differences when working in 2D and 3D. I can recognise similarities and differences between real-life and virtual 3D.</p>	<p><u>Computing systems & networks:</u> I can choose search terms appropriately. I can explain how search results are ranked. I can identify limitations of search engines. I can evaluate different methods of online communication.</p>	<p><u>Spreadsheets:</u> I can explain what an item of data is in a spreadsheet. I can calculate data using a formula for each operation. I can use functions to create new data. I can choose suitable ways to present spreadsheet data.</p>	<p><u>Online safety</u> I am kind and responsible. I am safe and secure. I am healthy.</p> <p>See individual half termly lesson plans for progression and learning objectives.</p>

<p>https://teachcomputing.org/curriculum/key-stage-2/programming-a-variables-in-games</p> <p>Resource: Scratch</p> <p>Oracy link: I can critically examine ideas and views of others.</p> <p>Assessment opportunities: add to Padlet at the end of each session using target vocabulary, peer assessment using comments on blocks in Scratch.</p> <p><u>Sensing:</u> I can use an if, then, else statement. I can update a variable with user input. I can design, develop and test a program to use inputs and outputs on a controllable device.</p> <p>https://teachcomputing.org/curriculum/key-stage-2/programming-b-sensing</p> <p>Resource: micro:bits</p>	<p>https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling</p> <p>Resource: Tinkercad</p> <p>Assessment opportunities: add to Padlet at the end of each session.</p>	<p>https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-communication</p> <p>Resource: search engines e.g. Google.</p> <p>Oracy link: I can critically examine ideas and views of others.</p> <p>Assessment opportunities: add to Padlet at the end of each session, group discussion throughout each session, verbal exit ticket at the end of session (identify which words are key for a given search).</p>	<p>https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets</p> <p>Resource: Microsoft Excel</p> <p>Oracy link: I can elaborate using detailed descriptions, reasons and examples.</p> <p>Assessment opportunities: - add to Padlet at the end of each session using target vocabulary - end of session self-assessment in the Excel document itself by adding text comment - Teach Computing summative assessment at end of unit.</p>	<p>https://staffonly.somerset.org.uk/sites/edtech/Pages/ActiveBYTES.aspx</p> <p>Oracy link: I can elaborate using detailed descriptions, reasons and examples.</p> <p>Assessment opportunities: group discussion throughout each session, teacher observation throughout each session, exit ticket strategy with a given question linked to session to form a plenary.</p>
<p>Key vocabulary: Variable, if, then, else statement, naming, input, emulator, value, condition, selection, controllable device.</p>	<p>Key vocabulary: Multimedia, modify, group, duplicate, dimensions, placeholders.</p>	<p>Key vocabulary: Search engine, web crawler, advertising, ranked, index.</p>	<p>Key vocabulary: Data, formula, function, cell, column, row, investigate, analyse, present, graph.</p>	<p>Key vocabulary: Filter, firewall, spam, troll, virus.</p>
<p>Key skills to cover across all areas:</p> <ul style="list-style-type: none"> File management (naming conventions, saving work, saving images, organising folders) 				

- *Microsoft Word*: inserting pictures which are saved as files on the computer into a word document; copying and pasting pictures from the internet; inserting text boxes; inserting tables; changing font style and colour; formatting text.
- *Microsoft Excel*: data input and creation of graphs; reading data.

Computing National Curriculum Objectives

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

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
- 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

Online safety objectives under Computing

Key Stage 1

- 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

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content