



Computing

PROGRESSION DOCUMENT

Subject Lead: R Corfield

The National Centre for Computing Education Scheme for Computing in Key Stages 1 and 2

The approach Coherence and flexibility The Teach Computing Curriculum is structured in units. For these units to be coherent, the lessons within a unit must be taught in order. However, across a year group, the units themselves do not need to be taught in order, with the exception of 'Programming' units, where concepts and skills rely on prior learning and experiences

Spiral curriculum The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.



[Curriculum teaching resources \(teachcomputing.org\)](https://www.teachcomputing.org)



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	Technology around us	Digital painting	Moving a robot	Grouping data	Digital writing	Introduction to animation
Year 2	IT around us	Digital photography	Robot algorithms	Pictograms	Making music	An introduction to quizzes
Year 3	Connecting computers	Animation	Sequence in music	Branching databases	Desktop publishing	Events and actions
Year 4	The Internet	Audio editing	Repetition in shapes	Data logging	Photo editing	Repetition in games
Year 5	Sharing information	Video editing	Selection in physical computing	Flat-file databases	Vector drawing	Selection in quizzes
Year 6	Communication	Web page creation	Variables in games	Spreadsheets	3D Modelling	Sensing

EYFS

Computing no longer forms a statutory part of the Early Years Foundation Stage, however within our foundation stage at Stowlawn Primary we still want children to have experiences of technology to allow them to gain skills and knowledge to assist their development in this area. Children have access to different forms of technology within our setting and gain a variety of skills from this. We look to give the children a variety of experiences, and work towards the following:

Nursery	Reception
<ul style="list-style-type: none">• Shows an interest in different types of technology such as mechanical toys and devices (iPads).• Begins to use an age appropriate app chosen and supported by the teacher.• Developing their skills in making different toys work, to achieve effects such as sound, movement or new images.	<ul style="list-style-type: none">• Look at using age appropriate apps on an iPad or computer for a particular purpose – such as creating a picture.• Use a camera on an iPad to take pictures of their own work.• Understand that we need to use technology safely, including handling equipment and esafety.• Using different technological equipment and start to acquire knowledge on how to use these – such as Bee-Bots and talking phones.• Building an understanding of what types of technology we may use on a daily basis, at school and at home.

	KS1	LKS2	UKS2
Computing systems and networks	<p>KS1 Computing National Curriculum</p> <p>The national curriculum for computing aims to ensure that all pupils:</p> <ul style="list-style-type: none"> ♣ 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 ♣ are responsible, competent, confident and creative users of information and communication technology <p>Computing systems and networks</p> <p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> ♣ 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 	<p>KS2 Computing National Curriculum</p> <p>The national curriculum for computing aims to ensure that all pupils:</p> <ul style="list-style-type: none"> ♣ 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 ♣ are responsible, competent, confident and creative users of information and communication technology <p>Computing systems and networks</p> <p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> ♣ 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 ♣ use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>KS2 Computing National Curriculum</p> <p>The national curriculum for computing aims to ensure that all pupils:</p> <ul style="list-style-type: none"> ♣ 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 ♣ are responsible, competent, confident and creative users of information and communication technology <p>Computing systems and networks</p> <p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> ♣ 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 ♣ use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Technology around us	IT around us	Connecting computers	The Internet	Sharing information	Communication
Computing systems and networks –	<p>To identify technology</p> <p>To identify a computer and its main parts</p> <p>To use a mouse in different ways</p> <p>To use a keyboard to type on a computer</p> <p>To use the keyboard to edit text</p> <p>To create rules for using technology responsibly</p>	<p>To recognise the uses and features of information technology</p> <p>To identify the uses of information technology in the school</p> <p>To identify information technology beyond school</p> <p>To explain how information technology helps us</p> <p>To explain how to use information technology safely</p> <p>To recognise that choices are made when using information technology</p>	<p>To explain how digital devices function</p> <p>To identify input and output devices</p> <p>To recognise how digital devices can change the way we work</p> <p>To explain how a computer network can be used to share information</p> <p>To explore how digital devices can be connected</p> <p>To recognise the physical components of a network</p>	<p>To describe how networks physically connect to other networks</p> <p>To recognise how networked devices make up the internet</p> <p>To outline how websites can be shared via the World Wide Web (WWW)</p> <p>To describe how content can be added and accessed on the World Wide Web (WWW)</p> <p>To recognise how the content of the WWW is created by people</p> <p>To evaluate the consequences of unreliable content</p>	<p>To explain that computers can be connected together to form systems</p> <p>To recognise the role of computer systems in our lives</p> <p>To recognise how information is transferred over the internet</p> <p>To explain how sharing information online lets people in different places work together</p> <p>To contribute to a shared project online</p> <p>To evaluate different ways of working together online</p>	<p>To explain how selection is used in computer programs</p> <p>To relate that a conditional statement connects a condition to an outcome</p> <p>To explain how selection directs the flow of a program</p> <p>To design a program which uses selection</p> <p>To create a program which uses selection</p> <p>To evaluate my program</p>

Creating media

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	Digital painting Digital writing	Digital photography Making music	Animation Desktop publishing	Audio editing Photo editing	Video editing Vector drawing	Web page creation 3D Modelling
Creating media	To describe what different freehand tools do	To use a digital device to take a photograph	To explain that animation is a sequence of drawings or photographs	To identify that sound can be digitally recorded	To explain what makes a video effective	To review an existing website and consider its structure
	To use the shape tool and the line tools	To make choices when taking a photograph	To relate animated movement with a sequence of images	To use a digital device to record sound	To identify digital devices that can record video	To plan the features of a web page
	To make careful choices when painting a digital picture	To describe what makes a good photograph	To plan an animation	To explain that a digital recording is stored as a file	To capture video using a range of techniques	To consider the ownership and use of images (copyright)
	To explain why I chose the tools I used	To decide how photographs can be improved	To identify the need to work consistently and carefully	To explain that audio can be changed through editing	To create a storyboard	To recognise the need to preview pages
	To use a computer on my own to paint a picture	To use tools to change an image	To review and improve an animation	To show that different types of audio can be combined and played together	To identify that video can be improved through reshooting and editing	To outline the need for a navigation path
	To compare painting a picture on a computer and on paper	To recognise that photos can be changed	To evaluate the impact of adding other media to an animation	To evaluate editing choices made	To consider the impact of the choices made when making and sharing a video	To recognise the implications of linking to content owned by other people
	To use a computer to write To add and remove text on a computer	To say how music can make us feel	To recognise how text and images convey information	To explain that digital images can be changed	To identify that drawing tools can be used to produce different outcomes	To use a computer to create and manipulate three-dimensional (3D) digital objects
	To identify that the look of text can be changed on a computer	To identify that there are patterns in music	To recognise that text and layout can be edited	To change the composition of an image	To create a vector drawing by combining shapes	To compare working digitally with 2D and 3D graphics
	To make careful choices when changing text	To show how music is made from a series of notes	To choose appropriate page settings	To describe how images can be changed for different uses	To use tools to achieve a desired effect	To construct a digital 3D model of a physical object
	To explain why I used the tools that I chose	To show how music is made from a series of notes	To add content to a desktop publishing publication	To make good choices when selecting different tools	To recognise that vector drawings consist of layers	To identify that physical objects can be broken down into a collection of 3D shapes
To compare typing on a computer to writing on paper	To create music for a purpose	To consider how different layouts can suit different purposes	To recognise that not all images are real	To group objects to make them easier to work with	To design a digital model by combining 3D objects	
	To review and refine our computer work	To consider the benefits of desktop publishing	To evaluate how changes can improve an image	To evaluate my vector drawing	To develop and improve a digital 3D model	

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Grouping data	Pictograms	Branching databases	Data logging	Flat-file databases	Spreadsheets
Data and information	<p>To label objects</p> <p>To identify that objects can be counted</p> <p>To describe objects in different ways</p> <p>To count objects with the same properties</p> <p>To compare groups of objects</p> <p>To answer questions about groups of objects</p>	<p>To recognise that we can count and compare objects using tally charts</p> <p>To recognise that objects can be represented as pictures</p> <p>To create a pictogram</p> <p>To select objects by attribute and make comparisons</p> <p>To recognise that people can be described by attributes</p> <p>To explain that we can present information using a computer</p>	<p>To create questions with yes/no answers</p> <p>To identify the object attributes needed to collect relevant data</p> <p>To create a branching database</p> <p>To explain why it is helpful for a database to be well structured</p> <p>To identify objects using a branching database</p> <p>To compare the information shown in a pictogram with a branching database</p>	<p>To explain that data gathered over time can be used to answer questions</p> <p>To use a digital device to collect data automatically</p> <p>To explain that a data logger collects 'data points' from sensors over time</p> <p>To use data collected over a long duration to find information</p> <p>To identify the data needed to answer questions</p> <p>To use collected data to answer questions</p>	<p>To use a form to record information</p> <p>To compare paper and computer-based databases</p> <p>To outline how grouping and then sorting data allows us to answer questions</p> <p>To explain that tools can be used to select specific data</p> <p>To explain that computer programs can be used to compare data visually</p> <p>To apply my knowledge of a database to ask and answer real-world questions</p>	<p>To identify questions which can be answered using data</p> <p>To explain that objects can be described using data</p> <p>To explain that formulas can be used to produce calculated data</p> <p>To apply formulas to data, including duplicating</p> <p>To create a spreadsheet to plan an event</p> <p>To choose suitable ways to present data</p>

Programming

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Moving a robot Introduction to animation	Robot algorithms An introduction to quizzes	Sequence in music Events and actions	Repetition in shapes Repetition in games	Selection in physical computing Selection in quizzes	Variables in games Selection in quizzes
Programming	To explain what a given command will do	To describe a series of instructions as a sequence	To explore a new programming environment	To identify that accuracy in programming is important	To control a simple circuit connected to a computer	To define a 'variable' as something that is changeable
	To act out a given word	To explain what happens when we change the order of instructions	To identify that commands have an outcome	To create a program in a text-based language	To write a program that includes count-controlled loops	To explain why a variable is used in a program
	To combine forwards and backwards commands to make a sequence	To use logical reasoning to predict the outcome of a program (series of commands)	To explain that a program has a start	To explain what 'repeat' means	To explain that a loop can stop when a condition is met	To choose how to improve a game by using variables
	To combine four direction commands to make sequences	To explain that programming projects can have code and artwork	To recognise that a sequence of commands can have an order	To modify a count-controlled loop to produce a given outcome	To explain that a loop can be used to repeatedly check whether a condition has been met	To design a project that builds on a given example
	To plan a simple program	To design an algorithm	To change the appearance of my project	To decompose a task into small steps	To design a physical project that includes selection	To use my design to create a project
	To find more than one solution to a problem	To create and debug a program that I have written	To create a project from a task description	To create a program that uses count-controlled loops to produce a given outcome	To create a program that controls a physical computing project	To evaluate my project
	To choose a command for a given purpose	To explain that a sequence of commands has a start	To explain how a sprite moves in an existing project	To develop the use of count-controlled loops in a different programming environment	To explain how selection is used in computer programs	To create a program to run on a controllable device
	To show that a series of commands can be joined together	To explain that a sequence of commands has an outcome	To create a program to move a sprite in four directions	To explain that in programming there are infinite loops and count controlled loops	To relate that a conditional statement connects a condition to an outcome	To explain that selection can control the flow of a program
	To identify the effect of changing a value	To create a program using a given design	To adapt a program to a new context	To develop a design that includes two or more loops which run at the same time	To explain how selection directs the flow of a program	To update a variable with a user input
	To explain that each sprite has its own instructions	To change a given design	To develop my program by adding features	To modify an infinite loop in a given program	To design a program which uses selection	To use an conditional statement to compare a variable to a value
	To design the parts of a project	To create a program using my own design	To identify and fix bugs in a program	To design a project that includes repetition	To create a program which uses selection	To design a project that uses inputs and outputs on a controllable device
	To use my algorithm to create a program	To decide how my project can be improved	To design and create a maze-based challenge	To create a project that includes repetition	To evaluate my program	To develop a program to use inputs and outputs on a controllable device

