

Key Stage 2 Computing Skills Progression

- 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.

		Year 3	Year 4	Year 5	Year 6
	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems	Create a sequence of commands using a block language to produce a given outcome Debug errors to accomplish specific goal	Plan a program using a block language which includes appropriate loops to produce a given outcome Debug errors in increasingly complex programs to accomplish specific goals	Plan a program which includes selection to produce a given outcome Debug errors in increasingly complex programs to accomplish specific goals	Plan a program which includes variables to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goals

	Solve problems by decomposing them into smaller parts	Work with others to decompose a problem into smaller steps in planning a project	Independently decompose a problem into smaller steps in planning a project	Plan a solution to a problem using decomposition	Solve problems using decomposition, tackling each part separately
	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	Explain the order (sequence) of commands can effect the outcome (same commands, different order -> same or different outcome) Identify different sequences can achieve the same outcome	Identify patterns (repetition) in a sequence Understand repetition in programming is also called looping Identify a loop in a program Understand, identify and justify when to use 'infinite' or 'count-controlled' loops Explain the importance in instruction order in a loop	Define that conditional statements (selection) are used in computer programs Explain a loop can stop when a condition is met (number of times or event) Explain a that program flow can branch according to a condition Use a condition in an <i>if...then...</i> statement to produce a given outcome	Define 'variable' as something that is changeable Explain that a variable has a name and a value Identify a variable in an existing program Use a variable in a conditional statement to control the flow of a program

	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Explain simple, sequence-based algorithm independently Use logical reasoning to detect errors in programs	Explain an algorithm using sequence and repetition independently Use logical reasoning to detect and correct errors in programs	Explain an algorithm using sequence, repetition and selection independently Use logical reasoning to detect errors in increasingly complex programs	Clearly and concisely explain algorithms using sequence, repetition, selection and variables independently Use logical reasoning to detect errors in increasingly complex programs
--	--	--	--	--	---

	Year 3	Year 4	Year 5	Year 6
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	Search for information in a single site Understand that search engines select pages according to keywords found in the content	Use a standard search engine to find information Understand that search engines rank pages according to relevance.	Use filters to make more effective use of a standard search engine Understand that search engines use a cached copy of the crawled web to select and rank results	Use of a range of search engines appropriate to finding information that is required Understand that search engines rank pages based on the number and quality of in-bound links

	<p>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</p>	<p>Combine text and images to share a message Consider how different layouts can suit different Purposes Type with increased confidence and speed using age-appropriate punctuation Use return to create paragraphs Change orientation of text Wrap text around an image Recognise a document can be formatted with placeholders</p>	<p>Use cross-curricular opportunities to consolidate previous learning from Year 1 – Year 3</p>	<p>Use cross-curricular opportunities to consolidate previous learning from Year 1 – Year 3</p>	<p>Recognise components of a webpage layout Create a webpage including text, images, hyperlinks and embedded content Understand the need for a navigation path</p>
--	--	--	---	---	--

		<p>Change orientation of images</p>	<p>Use a computer to (further) manipulate images Recognise images can be changed for different purposes Use the most appropriate tool for a particular purpose Consider the impact of changes made on the quality of the image</p>	<p>Recognise an image is comprised of separate objects Add, remove, modify and combine objects to create graphical drawing on a computer Recognise objects are layered Recognise that objects can be modified in groups • Consider the impact of choices made</p>	<p>Create 3D graphical objects on a computer Alter the view of a 3D space Modify 3D objects Combine 3D objects to create desired effect Apply blank 3D objects as placeholders to create holes</p>
		<p>Understand animation is a sequence of drawings or photographs Relate animated movement with a sequence of images Plan an animation Review and improve an animation Evaluate the impact of adding other media to an animation</p>	<p>Press/tap buttons to start and stop recordings Recognise recorded audio is stored as a file Edit and alter recorded audio Layer sounds Save/export an audio file Consider the results of editing choices made</p>	<p>Identify the features of a good video Plan a video production using a story board Use a computer to make a video Recognise a video can be improved through editing Consider the impact of changes made on the quality of the video</p>	<p>Use cross-curricular opportunities to consolidate previous learning from Year 1 – Year 5</p>

	<p>Collecting, analysing, evaluating and presenting data and information</p>	<p>Identify object attributes needed to collect relevant data Create a branching database Identify objects using a branching database Compare information shown in a pictogram with a branching database Explain that data can be used to answer questions</p>	<p>Collect data using a digital device Recognise that a sensor can be used as an input device for data collection Use a larger data set to find information Use a computer program to sort data by one attribute Export information and present data in a table and a graph</p>	<p>Use a form to collect information Navigate a flat-file database Apply knowledge of a database to ask and answer real-world questions Design a structure for a flat-file database Choose tools to select and analyse data to answer questions Select an appropriate graph to visually compare data Choose suitable ways to present information</p>	<p>Identify questions that can be answered using data Create a spreadsheet for a purpose Apply a formula that can be used to produce calculated data Recognise data can be calculated using different operations Evaluate results in comparison to the question asked Choose suitable ways to present data</p>
--	--	--	---	--	---

	Year 3	Year 4	Year 5	Year 6
	<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>			

	<p>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</p>	<p>Explain how a computer network can be used to share information Explore how digital devices can be connected Recognise the physical components of a network Explain how digital devices function Identify input and output devices</p>	<p>Describe how networks physically connect to other networks Recognise how networked devices make up the Internet Describe how content can be added and accessed on the World Wide Web Recognise how the content of the WWW is created and shared by people Describe the current limitations of World Wide Web media</p>	<p>Explain that computers can be connected together to form systems Recognise the role of computer systems in our lives Recognise how information is transferred over the internet Explain how sharing information online lets people in different places work together Contribute to a shared project online Evaluate different ways of working together online</p>	<p>Continue to develop online searching skills to enhance online communication and collaboration</p>
--	--	---	---	---	--