



KS2 Computing Curriculum Grid

National Curriculum		Teach Computing Curriculum		National Centre for Computing Education	Funded by Department for Education
Key Stage 2		Year 3	Year 4	Year 5	Year 6
Computer Science	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems	<ul style="list-style-type: none"> • Create a sequence of commands using a block language to produce a given outcome • Debug errors to accomplish specific goal 	<ul style="list-style-type: none"> • 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 goal 	<ul style="list-style-type: none"> • Plan a program which includes selection to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goal 	<ul style="list-style-type: none"> • Plan a program which includes variables to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goal
	Solve problems by decomposing them into smaller parts	<ul style="list-style-type: none"> • Work with others to decompose a problem into smaller steps in planning a project 	<ul style="list-style-type: none"> • Independently decompose a problem into smaller steps in planning a project 	<ul style="list-style-type: none"> • Plan a solution to a problem using decomposition 	<ul style="list-style-type: none"> • Solve problems using decomposition, tackling each part separately
	Use sequence, selection,	<ul style="list-style-type: none"> • Explain the order (sequence) of commands can 	<ul style="list-style-type: none"> • Identify patterns (repetition) in a sequence 	<ul style="list-style-type: none"> • Define that conditional statement (selection) are used 	<ul style="list-style-type: none"> • Define 'variable' as something that is changeable



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	<p>and repetition in programs; work with variables and various forms of input and output</p>	<p>affect the outcome (same commands, different order - same or different outcome)</p> <ul style="list-style-type: none"> Identify different sequences can achieve the same outcome 	<ul style="list-style-type: none"> 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 	<p>in computer programs</p> <ul style="list-style-type: none"> 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 if...then...statement to produce a given outcome 	<ul style="list-style-type: none"> 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
	<p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<ul style="list-style-type: none"> Explain simple, sequence-based algorithm independently Use logical reasoning to detect errors in programs 	<ul style="list-style-type: none"> Explain an algorithm using sequence and repetition independently Use logical reasoning to detect and correct errors in programs 	<ul style="list-style-type: none"> Explain an algorithm using sequence, repetition and selection independently Use logical reasoning to detect errors in increasingly complex programs 	<ul style="list-style-type: none"> Clearly and concisely explain algorithms using sequence, repetition, selection and variables independently Use logical reasoning to detect errors in increasingly complex programs



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Information technology	Digital Research	<p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p>	<ul style="list-style-type: none"> • Search for information in a single site • Understand that search engines select pages according to keywords found in the content 	<ul style="list-style-type: none"> • Use a standard search engine to find information • Understand that search engines rank pages according to relevance. 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 inbound links. 	
	Creating Digital Content Text	<p>Select, use and combine a variety of software (including internet services) on a range of digital</p>	<ul style="list-style-type: none"> • Combine text and images to share a message • Consider how different 	<ul style="list-style-type: none"> • Use cross-curricular opportunities to consolidate previous 	<ul style="list-style-type: none"> • Use cross-curricular opportunities to consolidate previous 	<ul style="list-style-type: none"> • Recognise components of a webpage layout • Create a webpage 	



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			devices to design and create a range of programs, systems and content that accomplish given goals	layouts can suit different purposes <ul style="list-style-type: none">• 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	learning from Year 1 - Year 3	learning from Year 1 - Year 4 <ul style="list-style-type: none">•	including text, images, hyperlinks and embedded content <ul style="list-style-type: none">• Understand the need for a navigation path
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		Images	<ul style="list-style-type: none"> • Change orientation of images 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Add, remove, modify and combine objects to create graphical drawing on a computer • Recognise an image is comprised of separate objects • Recognise objects are layered • Recognise that objects can be modified in groups • Consider the impact of choices made 	<ul style="list-style-type: none"> • 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
			Multimedia	<ul style="list-style-type: none"> • Understand animation is a sequence of 	<ul style="list-style-type: none"> • Press/tap buttons to start and 	<ul style="list-style-type: none"> • Identify the features of a good video



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			<p>drawings or photographs</p> <ul style="list-style-type: none"> • 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>stop recordings</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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>to consolidate previous learning from Year 1 - Year 5</p>
		Data Handling	<p>Collecting, analysing, evaluating and presenting data and information</p> <ul style="list-style-type: none"> • Identify object attributes needed to collect relevant data 	<ul style="list-style-type: none"> • Collect data using a digital device • Recognise that a 	<ul style="list-style-type: none"> • Use a form to collect information • Navigate a flat - file database 	<ul style="list-style-type: none"> • Identify questions that can be answered using data



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			<ul style="list-style-type: none">• 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 question	<p>sensor can be used as an input device for data collection</p> <ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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
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Digital Literacy	Online Safety	<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>See Appendix 1: Online Safety Curriculum Grid (Education for a Connected World)</p> <p>ProjectEVOLVE - Education for a Connected World Resources</p>			



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	Computer Systems and Networks	<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>	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Continue to develop online searching skills to enhance online communication and collaboration
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