



Progression of Skills and Knowledge in Computing at SMSG

Our computing curriculum is based on the Rising Stars 'Switched on Computing' scheme. This document shows their skills progression in each computing strand of the National Curriculum.

Computer Science: Children will...							
Year	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC Aims or Early Learning Goals	<ul style="list-style-type: none"> • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly. 	<ul style="list-style-type: none"> • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Use logical reasoning to predict the behaviour of simple programs. • know how to create and debug simple programs. • Recognise common uses of information technology beyond school. 	<ul style="list-style-type: none"> • know how to 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. • know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. 				
Programming	Know how to break down a task into smaller parts.	Know how to give a sequence of instructions to a floor turtle.	Know how to create a simple program on screen, correcting any errors. Know how to debug any errors in their own code.	Know how to use sequence in programs. Write a program to produce output on screen.	Know how to use sequence and repetition in programs. Write a program that accepts keyboard input and produces on-screen output.	Know how to use sequence, selection and repetition in programs. Write a program that accepts keyboard and mouse input and produces output on screen and through speakers.	Know how to sequence, selection, repetition and variables in programs. Write a program that accepts inputs other than keyboard and mouse and produces outputs other than screen or speakers.
Problem solving	Know that routines and roleplay activities are sequences of events.	Know that algorithms are sequences of instructions in everyday contexts. Know how to program floor turtles using sequences of instructions to implement an algorithm.	Know that algorithms are sequences of instructions or sets of rules in everyday contexts. Program on screen using sequences of instructions to implement an algorithm.	Know how to design and write a program using a block language, without user interaction. Explore simulations of physical systems on screen. Know how to plan a project.	Know how to design and write a program using a block language to a given brief, including simple interaction. Know how to develop their own simulation of a simple physical system on screen. Work with others to plan a project.	Know how to design, write and debug a program using a block language based on their own ideas. Experiment with computer control applications. Know how to plan a solution to a problem using decomposition.	Know how to design, write and debug a program using a second programming language based on their own ideas. Test and debug their code, explain what bugs they found and how they fixed these. The program need not be complex. Solve problems using decomposition, tackling each part separately.
Logical thinking	Start to reason about the world around them. Play with mechanical and electronic toys to start forming	Give explanations for what they think a program will do.	Give logical explanations for what they think a program will do.	Explain a simple, sequence-based algorithm in their own words. Know how to use logical reasoning to detect errors in programs.	Explain an algorithm using sequence and repetition in their own words. Know how to use logical reasoning to detect and correct errors in programs.	Explain a rule-based algorithm in their own words. Know how to use logical reasoning to detect errors in algorithms.	Give clear and precise logical explanations of a number of algorithms. Know how to use logical reasoning to detect and correct errors in algorithms (and programs).

	ideas about how they work.						
Wider Understanding	Know that technology is used in many real life situations through roleplay.	Know the components of a computer by developing keyboard and mouse skills.	Know that information technology (IT) is used in different settings. Know the importance of using IT responsibly.	Know that computer networks transmit information in a digital (binary) format. Know that email and videoconferencing are made possible through the Internet.	Know that the Internet transmits information as packets of data. Know how the Internet makes the web possible.	Know how data routing works on the Internet. Know how web pages are created and transmitted.	Know how mobile phone or other networks operate. Know how domain names are converted into IP addresses on the Internet.

Information Technology: Children will...							
Year	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC Aims or Early Learning Goals	<ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function 	<ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content. 		<ul style="list-style-type: none"> 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. 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. 			
Creating Content	<p>Know how to create art and crafts projects.</p> <p>Know how to use simple art software to create an image.</p>	<p>Know how to use digital technology to store and retrieve content.</p> <p>Create original content using digital technology.</p>	<p>Know how to store, organise and retrieve content on digital devices for a given purpose.</p> <p>Create and edit original content for a given purpose using digital technology.</p>	<p>Know how to use a range of programs on a computer.</p> <p>Know how to design and create content on a computer.</p> <p>Collect and present information.</p>	<p>Know how to use and combine a range of programs on a computer.</p> <p>Know how to design and create content on a computer in response to a given goal.</p> <p>Collect and present data.</p>	<p>Know how to use and combine a range of programs on multiple devices.</p> <p>Know how to design and create programs on a computer in response to a given goal.</p> <p>Know how to analyse and evaluate information.</p>	<p>Know how to select, use and combine a range of programs on multiple devices.</p> <p>Know how to design and create systems in response to a given goal.</p> <p>Analyse and evaluate data.</p>
Searching	Know different ways to find things out.	Know how to safely search for images using key vocabulary.	Know how to safely search for known programmes.	<p>Know how to search for information within a single site.</p> <p>Know that search engines select pages according to keywords found in the content.</p>	<p>Use a standard search engine to find information.</p> <p>Know that search engines rank pages according to relevance.</p>	<p>Know how to use filters to make more effective use of a standard search engine.</p> <p>Know that search engines use a cached copy of the crawled web to select and rank results.</p>	<p>Make use of a range of search engines appropriate to finding information that is required.</p> <p>Appreciate that search engines rank pages based on the number and quality of in-bound links.</p>

Digital Literacy: Children will...

Year	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC Aims or Early Learning Goals	<ul style="list-style-type: none"> Safely use a variety of tools experimenting with function 	<ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 			
E-Safety	<p>Know what the safe use of technology looks like.</p> <p>Know the importance of talking to adults about what they do online.</p>	<p>Know how to keep themselves safe while using digital technology.</p> <p>Know that information on the Internet can be seen by others.</p> <p>Know what to do if they see disturbing content online at home or at school.</p>	<p>Keep safe and show respect to others while using digital technology.</p> <p>Know that they should not share personal information online.</p> <p>Know what to do if they have concerns about content or contact online.</p>	<p>Use digital technology safely and show respect for others when working online.</p> <p>Know unacceptable behaviour when using digital technology.</p> <p>Know who to talk to about concerns and inappropriate behaviour in school.</p> <p>Decide whether a web page is relevant for a given purpose or question.</p> <p>The pupil can use email and videoconferencing in class.</p>	<p>Demonstrate that they can act responsibly when using computers.</p> <p>Know the difference between acceptable and unacceptable behaviours when using digital technology.</p> <p>Know who to talk to about concerns and inappropriate behaviour at home or in school.</p> <p>Decide whether digital content is relevant for a given purpose or question.</p> <p>Work collaboratively with classmates on a shared content.</p>	<p>Demonstrate that they can act responsibly when using the Internet.</p> <p>Discuss the consequences of particular behaviours when using digital technology.</p> <p>Know how to report concerns and inappropriate behaviour in a range of contexts.</p> <p>Decide whether digital content is reliable and unbiased.</p> <p>Work collaboratively with classmates on a class website or blog.</p>	<p>Show that they can think through the consequences of their actions when using digital technology.</p> <p>Identify principles underpinning acceptable use of digital technologies.</p> <p>Know a range of ways to report concerns and inappropriate behaviour in a variety of contexts.</p> <p>Form an opinion about the effectiveness of digital content.</p> <p>Use online tools to plan and carry out a collaborative project.</p>