Progression of skills in Computing

e-Safety and Digital Literacy		
Years 1 and 2	**Year 3 and 4**	**Year 5 and 6**
Pupils should be taught to: • Use technology safely and respectfully. • Keep personal information private. • Identify where to go for help and support when they have concerns about contact or contact on the internet or other online technologies.	**Pupils should be taught to:** • Use technology safely, respectfully and responsibly. • Recognise acceptable/unacceptable behaviour. • Identify a range of ways to report concerns about content and contact.	**Pupils should be taught to:** • Use technology safely, respectfully and responsibly. • Recognise acceptable/unacceptable behaviour. • Identify a range of ways to report concerns about content and contact.

Information Technology		
Years 1 and 2	**Year 3 and 4**	**Year 5 and 6**
Pupils should be taught to: • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. ○ I can switch on and log into a computer. ○ I can use a mouse to click and drag, to open a program and to click, to create digital art and to drag objects on a screen. ○ I can say what a keyboard is for. ○ I can recognise and use letter keys, number keys, the space bar, backspace and the enter key. ○ I can type my name on a computer. ○ I can save my work to a file. ○ I can open my work from a file. ○ I can use the arrow keys to move the cursor.	**Pupils should be taught to:** • 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. ○ I can explain how messages are passed through multiple connections. ○ I can discuss why we need a network switch. ○ I can recognise that a computer network is made up of a number of devices. ○ I can demonstrate how information can be passed between devices. ○ I can recognise different connections. ○ I can explain the role of a switch, server, and wireless access point in a	**Pupils should be taught to:** • 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. ○ I can identify that there are a variety of ways of communicating over the internet. ○ I can choose methods of communication to suit particular purposes. ○ I can compare different methods of communicating on the internet. ○ I can decide when I should and should not share. ○ I can explain that communication on the internet may not be private.

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• Recognise common uses of information technology in, and beyond, school.
  ○ I can explain technology as something that helps us.
  ○ I can locate examples of technology in the classroom.
  ○ I can name the main parts of a computer.
	network.
	  ○ I can identify how devices in a network are connected together.
	  ○ I can identify networked devices around me.
	  ○ I can identify the benefits of computer networks.
	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
	  ○ I can use different search engines.
	  ○ I understand the concept of 'fake news'.
	• 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.
	  ○ I can explain that digital devices accept inputs.
	  ○ I can explain that digital devices produce outputs.
	  ○ I can follow a process.
	  ○ I can classify input and output devices.
	  ○ I can describe a simple process.
	  ○ I can design a digital device.
		• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
		  ○ I can complete a web search to find specific information.
		  ○ I can refine my search.
		  ○ I can compare results from different search engines.
		  ○ I can explain why we need tools to find things online.
		  ○ I can recognise the role of web crawlers.
		  ○ I can relate a search term to the search engine's index.
		  ○ I can explain that search results are ordered.
		  ○ I can explain that a search engine follows rules to rank relevant pages.
		  ○ I can suggest some of the criteria that a search engine checks to decide on the order of results.
		  ○ I can describe some of the ways that search results can be influenced.
		
		• 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.
		  ○ I can collect data.
		  ○ I can enter data into a spreadsheet.
		  ○ I can explain which data types can be used in calculations.
		  ○ I can construct a formula in a spreadsheet.

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		○ I can identify that changing inputs changes outputs. ○ I can calculate data using different operations. ○ I can create a formula which includes a range of cells. ○ I can use a spreadsheet to answer questions. ○ I can produce a chart. ○ I can use a chart to show the answer to a question. ○ I can suggest when to use a table or chart.

Computer Science		
Years 1 and 2	**Year 3 and 4**	**Year 5 and 6**
Pupils should be taught to: ● Understand what algorithms are and how algorithms are implemented as programs on digital devices. ○ I can match a command to an outcome. ○ I can run a command on a device. ● Give precise and unambiguous instructions in order to execute programs. ○ I can choose the order of commands in a sequence. ○ I can give directions. ● Create and debug simple programs. ○ I can start a sequence from the same place. ○ I can experiment with turn and move commands to move a robot. ○ I can explain what my program should do. ○ I can choose the order of commands in	**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. ○ I can create a program following a design. ○ I can start a program in different ways. ○ I can create a sequence of connected commands. ● Use sequence, selection, and repetition in programs. ○ I can explain what a sequence is. ○ I can combine sound commands. ○ I can order notes into a sequence. ○ I can build a sequence of commands. ● Work with variables and various forms of input and output.	**Pupils should be taught to:** ● Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. ○ I can test the code that I have written. ○ I can identify ways that my game could be improved. ○ I can use variables to extend my game. ○ I can share my game with others. ○ I can apply my knowledge of programming to a new environment. ○ I can transfer my program to a controllable device/emulator. ○ I can identify examples of conditions in the real world. ○ I can design the algorithm for my project.

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a sequence. ○ I can debug my program. ○ I can identify several possible solutions. ○ I can plan two programs. ○ I can use two different programs to get to the same place. ● Use logical reasoning to predict the behaviour of simple programs. ○ I can predict the outcome of a command on a device. ○ I can predict the outcome of a sequence involving forwards and backwards commands. ○ I can predict the outcome of a sequence involving up to four commands.	○ I can use Scratch 3.0. ○ I can use Code for Life. ● Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. ○ I can explain that the objects in my project will respond exactly to the code. ○ I can explain the relationship between an event and an action. ○ I can choose which keys to use for actions and explain my choices. ○ I can identify a way to improve a program.	○ I can design the program flow for my project. ○ I can create a program based on my design. ● Solve problems by decomposing them into smaller parts. ○ I can test my program on an emulator. ○ I can explain the importance of the order of conditions in else, if statements. ○ I can modify a program to achieve a different outcome. ● Use sequence, selection, and repetition in programs. ○ I can use a variable in an if, then, else statement to select the flow of a program. ○ I can determine the flow of a program using selection. ○ I can use a condition to change a variable. ● Work with variables and various forms of input and output. ○ I can identify examples of information that are variable. ○ I can explain that the way a variable changes can be defined. ○ I can identify that variables can hold numbers or letters. ○ I can recognise that the value of a variable can be changed. ○ I can decide where in a program to change a variable. ○ I can make use of an event in a program to set a variable. ○ I can recognise that the value of a variable can be used by a program.

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		• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. ○ I can test a program against a design. ○ I can use a range of approaches to find and fix bugs.