Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

	Year 2	Year 3	Year 4	Year 5	Year 6
NC Objectives	• Design, write and debug programs that accomplish specific goals… solve problems by decomposing them in smaller parts. • Use sequence, selection, and repetition in programs. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.			• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solving 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.	
Computing Science	**Main Aims:** Give commands one at a time to control direction and movement, including straight, forwards, backwards, turn. Control the nature of events: repeat, loops, single events, add, and delete features. Give a set of instructions to follow and predict what will happen.	**Main Aims:** Confident to use Scratch, create sprites and work with backgrounds and costumes. **Input** programming commands into a **sequence** to achieve a specific outcome. Test a programme and recognise when it needs debugging. Describe an algorithm needed for a specific task.	**Main Aims:** In Scratch, revise sequence; introduce count-controlled loops; introduce indefinite loops and introduce code comprehension methods. Use logical thinking to solve an open-ended problem by breaking it up into smaller pieces. Use an efficient procedure to simplify a program. Use a sensor to detect a change, which can select an action within a programming.	**Main Aims:** In Scratch, revise repetition, introduce selection in apps and games, decision starts action and switches between actions. Decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program. Refine a procedure using repeat commands to improve a program. Change an input to a program to achieve a different output. Use 'if' and 'then' commands to select an action.	**Main Aims:** In Scratch, revise selection; introduce variables and introduce basic procedures. Deconstruct a problem into smaller steps, recognising similarities to solutions used before. Explain and program each of the steps in an algorithm. Evaluate the effectiveness and efficiency of an algorithm while I continually testing the programming of that algorithm.

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

	Improve/change their sequence of commands by debugging. Use key vocabulary to demonstrate knowledge and understanding in this strand: algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink.		Know that you need to keep testing a program. Recognise an error and debug it. Recognise that an algorithm will help sequence more complex programmes. Recognise that using algorithms will also help solve problems in other learning such as maths, science and design technology	Talk about how a computer model can provide information about a physical system. Use logical reasoning to detect and debug mistakes in a program. Use logical thinking, imagination and creativity to extend a program.	Recognise when you need to use a variable to achieve a required output. Use variables and operators to stop a program. Use different inputs (including sensors) to control a device or onscreen action and predict what will happen. Use logical reasoning to detect and correct errors in algorithms and programs
NC Objectives	• 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.				
Information Technology (Handling Data)	**N/A** **Not taught in KS1.**	Talk about the different ways data can be organised. Search a ready-made database to answer questions. Collect data to help me answer a question. Add to a database.	Organise data in different ways. Collect data and identify where it could be inaccurate. Plan, create and search a database to answer questions.	Use a spreadsheet and database to collect and record data. Choose an appropriate tool to help me collect data. Present data in an appropriate way.	Plan the process needed to investigate the world around me. Select the most effective tool to collect data for an investigation. Check the data collected for accuracy and plausibility.

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

		Make a branching database. Use a data logger to monitor changes and can talk about the information collected	Choose the best way to present data to a given audience Use a data logger to record and share my readings with my friends.	Search a database using different operators to refine my search. Talk about mistakes in data and give suggestions for how it can improve.	Interpret data collected. Present data collected in an appropriate way. Use the skills developed over key stage to interrogate a database
Information technology (Multimedia)	**Text and Images:** Add text strings, text boxes, show and hide objects and images, manipulating the features. Use various tools, such as brushes, pens, eraser, stamps and shapes, and set the size, colour and shape. Use applications and devices in order to communicate ideas, work, and messages and demonstrate control. Save, retrieve and organise work.	Save and retrieve work on the internet, the school network or own devices. Create different effects with different technology tools. Combine a mixture of text, graphics and sound to share ideas and learning. Use appropriate keyboard commands to amend text on a device, including making use of a spellchecker. Evaluate their work and improve its effectiveness. Use an appropriate tool to share work online Use search tools to find and use appropriate website.	Identify key words to use when searching safely on the World Wide Web. Use photos, video and sound to create an atmosphere when presenting to different audiences. Change the appearance of text to increase its effectiveness. Create, modify and present documents for a particular purpose. Use a keyboard confidently and make use of a spellchecker to write and review work. Use an appropriate tool to share my work and collaborate online.	Use text, photo, sound and video editing tools to refine their work. Use the skills already developed to create content using unfamiliar technology. Select, use and combine the appropriate technology tools to create effects that will have an impact on others. Select an appropriate online or offline tool to create and share ideas. Review and improve their work and support others to improve their work. Use different online communication tools for different purposes. Use a search engine to find appropriate information and to check its reliability.	Talk about audience, atmosphere and structure when planning a particular outcome. Confidently identify the potential of unfamiliar technology to increase my creativity. Combine a range of media, recognising the contribution of each to achieve a particular outcome. Say why they have selected a particular online tool for a specific purpose. Be digitally discerning when evaluating the effectiveness of theirs and others work

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

	Use key vocabulary to demonstrate knowledge and understanding in this strand: paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move, screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present. **Sound & Motion:** Use software to record sounds. Change sounds recorded. Save, retrieve and organise work. Use key vocabulary to demonstrate knowledge and understanding in		Give constructive feedback to others to help them improve their work and refine own work Create a hyperlink to a source on the World Wide Web		Select an appropriate tool to communicate and collaborate online.

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

	this strand: commands, add sound.				
NC Objectives	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. • 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.				

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

Digital Citizenship	Identify what things count as personal information. Identify what is appropriate and inappropriate behavior on the internet. Agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords. Seek help from an adult when they see something that is unexpected or worrying. Demonstrate how to safely open and close applications and log on and log off from websites. Use key vocabulary to demonstrate knowledge	Talk about the parts of a computer. Tell you ways to communicate with others online. Describe the World Wide Web as the part of the internet that contains websites. Think about whether images found online can be used in their own work	Tell you whether a resource being used is on the internet, the school network or my own device. Think about the reliability of information read on the World Wide Web. Tell how to check who owns photos, text and clipart.	Describe different parts of the internet. Recognise and evaluate different types of information found on the world wide web. Describe the different parts of a webpage. Find out whom the information on a webpage belongs to.	Tell you the internet services needed for use of different purposes. Describe how information is transported on the internet. Talk about the way search results are selected and ranked. Check the reliability of a website. Tell you about copyright and acknowledge the sources of information that are found online.

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

	and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet.				

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)

Digital Citizenship		Talk about what makes a secure password and why they are important. Know how to protect personal information when I doing different things online. Use the safety features of websites as well as reporting concerns to an adult. Recognise websites and games appropriate for their age. Ask an adult before downloading files and games from the internet. Understand that they need to be respectful when posting comments online	Choose a secure password when using a website. Talk about the ways they can protect themselves and others from harm online. Use the safety features of websites as well as reporting concerns to an adult. Know that anything posted online can be seen by others. Choose websites and games that are appropriate for their age. Talk about why they need to ask a trusted adult before downloading files and games from the internet. Can discuss how they are respectful when posting comments online.	Protect their passwords and other personal information. Explain why they need to protect themselves and others and the best ways to do this, including reporting concerns to an adult. Know that anything posted online can be seen, used and may affect others. Talk about the dangers of spending too long online or playing a game. Explain the importance of communicating kindly and respectfully. Discuss the importance of choosing an age-appropriate website or game. Explain why they need to protect a computer or device from harm. Know which resources on the internet they can download and use.	Protect their passwords and other personal information. Explain the consequences of sharing too much information about themselves online. Support others to protect themselves and make good choices online, including reporting concerns to an adult. Explain the consequences of spending too much time online or playing a game. Explain the consequences to and others of not communicating kindly and respectfully. Protect a computer or device from harm on the internet

Computing Progression of Knowledge, Skills & Understanding (Years 2 - 6)