National Curriculum Objectives: 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
- 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

Computer Science.	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Programming using Scratch • 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	Scratch 1. Design and write simple programs that accomplish specific goals. 2. Use repetition in programs. 3. Work with various form of inputs including keyboard, mouse and touch screen 4. Write programs that simulate physical systems	Scratch 1. Debug programs that accomplish goals. 2. Use sequence, selection and repetition in programs. 3. Work with variables and various forms of input and output. 4. Work with variables and conditions.	Scratch 1. Program list variables that chooses randomly. 2. Program inputs, conditions and sensing for interaction, data variables for scoring and a game timer. 3. Program Inputs, outputs, loops, conditions, sensing and variables	Scratch 1. Program inputs, conditions, random variables for unpredictability, game timer. 2. Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring. 3. Use inputs, conditions, loops, sensing, costume changes and broadcasts

Programming using other systems • 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	Kudo 1. Create a 3D place using various design tools 2. Write a program to control a character using inputs 3. Write a program with conditions to create an if statement. 4. Write a program with variables (scoring system)	Microbits 1. Understand that computers use physical inputs and outputs and give examples. 2. Program physical inputs, outputs (e.g buttons and LED display) 3. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. 4. Use loops and simple sensors within a program	Spheros 1. Understand Bluetooth technology as input devices. 2. Write programs for Sphero using movement and repetition loops. 3. Write programs to accomplish specific goals and debug issues as they arise. 4. Write programs with random variables. 5. Write programs with outputs. Microbits 1. Understand that computers use physical inputs and outputs and give multiple examples. 2. Program different physical inputs and outputs (e.g. external inputs via crocodile clip/speaker) 3. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. 4. Use loops, conditioning statements, variables and numerical sensors for increased accuracy in a	Python 1.Program movements using Python Turtle. 2. Use the PRINT command for text. 3. Program a simple calculator in Python. 4. Program loops to repeat text. 5. Program interactive inputs HTML 1. Add and align text and change colour. 2. Program background colour 3. Add and align images 4. Add hyperlinks to build navigation between pages and external sites 5. Add an iframe and adjust its height and width

			program.	

Information Technology	Year 3	Year 4	Year 5	Year 6
Art and Design • 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	Digital Art 1. Use various lines, fill tools, rotation and copy and paste to create patterns. 2. In addition to the above skills, use shapes and flip to create reflective symmetry effects. 3. In addition to the above skills, use stamps, layers and multiple frames to create GIF graphics. 3D Design 1. Understand and use 3D space on a grid 2. Recreate familiar 3D models using cubes 3. Use chisel tool to improve and adapt models 4. Colour simple models.	Animation 1. Create a stop-motion video by duplicating slides on PPT that include backgrounds and shapes. 2. Create animation using transition and animation effects on PPT. 3. Animate individual pixels and elements of objects to create GIF files	3D Design 1. Understand 3D special awareness. 2. Add 3D shapes, resize, duplicate and use different perspectives 3. Recreate different types of building and roads by using and adjusting 3D shapes 4. Add detail to 3D design and colour accordingly.	Web Design 1. Add and format text within a website 2. Organise sections of webpages with relevant titles 3. Add and edit images 4. Include hyperlinks, buttons and files to help organise and navigate 5. Evaluate other websites and provide constructive feedback. 6. Act upon feedback received and make necessary changes Graphic Design 1. Add, adjust and fill shapes 2. Group shapes to improve accuracy and speed 3. Add and customise gradient effects 4. Adjust transparency/opacity for a purpose. 5. Use a colour picker

				correctly. 6. Accurately rotate shapes <u>3D Design (Tinkercad)</u> 1. Understand 3D special awareness and apply this knowledge to navigate a space. 2. Add 3D shapes, scale, rotate, duplicate and use different perspectives 3. Use the align tool to ensure a smooth design 4. Make and manipulate grouped objects 5. Recreate a planned design, including detail and colour
Data Handling • collecting, analysing, evaluating and presenting data and information		<u>Data Handling</u> 1. Change appearance of cells in a spreadsheet (fill colour and border) then add and align text. 2. Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title.	<u>Data Handling</u> 1. Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells 2. Find data and create a spreadsheet to suit it. 3. Use formulae to find totals, averages and maximum/minimum numbers 4. Search a database for specific information.	

Digital Literacy.	Year 3	Year 4	Year 5	Year 6
ESafety • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	1. Understand what to do if something upsets you online. 2. Understand why and how people can be nasty online. 3. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. 4. Understand why people pretend to be someone else online. 5. Understand why we only talk to people we know in the real world, when online. 6. Understand why we should not always trust what we read online and how to check 7. Understand the importance of being kind in the real world and also online. 8. Understand the importance of using avatars and how to make them		1. Understand to keep personal information private. 2. Respect and protect against online bullies. 3. Understand the consequences of sharing photo/videos online. 4. Understand the term ***digital footprint.*** 5. Check online content is trustworthy. 6. Understand how, where and who can we report concerns we have to. 7. Understand the pitfalls of in-app purchases. 8. Understand how and why companies/people track our online behaviour and how we can prevent it.	
Computing Proficiency • use technology purposefully to create, organise, store, manipulate and retrieve digital content (KS1) • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	<u>Typing</u> 1. Find letters on a keyboard and begin touch typing <u>Document Editing</u> 1. Copy and Paste text and images. 2. Find and replace words. 3. Format text for a purpose	<u>Internet Research</u> 1. Use search technologies to find specific pieces of information. 2. Understand features of an Internet Browser. 3. Reference the correct source of information. 4. Be discerning in evaluating digital content.		
Computer Parts and Systems • 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		<u>Inside a Computer</u> 1. Understand what important parts of inside a computer or mobile device do to help with the performance (CPU, Fan, Hard Drive, RAM, Graphics	<u>Networks/Systems</u> 1. Understand Computer Networks, Internet and Cloud Computing and how they help us. 2. What is email and how can we use it safely?	

		Card). 2. Understand that memory is measured in bytes and gigabytes. 3. Use search filters on websites to find suitable information.	3. Understand how and why we collaborate online (including blogging)	