Year 4: Computing

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Blocks 1 & 2 –
4.1 - Coding, 4.2 - Online safety, 4.3 - Spreadsheets

Overview of unit	Substantive Knowledge	Disciplinary Knowledge
4.1 - Coding: Coding develops further in this unit with pupils learning to include the IF/ELSE command and use this to develop games with interactive elements.	• Understand the developing complexity of a game requires more complex commands and command reactions. • Know how to debug commands when errors occur. • Use exploratory skills to identify commands that will achieve a required outcome.	• To understand how to use coordinates in computer programming. • To understand how an IF statement works. • Know how to use the 'Repeat Until' command. • Understand and use variables in programming. • Debug programs
4.2 - Online safety: In this unit pupils learn about some elements of cyber-security, including Phishing and what Malware is. They learn some elements of digital responsibility by looking at what 'Plagiarism' is, and how online content enables this.	• Understand about protecting their identity online. • Know about digital footprints. • Know the effect of plagiarism and compare this to moral rights. • Know the correct behaviour when contributing to online projects or learning. • Know positive and negative influences of technology on health and the environment.	• Know the risks of installing 'free' and 'bought' software. • Know security symbols, such as the padlock on the screen or browser bar. • Be aware of scam websites and understand the term 'phishing.' • Know what a digital footprint is. • Know what a computer virus is. • Understand the basic concept of plagiarism and copyright. • Know how to cite sources. • Make more informed decisions about using screens and screen time.
4.3 - Spreadsheets: As pupils progress to this unit, they will pick up on the skills learnt in year 3 and begin to use automation and formatting features to add to their skillset. They will create a simple budgeting spreadsheet and use it to explore place value.	• Recognise more of the features of spreadsheets, including calculating currency. • Recognise that a range of graphing options are available, and how to use them. • Know that automation can simplify processes in computers, making the users job easier.	• Know how to format numbers to decimals, currency etc. • Add formula to a cell with automated tools. • Create series of data. • Use a series of data to create a graph. • Read graphs. • Check concepts using our spreadsheet. •

Blocks 3 & 4 -
4.4 - Writing for different audiences, 4.5 - Logo, 4.6 - Animation

Overview of unit	Substantive Knowledge	Disciplinary Knowledge
4.4 - Writing for different audiences: Pupils will explore text features in writing packages to know how to change the impact of sections of text. They produce a news report, and evaluate the use of fonts, size and formatting on the readers use of the text.	• Understand that the appearance of presented information can affect how easy it is to access, and the professionalism of the finished product. • Know how to adapt text to a purpose. • Reflect on how texts are tailored to an audience.	• Know how to explore a range of media to review ideas. • Find common text editing and formatting tools in a range of packages. • Know how to change font size, shape and effects. • Reflect on what is fit for purpose, about page management and about suitability to size and purpose of a text. • Interpret a range of incoming communications to build up details of a story

		• Know about journalism in order to roleplay the job of a journalist.
4.5 - Logo: Pupisl learn simple visual programming in '2Logo' in order to create complex patterns and designs. They learn to repeat patterns and create nestable sub-programs called procedures to automate elements of a program.	• Understand that visual programming language can make creating programs easier. • Recognise that repeating commands can help produce complex effects. • Know that building sub-programs called procedures can add even deeper layers of complexity easily.	Learn the controls and structure of the language of 2Logo. Know how to input simple instructions. Know how to follow simple instructions to create shapes. Know the PU and PD commands. Write 2Logo instruction sequences. Learn and use the 'Repeat' command. Find the most efficient way to draw shapes. Use the procedure feature to build repeated commands.
4.6 - Animation: Pupils will learn about animation, and begin to be able to make animated films using both onion-skinning techniques and stop-motion animation.	• Consider the world of animated cartoons and begin to think about how animations are made. • Know how animations are created by hand. Understand how this can be done using technology. • Know what 'onion-skinning' is in animation. • Understand about 'stop-motion' animation.	• Make simple analogue animations. • Understand about 'Frames.' • Learn and use the simple 2animate tools in order to develop a simple animation. • Use the onionskin tool to create an animated image. • Add backgrounds and more complex elements. • Create a stop-motion film.
Blocks 5 & 6 – 4.7 - Effective search, 4.8 - Hardware Investigators, Unit 4.9 - Making Music		
Overview of unit	**Substantive Knowledge**	**Disciplinary Knowledge**
4.7 - Effective Search: In this unit students learn to search for information, structuring queries to gather required information. They will consider safe searching, and how to refine searches. They will also learn how to interpret results before clicking to link on wider web pages.	• Understand the concept of a global network of information which is searchable. • Know how to carry out safe searches, and the risks of content online. • Be discerning about the validity of information, even when sources look reliable.	• Know how to structure inquiries to locate specific information. • Use searches to answer a series of questions. • Refine searches. • Understand results of searches and how to judge a good result. • Analyse content and compare it in order to assess validity. • Know how to report inappropriate content.
4.8 - Hardware Investigators: Pupils will gain an understanding of the parts and roles of elements of a computer. They make a leaflet to explain to others how a computer works. This can be related to wider network use with more able pupils.	• Know the parts of a computer and their relative uses. • Know how wireless and cabled technology works. • Begin to have an understanding of networking and webs.	• Name the parts of a computer. • Know the function of each part. • Suggest ways they can connect. • Present understanding to others
4.9 - Making Music: Pupils will learn to use a computer with sequencing software to create a melody, with control of pitch, rhythm and tempo.	• Know more creative ways of using technology. • Recognise pitch, rhythm and tempo can be controlled digitally. • Know about creating melody. • Compose music on a computer.	• Learn the controls of the software. • Sequence sounds and pieces of music. • Know how to change pitch. • Know how to change tempo. • Know how to store, recall and play music. • Experiment with melody.