Nanaksar Primary School - Computing Overview

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1 **Online Safety** Knowledge Map Learning about online safety, including using useful tips to stay safe when online; how to manage feelings and emotions when someone or something has upset us online; learning about the responsibility we have as online users; exploring the idea of a 'digital footprint'	**Improving Mouse Skills** Knowledge Map Learning how to login and navigate around a computer, developing mouse skills, learning how to drag, drop, click and control a cursor to create works of art inspired by Kandinsky and self-portraits	**Programming 1 - Algorithms unplugged** Knowledge Map This unplugged unit requires no computers so that algorithms, decomposition and debugging are made relatable to familiar contexts, such as dressing up and making a sandwich, while learning why instructions need to be very specific	**Skills Showcase. Rocket to the moon** Knowledge Map Developing keyboard and mouse skills through designing, building and testing individual rockets by creating a digital list of materials, using drawing software and recording data	**Bee-Bot** Knowledge Map Developing early programming skills using the Bee:Bot	**Introduction to Data** Knowledge Map Learn what data is and the different ways that it can be represented and developing an understanding of why data is useful, how it can be used and ways in which it can be gathered and recorded both by humans and computers	**Digital Imagery** Knowledge Map Using creativity and imagination to plan a miniature adventure story and capture it using developing photography skills. Learn to enhance photos using a range of editing tools as well as searching for and adding other images to a project, resulting in a high-quality photo collage showcase.
Year 2 **Online Safety** Knowledge Map Learning about online safety, including: what happens to information posted online; how to keep things private online; who we should ask before sharing online; describing different ways to ask for, give, or deny permission online	**What is a Computer?** Knowledge Map When picturing a computer, thoughts are often of a screen, mouse and keyboard. This unit explores exactly what a computer is by identifying and learning how inputs and outputs work, how computers are used in the wider world and designing their own computerised invention	**Algorithms and debugging** Knowledge Map This combination of unplugged and plugged-in activities develop an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops	**Word Processing (Google)** Knowledge Map (Google) Learn about word processing and how to stay safe online as well developing touch typing skills. Introduce important keyboard shortcuts, as well as simple editing tools within a word processor including: bold, italics, underline and font colour as well as how to import images.	**Programming: Scratch** Knowledge Map Explore what 'blocks' do, using the app 'ScratchJr,' by carrying out an informative cycle of predict > test > review, programme a familiar story and an animation of an animal, make their own musical instrument by creating buttons and recording sounds and follow an algorithm to record a joke	**Stop Motion. Using tablets, cameras or devices without cameras.** Knowledge Map Storyboarding and simple animation creation using devices	**International Space Station** Knowledge Map The International Space Station (ISS) is a fascinating real-world setting for teaching how data is collected, used and displayed as well as the scientific learning of the conditions needed for plants and animals, including humans, to survive.

Year 3 **Online Safety** **Knowledge Map** Learning about online safety: 'fake news', privacy settings, ways to deal with upsetting online content, protecting our personal information on social media	**Networks and the internet** Knowledge Map Introduction to the concept of networks, learning how devices communicate. Identifying components, learning how information is shared and exploring examples of real-world networks.	**Programming Scratch** Knowledge Map Building on the use of the 'ScratchJr' application in Year 2, progress to using the more advanced computer-based application called 'Scratch', learning to use repetition or 'loops' and building upon skills to program; an animation, a story and a game	**Emailing** Knowledge Map Learning how to send emails with attachments and how to be a responsible digital citizen by thinking about the contents of what is sent.	**Journey inside a computer** Knowledge Map Assuming the role of computer parts and creating paper versions of computers helps to consolidate an understanding of how a computer works, as well as identifying similarities and differences between various models	**Video Trailers** Knowledge Map Developing filming and editing video skills through the storyboarding and creation of book trailers.	**Comparisons Card data base.** Knowledge Map Using the theme of a 'Comparison cards game' (based on the popular game, Top Trumps), to understand what a database is by learning the meanings of records, fields and data. Further exploration will lead to the development of the ideas of sorting and filtering.
Year 4 **Online Safety** **Knowledge Map** Learning how to navigate the internet in an informed, safe and respectful way	**Collaborative Learning** Knowledge Map Working collaboratively in a responsible and considerate way as well as looking at a range of collaborative tools.	**Further coding with Scratch** Knowledge Map Scratch Using variables in coding.	**Website design** Knowledge Map Children develop their research, word processing, and collaborative working skills whilst learning how web pages and web sites are created, exploring how to change layouts, embed images and videos and link between pages.	**HTML** Knowledge Map Editing the HTML and CSS of a web page to change the layout of a website and the text and images	**Computation Thinking** Knowledge Map Plugged and unplugged activities to develop the four areas of computational thinking	**Investigating Weather** Knowledge Map Researching and storing data using spreadsheets; designing a weather station that gathers and records data; learning how weather forecasts are made and using green screen technology to present a weather forecast.
Year 5 **Online Safety** **Knowledge Map** **Potential online dangers and safety**	**Search Engines** Knowledge Map Using keywords and phrases, identifying inaccurate information, learning page rank works as well.	**Programming Music** Knowledge Map Applying programming skills to create sounds and melodies leading to a battle of the bands performance	**Mars Rover 1** Knowledge Map Data transfer and binary code.	**Micro:bit** Knowledge Map The meaning and purpose of programming	**Stop Motion Animation** Knowledge Map Storyboarding ideas, taking photographs and editing to create a video animation	**Mars Rover 2** Knowledge Map 3D design skills

Year 6 **Online Safety** **Knowledge Map** **Learning how to navigate the internet in an informed, safe and respectful way**	**Bletchley Park** Knowledge Map Code breaking and password hacking	**Intro to Python** Knowledge Map Using the programming language of Python	**Big Data 1** Knowledge Map Barcodes, QR codes and RFID	**History of computers** Knowledge Map Children write, record and edit radio plays set during WWII, look back in time at how computers have evolved and design a computer of the future.	**Big Data 2** Knowledge Map Data usage and smart schools	**Inventing a product** Knowledge Map Designing a product, pupils: evaluate, adapt and debug code to make it suitable and efficient for their needs; use a software program to design their products; create their own websites and video adverts to promote their inventions.