

Westcott Church of England School

Computing Curriculum Mapping Cycle A (2023-2024) & B (2024-2025)

Computing EYFS (Nursery & Reception) & Key Stage 1 Years 1 & 2						
	Term 1	Term 2	Term 3	Term 4	Term 5 /6	July
Topic Cycle A 2023-2024	Unique you and me!	Fire! Fire!	Towers, Tunnels and Turrets!	There's no place like home!	The Secret Scented Garden! (Assessments)	Pupil initiated:
EYFS Framework	Computing is not explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, which focuses on the learning and development of children from birth to age five. However, there are many opportunities for young children to use technology to solve problems and produce creative outcomes. E.g. Using Beebots, remote controlled toys, battery operated toys, using simple cameras, or recorders to record their ideas or using tablets to access apps that support other areas of learning.					
National Curriculum (Statutory)	Pupils in KS1 should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies					
Unit name	Computing systems & networks Improving mouse skills	Programming Algorithms unplugged	Computing systems & networks Word Processing	Programming Scratch Junior	Data Handling Introduction to data	Creating media Digital Imagery
Key Knowledge & skills	To know that "log in" and "log out" means to begin and end a connection with a computer. To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art. To know passwords are important for security and to keep us safe.	To know that an algorithm is when instructions are put in an exact order. To know that decomposition means breaking a problem into manageable chunks and that it is important in computing. To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.	To know that touch typing is the fastest way to type. To know that I can make text a different style, size and colour. To know that "copy and paste" is a quick way of duplicating text. To know how to use word processing software to type and reformat text.	To know that coding is writing in a special language so that the computer understands what to do. To know that the character in Scratch Jr is controlled by the programming blocks. To know that you can write a program to create a musical instrument or tell a joke. To know that buttons cause effects and that	To know that charts and pictograms can be created using a computer. To know that a branching database is a way of classifying a group of objects. To know that computers understand different types of 'input'. To know that some devices are input devices and others are output devices.	To know that holding the camera or device still and considering angles and light are important to take good pictures. To know that you can edit, crop and filter photographs. To know how to search safely for images online. To know where keys are located on the keyboard.

			To know how to search for appropriate images to use in a document. To know what online information is. To know whether information is safe or unsafe to be shared online.	technology follows instruction To know what an algorithm is. To know how to follow an algorithm. To know how to create a clear and precise algorithm.	To know where keys are located on the keyboard. To develop control of the mouse through dragging, clicking and resizing of images to create different effects.	To know how to operate a camera to take photos and videos. To know what to do if they come across something online that worries them or makes them feel uncomfortable.
Topic Cycle B 2024-2025	Marvelous Transport!	Terrific Toys! (Then and now)	Going on a Safari!	To the Moon and the Stars!	Oh, we do like to be beside the seaside! (Assessments)	Pupil initiated:
Unit name	Computing systems & networks What is a computer?	Programming Beebots	Creating media Stop motion	Data handling International space station	Skills showcase Rocket to the moon	Programming Algorithms & debugging
Key Knowledge & skills	To know the difference between a desktop and laptop computer. To know that people control technology. To know some input devices that give a computer an instruction about what to do (output). To know that computers often work together. To know what a computer is and that it's made up of different components. To know that buttons cause effects and that technology follows instructions. To know how computers are used in. the wider world	To know the basic functions of a Bee-Bot. To know that you can use a camera/tablet to make simple videos. To know that algorithms move a Bee-Bot accurately to a chosen destination. To know how to follow a basic set of instructions. To know how to assemble instructions into a simple algorithm. To know how to program a floor robot to follow a planned route. To know how to debug instructions when things go wrong.	To know that an animation is made up of a sequence of photographs. To know that small changes in my frames will create a smoother looking animation. To know what software creates simple animations and some of its features e.g. onion skinning. To use greater control when taking photos with cameras, tablets or computers. To use logical thinking to explore software, predicting, testing and explaining what it does.	To To know that you can enter simple data into a spreadsheet. To To know what steps you need to take to create an algorithm. To know what data to use to answer certain questions. To know that computers can be used to monitor supplies. To develop confidence with the keyboard and the basics of touch typing. To know how to create labels and images. To know how to collect and input data into a spreadsheet. To know how to interpret data from a spreadsheet. To know how computers are used in the wider world.	To know that when we create something on a computer it can be more easily saved and shared than a paper version. To know some of the simple graphic design features of a piece of online software. To know that a spreadsheet is an electronic 'table' for sorting data. To know that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc. To know how to log in and out and saving work on their own account.	To know what machine learning is and how it enables computers to make predictions. To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times. To know that abstraction is the removing of unnecessary detail to help solve a problem. To use logical thinking to explore software, predicting, testing and explaining what it does. To know how to use an algorithm to write a basic computer program.

Computing Key Stage 2

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.

Computing Lower Key Stage 2 Years 3 & 4

	Term 1	Term 2	Term 3	Term 4	Term 5 /6	July
Topic Cycle A 2023-2024	Savage Stone to Brilliant Bronze	Light of the World	What an incredible earth!	A clang and a bang! Music to my ears!	Pharaohs and Pyramids of the Nile (Assessments)	Pupil initiated:
Unit name	Computing systems and networks 1: Networks and the internet.	Computing systems and networks 2: Emailing	Data Handling: Investigating weather	Programming: Coding with Scratch	Computing systems and networks 3: Journey inside a computer	Programming 2: computational thinking
Key Knowledge & skills Progression	To know what a network is and how a school network might be organised. To know that a server is central to a network and responds to requests made. To know that a router connects us to the internet. To know how the internet uses networks to share files. To know what a packet is and why it is important for website data transfer.	To know that email stands for 'electronic mail.' To know that an attachment is an extra file added to an email. To know that emails should contain appropriate and respectful content. To know that cyberbullying is bullying using electronics such as a computer or phone.	To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data'). To know that a weather machine is an automated machine that respond to sensor data. To know that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.	To know that Scratch is a programming language and some of its basic functions. To know how to use loops to improve programming. To know how decomposition is used in programming. To know that you can remix and adapt existing code.	To know the roles that inputs and outputs play on computers. To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together. To know what a tablet is and how it is different from a laptop/desktop computer. To know what the different components of a computer do and how they work together.	To know that combining computational thinking skills can help you to solve a problem. To know that pattern recognition means identifying patterns to help them work out how the code works. To know that algorithms can be used for a number of purposes e.g. animation, games design etc.

					To drawing comparisons across different types of computers. To know how to use decomposition to explain the parts of a laptop computer.	
Topic Cycle B 2024-2025	Making my body work for me	The Frozen Kingdom	Rampaging Romans	Where will we find them?	Gods and Heroes (Assessments)	Pupil initiated:
Unit name	Computing systems & networks: collaborative learning.	Creating media: Website design	Programming: Scratch	Data Handling: comparison cards databases	Video trailers 1:	Skills showcase: HTML Websites
key Knowledge Progression	To know that software can be used collaboratively online to work as a team. To know what type of comments and suggestions on a collaborative document can be helpful. To know that you can use images, text, transitions and animation in presentation slides. To know that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. To know how to use online software for documents, presentations, forms and spreadsheets. To know what appropriate behaviour is when collaborating with others online.	To know that a website is a collection of pages that are all connected. To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks. To know that websites should be informative and interactive. To know how to build a web page and create content for it. To know how to use software to work collaboratively with others.	To know that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch. To know what a conditional statement is in programming. To know that variables can help you to create a quiz on Scratch. To know how to use decomposition to solve a problem by finding out what code was used. To know how to create algorithms for a specific purpose. To know how to code a simple game Incorporating variables to make code more efficient. To know how to remix existing code.	To know that a database is a collection of data stored in a logical, structured and orderly manner. To know that computer databases can be useful for sorting and filtering data. To know that different visual representations of data can be made on a computer. To know the vocabulary associated with databases: field, record, data. To know about the pros and cons of digital versus paper databases. To know how to sort and filter databases to easily retrieve information. To know how to create and interet charts and graphs to understand data.	To know that different types of camera shots can make my photos or videos look more effective. To know that I can edit photos and videos using film editing software. To understand that I can add transitions and text to my video. To useg logical thinking to explore more complex software; predicting, testing and explaining what it does. To know how to take photographs and recording video to tell a story. To know how to use software to edit and enhance their video adding music, sounds and text on screen with transitions.	To know and identify examples of HTML tags. To know what changing the HTML and CSS does to alter the appearance of an object on the web. To know that copyright means that those images are protected and to understand that we should do a “creative commons” image search if we wish to use images from the internet. To know what “fake news” is and ways to spot websites that carry this type of misinformation. To know what the “inspect” elements tool is and ways of using it to explore and alter text and images. To know that information on the Internet might not be true or correct and that some sources are more trustworthy than others.

Computing Upper Key Stage 2 Years 5 & 6						
	Term 1	Term 2	Term 3	Term 4	Term 5 /6	July
Topic Cycle A 2023-2024	It's time for a Disaster!	Victorian Children and Christmas	Animal, Vegetable or Mineral?	To be or not to be?	We have the Power to change! (Assessments)	Pupil initiated:
Unit name	Computing systems and networks: Search engines	Programming 1: Music	Data handling: Big Data 1	Creating media: Stop motion animation	Skills showcase: Inventing a product	Handling Data: Big Data 2
Key Knowledge & skills	To know how search engines work. To understand that anyone can create a website and therefore we should take steps to check the validity of websites. To know that web crawlers are computer programs that crawl through the internet. To understand what copyright is. To know how to use search engines effectively to find information. To know about different forms of communication that have developed with the use of technology. To know that information on the Internet might not be true or correct and learning ways of checking validity.	To know that a soundtrack is music for a film/video and that one way of composing these is on programming software. To know that using loops can make the process of writing music simpler and more effective. To know how to adapt their music while performing. To know how to use loops in their programming. To know how to use repetition within a program. To identify ways to improve and edit programs, videos, images etc.	To know that data contained within barcodes and QR codes can be used by computers. To know how barcodes, QR codes and RFID work. To know that infrared waves are a way of transmitting data. To know that Radio Frequency Identification (RFID) is a more private way of transmitting data. To know that data is often encrypted so that even if it is stolen it is not useful to the thief. To be able to gather and analyse data in real time. To know how to create formulas and sort data within spreadsheets.	To know that decomposition of an idea is important when creating stop-motion animations. To know that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. To know that editing is an important feature of making and improving a stop motion animation. To know how to use video editing software to animate.	To know what designing an electronic product involves. To know which programming software/language is best to achieve a purpose. To know the building blocks of computational thinking e.g. sequence, selection, repetition, variables and inputs and outputs. To know how to use design software TinkerCAD to design a product. To know how to create a website with embedded links and multiple pages. To know how search engines work. To know how to use search engines safely and effectively.	To know that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'. To know that devices or that are not updated are most vulnerable to hackers. To know the difference between mobile data and WiFi. To know how corruption can happen within data during transfer (for example when downloading, installing, copying and updating files). To know how to use search and word processing skills to create a presentation.

Topic Cycle B 2024-2025	Invade, Conquer Settle	We're all Wonders!	May the Force be with you!	Map Makers & Globe Trotters	Spies, Suspicions and Secrets (Assessments)	Pupil initiated:
Unit name	Programming: Intro to Python	Programming 2: Microbit Animation	Mars Rover 1	Mars Rover 2	Computing systems and Networks: Bletchley Park	Creating media: history of computers
Key Knowledge & skills	To know that there are text-based programming languages such as Logo and Python. To know that nested loops are loops inside of loops. To understand the use of random numbers and remix Python code. To know how to write increasingly complex algorithms for a purpose. To know how to debug quickly and effectively to make a program more efficient. To know how to remix existing code to explore a problem. To know how to use and adapt nested loops. To know how to program using the language Python.	To know that a Micro:bit is a programmable device. To know that Micro:bit uses a block coding language similar to Scratch. To know and recognise coding structures including variables. To know what techniques to use to create a program for a specific purpose. To know that a Micro:bit is a programmable device.	To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. To know what numbers using binary code look like and be able to identify how messages can be sent in this format. To know that RAM is Random Access Memory and acts as the computer's working memory. To know what simple operations can be used to calculate bit patterns. To know the size of RAM affects the processing of data. To know that computers transfer data in binary and understanding simple binary addition. To know that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.	To understand that bit patterns represent images as pixels. To understand that the data for digital images can be compressed. To know the difference between ROM and RAM. To understand various techniques that will improve the design of a 3D object (using CAD software).	To understand the importance of having a secure password and what "brute force hacking" is. To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2. To know about some of the historical figures that contributed to technological advances in computing. To know about the history of computers and how they have evolved over time. To know how to use search and word processing skills to create a presentation. To know the importance of secure passwords and how to create them.	To know that radio plays are plays where the audience can only hear the action so sound effects are important. To know that sound clips can be recorded using sound recording software. To know that sound clips can be edited and trimmed. To know about the history of computers and how they have evolved over time. To know how to plan, record and edit a radio play.