

Raynham Computing Overview - Composite Knowledge

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
EYFS (Rec)	<p>Unit: All about instructions Programming</p> <p>To know that being able to follow and give simple instructions is important in computing.</p> <p>To understand that it is important for instructions to be in the right order</p> <p>To understand why a set of instructions may have gone wrong.</p>		<p>Unit: Exploring hardware Computer systems and networks</p> <p>To know that different types of technology can be found at home and in school.</p> <p>To know that you can take simple photographs with a camera or iPad.</p> <p>To know that you must hold the camera still and ensure the subject is in the shot to take a photo.</p>	<p>Unit: Programming Bee-bots Programming</p> <p>To know that you can program a Bee-Bot with some simple commands.</p> <p>To understand that debugging means how to fix some simple programming errors.</p> <p>To understand that an algorithm is a set of clear and precise instructions.</p>	<p>Unit: Introduction to data Data handling</p> <p>To know that sorting objects into various categories can help you locate information.</p> <p>To know that using yes/no questions to find an answer is known as a branching database.</p> <p>To know that a pictogram is a way of showing information.</p>	<p>Unit: Using a computer Computer systems and networks</p> <p>To be able to understand what a computer keyboard is and recognise some letters and numbers.</p> <p>To know that a mouse can be used to click, drag and create simple drawings.</p> <p>To know that to use a computer you need to log in to it and then log out at the end of your session.</p>
Year 1	<p>Unit: Improving mouse skills Computer systems and networks</p> <p>To know that "log in" and "log out" means to begin and end a connection with a computer.</p> <p>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.</p> <p>To know that passwords are important for security.</p> <p>Online Safety</p>	<p>Unit: Algorithms unplugged Programming</p> <p>To understand that an algorithm is when instructions are put in an exact order.</p> <p>To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.</p> <p>To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.</p> <p>Online Safety</p>	<p>Unit: Programming Bee-bots Programming</p> <p>To understand the basic functions of a Bee-Bot.</p> <p>To know that you can use a camera/tablet to make simple videos.</p> <p>To know that algorithms move a Bee-Bot accurately to a chosen destination.</p> <p>Online Safety</p>	<p>Unit: Introduction to data Data handling</p> <p>To know that charts and pictograms can be created using a computer.</p> <p>To understand that a branching database is a way of classifying a group of objects.</p> <p>To know that computers understand different types of 'input'.</p> <p>Online Safety</p>	<p>Unit: Digital imagery Creating media</p> <p>To understand that holding the camera or device still and considering angles and light are important to take good pictures.</p> <p>To know that you can edit, crop and filter photographs.</p> <p>To know how to search safely for images online.</p>	<p>Unit: Rocket to the moon Skills Showcase</p> <p>To know that when we create something on a computer it can be more easily saved and shared than a paper version.</p> <p>To know some of the simple graphic design features of a piece of online software.</p> <p>To know that a spreadsheet is an electronic 'table' for sorting data.</p>
Year 2	<p>Unit: What is a computer? Computer systems and networks</p> <p>To know the difference between a desktop and laptop computer.</p> <p>To know that people control technology.</p> <p>To know some input devices that give a computer an instruction about what to do (output).</p> <p>To know that computers often work together.</p> <p>Online Safety</p>	<p>Unit: Algorithms and debugging Programming</p> <p>To understand what machine learning is and how it enables computers to make predictions.</p> <p>To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.</p> <p>To know that abstraction is the removing of unnecessary detail to help solve a problem.</p> <p>Online Safety</p>	<p>Unit: Word Processing (Google) Computer systems and networks</p> <p>To know that touch typing is the fastest way to type.</p> <p>To know that I can make text a different style, size and colour.</p> <p>To know that "copy and paste" is a quick way of duplicating text.</p> <p>Online Safety</p>	<p>Unit: Programming: Scratch Jr Programming</p> <p>To know that coding is writing in a special language so that the computer understands what to do.</p> <p>To understand that the character in ScratchJr is controlled by the programming blocks.</p> <p>To know that you can write a program to create a musical instrument or tell a joke.</p> <p>Online Safety</p>	<p>Unit: Stop motion Creating media</p> <p>To understand that an animation is made up of a sequence of photographs.</p> <p>To know that small changes in my frames will create a smoother looking animation.</p> <p>To understand what software creates simple animations and some of its features e.g. onion skinning.</p> <p>Online Safety</p>	<p>Unit: International Space Station Data handling</p> <p>To understand that you can enter simple data into a spreadsheet.</p> <p>To understand what steps you need to take to create an algorithm.</p> <p>To know what data to use to answer certain questions.</p> <p>To know that computers can be used to monitor supplies.</p> <p>Online Safety</p>

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Year 3	<p>Unit: Networks and the internet Computer systems and networks To understand what a network is and how a school network might be organised.</p> <p>To know that a server is central to a network and responds to requests made.</p> <p>To know that a router connects us to the internet.</p> <p>To know how the internet uses networks to share files.</p> <p>To know what a packet is and why it is important for website data transfer.</p> <p>Online Safety</p>	<p>Unit: Programming: Scratch Programming To know that Scratch is a programming language and some of its basic functions.</p> <p>To understand how to use loops to improve programming.</p> <p>To understand how decomposition is used in programming.</p> <p>To understand that you can remix and adapt existing code.</p> <p>Online Safety</p>	<p>Unit: Emailing Computer systems and networks To understand that email stands for 'electronic mail.'</p> <p>To know that an attachment is an extra file added to an email.</p> <p>To understand that emails should contain appropriate and respectful content.</p> <p>To know that cyberbullying is bullying using electronics such as a computer or phone.</p> <p>Online Safety</p>	<p>Unit: Journey inside a computer Computer systems and networks To know the roles that inputs and outputs play on computers.</p> <p>To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.</p> <p>To know what a tablet is and how it is different from a laptop/desktop computer.</p> <p>Online Safety</p>	<p>Unit: Video trailers Creating media To know that different types of camera shots can make my photos or videos look more effective.</p> <p>To know that I can edit photos and videos using film editing software.</p> <p>To understand that I can add transitions and text to my video.</p>	<p>Unit: Comparison cards databases Data handling To know that a database is a collection of data stored in a logical, structured and orderly manner.</p> <p>To know that computer databases can be useful for sorting and filtering data.</p> <p>To know that different visual representations of data can be made on a computer.</p>
Year 4	<p>Unit: Collaborative Learning Computer systems and networks To understand that software can be used collaboratively online to work as a team.</p> <p>To know what type of comments and suggestions on a collaborative document can be helpful.</p> <p>To know that you can use images, text, transitions and animation in presentation slides.</p> <p>Online Safety</p>	<p>Unit: Further coding with Scratch Programming To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch.</p> <p>To know what a conditional statement is in programming.</p> <p>To understand that variables can help you to create a quiz on Scratch.</p> <p>Online Safety</p>	<p>Unit: Investigating weather Data handling 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').</p> <p>To know that a weather machine is an automated machine that respond to sensor data.</p> <p>To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.</p> <p>Online Safety</p>	<p>Unit: Computational thinking Programming To know that combining computational thinking skills can help you to solve a problem.</p> <p>To understand that pattern recognition means identifying patterns to help them work out how the code works.</p> <p>To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.</p> <p>Online Safety</p>	<p>Unit: Website design Creating media To know that a website is a collection of pages that are all connected.</p> <p>To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks.</p> <p>To know that websites should be informative and interactive.</p> <p>Online Safety</p>	<p>Unit: HTML Skills Showcase To understand and identify examples of HTML tags.</p> <p>To understand what changing the HTML and CSS does to alter the appearance of an object on the web.</p> <p>To understand 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.</p> <p>To know what "fake news" is and ways to spot websites that carry this type of misinformation.</p> <p>To know what the "inspect" elements tool is and ways of using it to explore and alter text and images.</p> <p>Online Safety</p>
Year 5	<p>Unit: Search Engines Computer systems and networks To know how search engines work.</p> <p>To understand that anyone can create a website and therefore we should take steps to check the validity of websites.</p> <p>To know that web crawlers are computer programs that crawl through the internet.</p> <p>To understand what copyright is.</p> <p>Online Safety</p>	<p>Unit: Programming music Programming To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.</p> <p>To understand that using loops can make the process of writing music simpler and more effective.</p> <p>To know how to adapt their code while performing their music.</p> <p>Online Safety</p>	<p>Unit: Stop motion animation Creating media To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph.</p> <p>To know that decomposition of an idea is important when creating stop-motion animations.</p> <p>To know that editing is an important feature of making and improving a stop motion animation.</p> <p>Online Safety</p>	<p>Unit: Mars Rover 1 Data handling To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock.</p> <p>To know what numbers using binary code look like and be able to identify how messages can be sent in this format.</p> <p>To understand that RAM is Random Access Memory and acts as the computer's working memory.</p> <p>To know what simple operations can be used to calculate bit patterns.</p> <p>Online Safety</p>	<p>Unit: Micro:bit Programming To know that a Micro:bit is a programmable device.</p> <p>To know that Micro:bit uses a block coding language similar to Scratch.</p> <p>To understand and recognise coding structures including variables.</p> <p>To know what techniques to use to create a program for a specific purpose (including decomposition).</p> <p>Online Safety</p>	<p>Unit: Mars Rover 2 Skills Showcase To understand that bit patterns represent images as pixels.</p> <p>To understand that the data for digital images can be compressed.</p> <p>To know the difference between ROM and RAM.</p> <p>To understand various techniques that will improve the design of a 3D object (using CAD software).</p>
Year 6	<p>Unit: Bletchley Park Computer systems and networks To understand the importance of having a secure password and what "brute force hacking" is.</p> <p>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.</p> <p>To know about some of the historical figures that contributed to technological advances in computing.</p> <p>To understand what techniques are required to create a presentation using appropriate software.</p> <p>Online Safety</p>	<p>Unit: History of computers Creating media To understand the main features that have changed in computers over the years.</p> <p>To know the main differences between the first computers and those we use today.</p> <p>To use the understanding of historic computers to design a computer of the future.</p> <p>Online Safety</p>	<p>Unit: Intro to Python Programming To know that there are text-based programming languages such as Logo and Python.</p> <p>To know that nested loops are loops inside of loops.</p> <p>To understand the use of random numbers and remix Python code.</p> <p>Online Safety</p>	<p>Unit: Big Data 1 Data handling To know that data contained within barcodes and QR codes can be used by computers.</p> <p>To know that infrared waves are a way of transmitting data.</p> <p>To know that Radio Frequency Identification (RFID) is a more private way of transmitting data.</p> <p>To know that data is often encrypted so that even if it is stolen it is not useful to the thief.</p> <p>Online Safety</p>	<p>Unit: Big Data 2 Data handling To know that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'.</p> <p>I know that devices that are not updated are most vulnerable to hackers.</p> <p>To know the difference between mobile data and WiFi.</p> <p>Online Safety</p>	<p>Unit: Inventing a product Skills Showcase To know what designing an electronic product involves.</p> <p>To know which programming software/ language is best to achieve a purpose.</p> <p>To know the building blocks of computational thinking e.g. sequence, selection, repetition, variables and inputs and outputs.</p> <p>Online Safety</p>