

St Joseph's RC Voluntary Academy, Todmorden

Whole School Progression Map

Computing cycle A

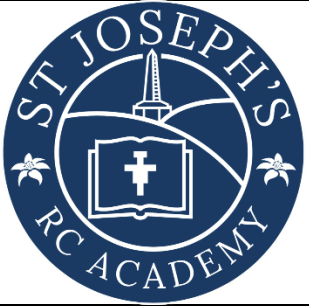


Skills & Knowledge/ Class	Beech	Cedar	Elm	Oak
<p>Computer Science</p>	<p>Recognising and identifying familiar letters and numbers on a keyboard. Developing basic mouse skills such as moving and clicking. Learning to debug an algorithm in an unplugged scenario. Learning to debug instructions when things go wrong. Assembling instructions into a simple algorithm. Following a basic set of instructions. Developing the skills associated with sequencing in unplugged activities. Using logical reasoning to predict the behaviour of simple programs. Learning how to operate a camera to take photos and videos. Learning where keys are located on the keyboard. Using logical reasoning to understand simple instructions and predict the outcome. Following instructions as part of practical activities and games. Learning to give simple instructions. Learning to debug instructions, with the help of an adult, when things go wrong. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary. Experimenting with programming a Bee-bot/ Blue-bot and learning how to give simple commands.</p>	<p>Recognising that buttons cause effects and that technology follows instructions. Using greater control when taking photos with cameras, tablets or computers. Developing confidence with the keyboard and the basics of touch typing. Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it. Learning that there are different levels of abstraction. Explaining what an algorithm is.</p>	<p>Learning about the purpose of routers. Understanding the role of the key components of a network. Understanding that websites & videos are files that are shared from one computer to another. Learning about the role of packets. Understanding how networks work and their purpose. Identifying the key components within a network, including whether they are wired or wireless. Recognising links between networks and the internet. Learning how data is transferred. Using decomposition to explore the code behind an animation. Using repetition in programs. Using logical reasoning to explain how simple algorithms work. Explaining the purpose of an algorithm. Forming algorithms independently. Using logical thinking to explore more complex software; predicting, testing and explaining what it does. Incorporating loops to make code more efficient. Continuing existing code. Making reasonable suggestions for how to debug their own and others' code. Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. Remixing existing code.</p>	<p>Learning the difference between ROM and RAM. Recognising how the size of RAM affects the processing of data. Understanding the fetch, decode, execute cycle. Learning how the data for digital images can be compressed. Recognising that computers transfer data in binary and understanding simple binary addition. Understanding how bit patterns represent images as pixels. Decomposing animations into a series of images. Decomposing a story to be able to plan a program to tell a story. Using abstraction and pattern recognition to modify code. Creating algorithms for a specific purpose. Using abstraction to identify the important parts when completing both plugged and unplugged activities. Using past experiences to help solve new problems. Identifying patterns through unplugged activities. Using decomposition to understand the purpose of a script of code. Using decomposition to solve a problem by finding out what code was used. Learning about the history of computers and how they have evolved over time. Using the understanding of historic computers to design a computer of the future. Understanding how corruption can happen within data during transfer (for example when downloading, installing, copying and updating files). Understanding that computer networks provide multiple services. Using past experiences to help solve new problems. Writing increasingly complex algorithms for a purpose. Debugging quickly and effectively to make a program more efficient. Remixing existing code to explore a problem. Changing a program to personalise it. Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose.</p>

Skills & Knowledge/ Class	Beech	Cedar	Elm	Oak
Information Technology	<p>Using a simple online paint tool to create digital art.</p> <p>Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.</p> <p>Recognising devices that are connected to the internet.</p> <p>Developing understanding of different software tools.</p> <p>Developing control of the mouse through dragging, clicking and resizing of images to create different effects.</p> <p>Taking and editing photographs.</p> <p>Using a basic range of tools within graphic editing software.</p> <p>Representing data through sorting and categorising objects in unplugged scenarios.</p> <p>Representing data through pictograms.</p> <p>Exploring branch databases through physical games.</p>	<p>Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.</p> <p>Using word processing software to type and reformat text.</p> <p>Using software (and unplugged means) to create story animations.</p> <p>Creating and labelling images.</p> <p>Searching for appropriate images to use in a document.</p> <p>Understanding what online information is.</p> <p>Collecting and inputting data into a spreadsheet.</p> <p>Interpreting data from a spreadsheet.</p> <p>Learning how computers are used in the wider world.</p>	<p>Learning to log in and out of an email account.</p> <p>Writing an email including a subject, 'to' and 'from'</p> <p>Sending an email with an attachment.</p> <p>Replying to an email.</p> <p>Recognising how social media platforms are used to interact.</p> <p>Understanding the purpose of emails.</p> <p>Building a web page and creating content for it.</p> <p>Building a web page and creating content for it.</p> <p>Using software to work collaboratively with others.</p> <p>Understanding that information found by searching the internet is not all grounded in fact.</p> <p>Understanding that software can be used collaboratively online to work as a team.</p>	<p>Using logical thinking to explore software more independently, making predictions based on their previous experience.</p> <p>Using video editing software to animate.</p> <p>Independently learning how to use 3D design software package TinkerCAD</p> <p>Learn about different forms of communication that have developed with the use of technology.</p> <p>Using search and word processing skills to create a presentation.</p> <p>Planning, recording and editing a radio play.</p> <p>Creating and editing sound recordings for a specific purpose.</p> <p>Using logical thinking to explore software independently, iterating ideas and testing continuously</p> <p>Using search and word processing skills to create a presentation.</p> <p>Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions.</p> <p>Using design software TinkerCAD to design a product.</p> <p>Creating a website with embedded links and multiple pages.</p> <p>Understanding how search engines work.</p> <p>Creating formulas and sorting data within spreadsheets.</p> <p>Learning about the Internet of Things and how it has led to 'big data'</p> <p>Learning how 'big data' can be used to solve a problem or improve efficiency.</p>
Digital Literacy	<p>Logging in and out and saving work on their own account.</p>	<p>Identifying whether information is safe or unsafe to be shared online.</p> <p>Learning how to create a strong password.</p> <p>Learning to be respectful of others when sharing online and ask for their permission before sharing content.</p> <p>Learning strategies for checking if something they Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable. read online is true.</p>	<p>Recognising that different information is shared online including facts, beliefs and opinions.</p> <p>Learning how to identify reliable information when searching online.</p> <p>Learning how to stay safe on social media.</p> <p>Learning about cyberbullying.</p> <p>Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.</p> <p>Recognising what appropriate behaviour is when collaborating with others online.</p> <p>Recognising what appropriate behaviour is when collaborating with others online.</p>	<p>Identifying possible dangers online and learning how to stay safe.</p> <p>Evaluating the pros and cons of online communication.</p> <p>Recognising that information on the Internet might not be true or correct and learning ways of checking validity.</p> <p>Learning what to do if they experience bullying online.</p> <p>Learning to use an online community safely.</p> <p>Learning about the positive and negative impacts of sharing online.</p> <p>Learning strategies to create a positive online reputation.</p> <p>Understanding the importance of secure passwords and how to create them.</p> <p>Learning strategies to capture evidence of online bullying in order to seek help.</p> <p>Using search engines safely and effectively.</p> <p>Recognising that updated software can help to prevent data corruption and hacking.</p>

Skills & Knowledge/ Class	Beech	Cedar	Elm	Oak
<p style="text-align: center;">Knowledge</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> <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>To understand that an algorithm is a set of clear and precise instructions.</p> <p>To understand that debugging means how to fix some simple programming errors.</p> <p>To know that you can program a Bee-Bot with some simple commands.</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>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> <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 the difference between online and offline.</p> <p>To understand what information I should not post online.</p> <p>To know what the techniques are for creating a strong password.</p> <p>To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.'</p> <p>To understand that not everything I see or read online is true.</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>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>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>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>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 that not everything on the internet is true: people share facts, beliefs and opinions online.</p> <p>To understand that the internet can affect your moods and feelings.</p> <p>To know that privacy settings limit who can access your important personal information such as your name, age, gender etc.</p> <p>To know what social media is and that age restrictions apply.</p> <p>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 how the internet uses networks to share files.</p> <p>To know that a router connects us to the internet.</p> <p>To know what a packet is and why it is important for website data transfer.</p> <p>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>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>Recognising what appropriate behaviour is when collaborating with others online.</p> <p>Recognising what appropriate behaviour is when collaborating with others online.</p> <p>To know that you can use images, text, transitions and animation in presentation slides.</p>	<p>To know that decomposition of an idea is important when creating stop-motion animations.</p> <p>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 editing is an important feature of making and improving a stop motion animation.</p> <p>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> <p>To know different ways we can communicate online.</p> <p>To understand how online information can be used to form judgements.</p> <p>To understand some ways to deal with online bullying.</p> <p>To know that apps require permission to access private information and that you can alter the permissions.</p> <p>To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.</p> <p>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>To know that radio plays are plays where the audience can only hear the action so sound effects are important.</p> <p>To know that sound clips can be recorded using sound recording software.</p> <p>To know that sound clips can be edited and trimmed.</p> <p>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 or that are not updated are most vulnerable to hackers.</p> <p>To know the difference between mobile data and WiFi.</p> <p>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>To know that a digital footprint means the information that exists on the internet as a result of a person's online activity.</p> <p>To know what steps are required to capture bullying content as evidence.</p> <p>To understand that it is important to manage personal passwords effectively.</p> <p>To understand what it means to have a positive online reputation.</p> <p>To know some common online scams.</p>

	<p>To understand that an algorithm is a set of clear and precise instructions.</p>	<p>To know what data to use to answer certain questions. To know that computers can be used to monitor supplies.</p>	<p>To know that you can use images, text, transitions and animation in presentation slides. To know that you can use images, text, transitions and animation in presentation slides. 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. 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. 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>	
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St Joseph's RC Voluntary Academy, Todmorden

Whole School Progression Map

Computing cycle B



Skills & Knowledge/ Class	Beech	Cedar	Elm	Oak
Computer Science	<p>Learning how to operate a camera to take photographs of meaningful creations or moments.</p> <p>Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.</p> <p>Using logical reasoning to understand simple instructions and predict the outcome.</p> <p>Following instructions as part of practical activities and games.</p> <p>Learning to give simple instructions.</p> <p>Experimenting with programming a Bee-bot/ Blue-bot and learning how to give simple commands.</p> <p>Learning to debug instructions, with the help of an adult, when things go wrong.</p> <p>Experimenting with programming a Bee-bot/ Blue-bot and learning how to give simple commands.</p> <p>Learning how to explore and tinker with hardware to find out how it works.</p> <p>Learning where keys are located on the keyboard.</p> <p>Learning how to operate a camera to take photos and videos.</p> <p>Developing the skills associated with sequencing in unplugged activities.</p>	<p>Following a basic set of instructions.</p> <p>Assembling instructions into a simple algorithm.</p> <p>Programming a floor robot to follow a planned route.</p> <p>Learning to debug instructions when things go wrong.</p> <p>Using programming language to explain how a floor robot works.</p> <p>Learning to debug an algorithm in an unplugged scenario.</p> <p>Understanding what a computer is and that it's made up of different components.</p> <p>Recognising that buttons cause effects and that technology follows instructions.</p> <p>Learning how we know that technology is doing what we want it to do via its output.</p> <p>Using greater control when taking photos with cameras, tablets or computers.</p>	<p>Understanding what the different components of a computer do and how they work together.</p> <p>Drawing comparisons across different types of computers.</p> <p>Using decomposition to explain the parts of a laptop computer.</p> <p>Explaining the purpose of an algorithm.</p> <p>Using logical thinking to explore more complex software; predicting, testing and explaining what it does.</p> <p>Using decomposition to solve a problem by finding out what code was used.</p> <p>Using decomposition to understand the purpose of a script of code.</p> <p>Identifying patterns through unplugged activities.</p> <p>Using past experiences to help solve new problems.</p> <p>Using abstraction to identify the important parts when completing both plugged and unplugged activities.</p> <p>Creating algorithms for a specific purpose.</p> <p>Using abstraction and pattern recognition to modify code.</p>	<p>Decomposing a program without support.</p> <p>Confidently using loops in their programming.</p> <p>Confidently using loops in their programming.</p> <p>To understand some of the methods used to encourage people to buy things online.</p> <p>Using tablets or digital cameras to film a weather forecast.</p> <p>Predicting how software will work based on previous experience.</p> <p>Writing more complex algorithms for a purpose.</p> <p>Iterating and developing their programming as they work.</p> <p>Confidently using loops in their programming.</p> <p>Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.</p> <p>Writing code to create a desired effect.</p> <p>Using a range of programming commands.</p> <p>Using repetition within a program.</p> <p>Amending code within a live scenario.</p> <p>To know how to adapt their music while performing.</p> <p>Identifying devices and applications that can scan or read barcodes, QR codes and RFID.</p> <p>Decomposing a program into an algorithm.</p> <p>Writing increasingly complex algorithms for a purpose.</p> <p>Debugging quickly and effectively to make a program more efficient.</p> <p>Remixing existing code to explore a problem.</p> <p>Using and adapting nested loops.</p> <p>Programming using the language Python.</p> <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose.</p>

Skills & Knowledge/ Class	Beech	Cedar	Elm	Oak
Information Technology	<p>Recognising that a range of technology is used in places such as homes and schools.</p> <p>Using a basic range of tools within graphic editing software.</p> <p>Taking and editing photographs.</p> <p>Developing control of the mouse through dragging, clicking and resizing of images to create different effects.</p> <p>Developing understanding of different software tools.</p> <p>Recognising devices that are connected to the internet.</p> <p>Searching and downloading images from the internet safely.</p>	<p>Developing control of the mouse through dragging, clicking and resizing of images to create different effects.</p> <p>Developing understanding of different software tools.</p> <p>Recognising devices that are connected to the internet.</p> <p>Understanding that we are connected to others when using the internet.</p> <p>Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.</p> <p>Using data representations to answer questions about data.</p> <p>Using software to explore and create pictograms and branching databases.</p> <p>Understanding some of the ways we can use the internet.</p> <p>Recognising common uses of information technology, including beyond school.</p> <p>Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.</p> <p>Using word processing software to type and reformat text.</p> <p>Creating and labelling images.</p>	<p>Taking photographs and recording video to tell a story.</p> <p>Using software to edit and enhance their video adding music, sounds and text on screen with transitions.</p> <p>Understanding the vocabulary associated with databases: field, record, data.</p> <p>Learning about the pros and cons of digital versus paper databases.</p> <p>Sorting and filtering databases to easily retrieve information.</p> <p>Creating and interpreting charts and graphs to understand data.</p> <p>Building a web page and creating content for it.</p> <p>Designing and creating a webpage for a given purpose.</p> <p>Understanding why some results come before others when searching.</p> <p>Understanding that information found by searching the internet is not all grounded in fact.</p>	<p>Identify ways to improve and edit programs, videos, images etc.</p> <p>Understanding how data is collected in remote or dangerous places.</p> <p>Understanding how data might be used to tell us about a location.</p> <p>Learn about different forms of communication that have developed with the use of technology.</p> <p>Using keywords to effectively search for information on the internet.</p> <p>Searching the internet for data.</p> <p>Designing a device which gathers and records sensor data.</p> <p>Using logical thinking to explore software more independently, making predictions based on their previous experience.</p> <p>Using a software programme (Sonic Pi/Scratch) to create music.</p> <p>Identify ways to improve and edit programs, videos, images etc.</p> <p>Using logical thinking to explore software independently, iterating ideas and testing continuously.</p> <p>Understanding how barcodes, QR codes and RFID work.</p> <p>Gathering and analysing data in real time.</p> <p>Creating formulas and sorting data within spreadsheets.</p> <p>Learning how 'big data' can be used to solve a problem or improve efficiency.</p>
Digital Literacy	<p>Logging in and out and saving work on their own account.</p> <p>When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.</p>	<p>Logging in and out and saving work on their own account.</p> <p>When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.</p> <p>Understanding how to interact safely with others online.</p> <p>Recognising how actions on the internet can affect others.</p> <p>To be able to recognise what a digital footprint is and how to be careful about what we "post"</p>	<p>Learning to make judgements about the accuracy of online searches.</p> <p>Identifying forms of advertising online.</p> <p>Reflecting on the positives and negatives of time online.</p> <p>Identifying respectful and disrespectful online behaviour.</p> <p>Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others.</p>	<p>Identifying possible dangers online and learning how to stay safe.</p> <p>Identifying possible dangers online and learning how to stay safe.</p> <p>Recognising that information on the Internet might not be true or correct and learning ways of checking validity.</p> <p>Learning what to do if they experience bullying online.</p> <p>Learning to use an online community safely.</p> <p>Learning about the positive and negative impacts of sharing online.</p> <p>Learning strategies to create a positive online reputation.</p> <p>Understanding the importance of secure passwords and how to create them.</p> <p>Learning strategies to capture evidence of online bullying in order to seek help.</p> <p>Recognising that updated software can help to prevent data corruption and hacking.</p>

Skills & Knowledge/ Class	Beech	Cedar	Elm	Oak
<p style="text-align: center;">Knowledge</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>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>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>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>To understand that holding the camera 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>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>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>To understand that an algorithm is when instructions are put in an exact order.</p> <p>To know that input devices get information into a computer and that output devices get information out of a computer.</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>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>To know how 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>To know that the internet is many devices connected to one another.</p>	<p>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>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>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> <p>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>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>To understand some of the methods used to encourage people to buy things online</p> <p>To understand that technology can be designed to act like or impersonate living things.</p>	<p>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>To know different ways we can communicate online.</p> <p>To understand how online information can be used to form judgements.</p> <p>To understand some ways to deal with online bullying.</p> <p>To know that apps require permission to access private information and that you can alter the permissions.</p> <p>To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.</p> <p>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>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>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>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 music while performing.</p> <p>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>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>To know that a digital footprint means the information that exists on the internet as a result of a person's online activity</p> <p>To know what steps are required to capture bullying content as evidence.</p> <p>To understand that it is important to manage personal passwords effectively.</p>

		<p>To know what to do if you feel unsafe or worried online - tell a trusted adult.</p> <p>To know that people you do not know on the internet (online) are strangers and are not always who they say they are.</p> <p>To know that to stay safe online it is important to keep personal information safe.</p> <p>To know that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.</p>	<p>To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology.</p> <p>To understand what behaviours are appropriate in order to stay safe and be respectful online.</p>	<p>To understand what it means to have a positive online reputation.</p> <p>To know some common online scams.</p>
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