



Abberley Parochial V.C. Primary School
Rooted and grounded in love
Whole School Computing Curriculum Plan

Through computing at Abberley Parochial V.C. Primary School, we will equip our pupils to use **creativity** and **curiosity** to understand and change the world. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this **knowledge** to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to construct programs, systems and a range of content.

Computing also ensures that pupils become digitally literate and able to clearly communicate information, express themselves and develop their ideas through information and communication technology at a level suitable for the future workplace and as active participants in a digital world.

Pupils will be well equipped with the knowledge and skills required to know where to go for advice, which adults they can trust for help and will have in depth understanding of how they can keep themselves safe and others while online through our online teaching.

Pupils will explore our school values and attributes and will be encouraged to ask questions, reflect, and gain an understanding on how these values can contribute to preparing them for life and work in an ever-changing technological world.

“If we teach today as we taught yesterday, we rob our children of tomorrow.” John Dewey

Rotation 1

Rotation 1	The EYFS computer curriculum is learnt through a mixture of play and practical application of skills.				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions/ exploration	Key vocabulary	Early years outcomes: Prime Areas Development Matters 2021 statements Early Learning Goal
Smartie the Penguin DigiDuck stories Digiduck Stories Childnet	Online Safety - to understand that they need to share equipment and take turns - begin to understand what personal information is - a password belongs to them - the Internet is an exciting place and how much fun they can have.	- to recognise the impact of good choices and consequences of wrong ones - to recognise who they can ask for help and know when they need help. - to recognise that the computer allows them to share information with other people - as a class to sing the EYFS/ KS1 song <i>Before you tap and click, you need to stop and think and tell someone and tell someone</i>	Who do I tell if I feel upset while playing on the computer? What are good and bad choices?	Personal information, password, sensible choices, good friend, online games, true, facts, tell, adult, images	Personal, Social and Emotional Development ELG: Building Relationships> Work and play cooperatively and take turns with others; - Form positive attachments to adults and friendships with peers; - Show sensitivity to their own and to others' needs.
Using a computer	- what a keyboard is and how to locate relevant keys.	-to identify familiar letters and numbers on a keyboard - to develop basic mouse skills such as moving and clicking ✓ Playing and Exploring ✓ Active Learning	Investigating software on the class computer using the keyboard and mouse.	arrow, click, computer, cursor, drag, drop, keyboard, left click, letters, monitor, mouse, numbers, paint, right click, type.	Physical Development -Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
All about instructions	- to follow instructions as part of practical activities. - to give simple instructions. -to use logical reasoning to read simple instructions and predict the outcome	-to learn that an algorithm is a set of instructions to carry out a task, in a specific order. ✓ Active Learning ✓ Creating and Thinking Critically	Listening, giving and following instructions to learn that the outcome will depend on the specific order they are completed.	first, follow, give, instructions, last, left, next, order, predict, right, second, sequence, stop, straight on, third, turn.	Communication and Language - Understand how to listen carefully and why listening is important. -Describe events in some detail. -Use talk to help work our problems and organise thinking and activities, and to explain how things work and why they might happen. Personal, Social and Emotional Development -ELG: Self-Regulation> Give focused attention to what the teacher says, responding appropriately even when

					<p>engaged in activity, and show an ability to follow instructions involving several ideas or actions.</p> <p>-ELG: Managing Self> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</p> <p>-ELG: Building Relationships> Work and play cooperatively and take turns with others.</p> <p>Physical Development</p> <p>-Know and talk about the different factors that support their overall health and wellbeing.</p> <p>-Further develop the skills they need to manage the school day successfully</p>
Exploring hardware	<p>- how to operate a camera to take photographs of meaningful creations or moments.</p> <p>- how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.</p>	<p>--to know that a range of technology is used in places such as homes and schools</p> <p>-to know that you can take simple photographs with a camera or iPad.</p> <p>-to record a voice using a device</p> <p>- to locate metal objects using a device</p> <p>✓ Playing and Exploring</p> <p>✓ Active Learning</p>	Exploring beebots, cameras, metal detectors, voice recorders.	batteries, buttons, camera, digital, image, iPad, keyboard, keys, memory, mobile phones, monitor, mouse, off, on, photograph, picture, point, power, pull, push, record, remote control, walkie-talkies	<p>Communication and Language - Learn new vocabulary.</p> <p>-Use new vocabulary throughout the day.</p> <p>-Ask questions to find out more and to check they understand what has been said to them.</p> <p>-Articulate their thoughts and ideas in well-formed sentences.</p> <p>-Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</p> <p>Personal, Social and Emotional Development</p> <p>-See themselves as a valuable individual</p> <p>Physical Development</p> <p>-Develop their small motor skills so that they can use a range of</p>

					<p>tools competently, safely and confidently.</p> <p>-Confidently and safely use a range of large and small apparatus indoors and outside, alone and in a group</p>
Introduction to data	<p>- sorting objects into various categories can help you locate information</p> <p>-that a pictogram is a way of showing information.</p>	<p>-to sort and categorise objects</p> <p>-as a class create pictograms to present class data</p> <p>✓ Playing and Exploring</p> <p>✓ Active Learning</p> <p>✓ Creating and Thinking Critically</p>	You can use a computer to present data using charts and graphs.	collect, count, data, describe, divide, equal, graph, group, height, in total, least popular, length, less, more, most popular, pattern, pictogram.	<p>Communication and Language - Articulate their thoughts and ideas in well-formed sentences.</p> <p>-Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</p> <p>-ELG: Listening, Attention and Understanding> Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions.</p> <p>-ELG: Listening, Attention and Understanding> Make comments about what they have heard and ask questions to clarify their understanding.</p> <p>-ELG:Speaking> Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.</p>
Programming Bee-Bots	<p>- the meaning of directional</p> <p>- to experiment with programming a Bee-Bot/Blue-Bot and tinker with hardware to develop familiarity and introduce relevant vocabulary.</p> <p>. Understanding how to debug instructions, with the help of an adult, when things go wrong.</p>	<p>- To follow a simple sequence of instructions</p> <p>- to give simple commands</p> <p>- to follow an algorithm as part of an unplugged game and learn to debug instructions when things go wrong.</p> <p>✓ Playing and Exploring</p> <p>✓ Active Learning</p> <p>✓ Creating and Thinking Critically</p>	Exploration with the class beebots.	arrow, back, backwards, Bee-Bot, debug, direction, directions, forward, instructions, left, program, right, route, sequence, straight on, turn	<p>Personal, Social and Emotional Development</p> <p>-ELG: Managing Self> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</p>

Rotation 1	Year 1 and 2 Autumn				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Hector's World	Digital literacy Online Safety - keep personal information and passwords private - show an understanding of what others might do with your personal information - how to report concerns, including cyberbullying - any personal information children put online can be seen and used by others	-to recognise own personal information - to know where to go to report concerns -to explain how using unkind words online can be hurtful to others -to recite and perform the EYFS/ KS1 song ... Before you tap and click, you need to stop and think and tell someone and tell someone	What is personal information? What do you do if you feel unsafe online?	Personal information Private information, Online, Internet, Trustworthy, Communicate, Feelings, Trusted adult, Permission, Password, Fear scared, Tell, Cyberbullying, Friends	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.
Improving Mouse Skills (Yr 1) Word Processing (Yr 2)	Digital Literacy -to login to school system using username & password - what a keyboard is and how to locate relevant keys - to develop basic mouse skills such as clicking and dragging - use the home row keys -use the spacebar and backspace correctly -type and make simple alterations to text using buttons on a word processor -search, import and alter appropriate images - use copy and paste	- to locate specific keys - to investigate what happens when specific keys are pressed - to select text to make it bold or italic - to explore and tinker with hardware to find out how it works.	How do I login to the school system? How to use the mouse to click and drag? How to type simple text using word processing software?	Monitor, Computer tower, Keyboard, Mouse, Log in log out, Symbols, Clicking, Dragging, Backspace, Delete, Spacebar, Word processing, Bold , italic	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Rotation 1	Year 1 and 2 Spring				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Programming: Scratch Jr	Computer Science Digital Literacy - to know that coding is writing in a special language so that the computer understands what to do - to understand that the character in ScratchJr is controlled by the programming blocks - to know that you can write a program to create a musical instrument or tell a joke	-to recognise that buttons cause effects and that technology follows instructions - to explain what an algorithm is - to follow an algorithm - to create clear and precise algorithms - to understand that programs execute by following precise instructions -to incorporate loops within algorithms to repeat - to use logical thinking to explore software -to predict , test and explain -to create a basic computer program using an algorithm	What is a program?	algorithm, animation, blocks, bug, button, CGI, computer code, code (verb), debug, fluid, icon, imitate, instructions, loop, 'on tap', programming, repeat, Scratch JR, sequence, sound recording	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.

Rotation 1	Year 1 and 2 Summer				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Data handling: Introduction to Data	Digital Literacy Information Technology - to know how that charts and pictograms can be created using a computer. - to understand that a branching database is a way of classifying a group of objects. - to know that computers understand different types of 'input'.	- to explore and tinker with hardware to find out how it works. -to recognise that some devices are input devices and others are output devices. - to investigate different software tools. -to recognise devices that are connected to the internet. - to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs -to answer questions about data.	What are the benefits of using a digital device for collecting, recording and presenting data?	bar chart, block graph, branching database, categorise, chart, click and drag, compare, count, data, data collection, data record, data representation, edit, input, keyboard, line graph, mouse, information, label, pictogram, pie chart, process, record, resize, sort, table, tally, values	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
Data handling: International Space station	Computer Science Digital Literacy - to develop confidence with the keyboard and the basics of touch typing. -to create and label images.	- to gather simple data into a spreadsheet. - to create a basic computer program using an algorithm -to answer questions about data. -to explain computers can be used to monitor supplies	How are astronaut's survival needs met aboard the International Space Station?	algorithm, astronaut, data, digital, digital content, experiment, galaxy, insulation, interactive map, International Space	

	-to collect and input data into a spreadsheet. - to Interpret data from a spreadsheet. -to learn how computers are used in the wider world.		How do computers help the International Space Station?	Centre, International Space Station, interpret, laboratory, monitor, planet, satellite, sensor, space, temperature, thermometer, water reservoir	
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Rotation 1	Year 3 and 4 Autumn				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Cyberbullying, Super Searchers, Copycats, too much information? The online community and Superheroes	Online Safety Digital literacy -to use technology safely, respectfully and responsibly; -to recognise acceptable/unacceptable behaviour; -to identify a range of ways to report concerns about content and contact in the context of thinking about how online messages can be hurtful. -to identify a range of ways to report concerns about content and contact in the context of finding out about online plagiarism. -to identify a range of ways to report concerns about content and contact in the context of creating their own sample online game account, highlighting information which is acceptable to include. -to create a safe online profile. -to identify a range of ways to report concerns about content and contact in the context of giving examples of how to be a good digital citizen. -to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital	- to prevent and deal with cyberbullying; - to use search engines efficiently - to avoid plagiarism online - to be a good digital citizen . -to review the KS2 Acceptable Use Policy and adapt if required - to listen and begin to learn the KS2 'Pause and think online' song by singing the chorus and discussing the meaning.	What is plagiarism? Define cyberbullying?	Cyberbullying, trusted search engine, hurtful message, plagiarism, digital citizenship, online profile, report concerns,	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content


	content in the context of using search engines accurately.				
Rotation 1	Year 3 and 4 Spring				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Journey Inside a computer	Computer Science Digital Literacy Information Technology -to understand what the different components of a computer do and how they work together. -to use decomposition to explain the parts of a laptop computer. -to explain the purpose of an algorithm	- to explain the roles that inputs and outputs play on computers. -to explain 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.	What is inside a computer and a laptop?	algorithm, assemble, CPU (central processing unit), data, decompose, desktop, disassemble, GPU (graphics processing unit), hard drive, HDD (hard disk drive), infinite loop, input, keyboard, laptop, memory, microphone, monitor, mouse, output, photocopier, program, QR code, RAM (random access memory), ROM (read only memory), storage, tablet device, technology, touchscreen, touchpad	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.
Programming: Scratch	Computer Science -to decompose to explore the code behind an animation. -to use repetition in programs. – to use logical reasoning to explain how simple algorithms work. -to explain the purpose of an algorithm. -to form algorithms independently. -to use logical thinking to explore more complex software; predicting, testing and explaining what it does. – to incorporate loops to make code more efficient. -to continue existing code and make reasonable suggestions for how to debug their own and others’ code.	- to explain that Scratch is a programming language and some of its basic functions. - to understand how to use loops to improve programming. -to understand how decomposition is used in programming. -to experiment remixing and adapting existing code.	Can you use a coding program to build an interactive game and animation?	algorithm, animation, application, code, code block, coding application, debug, decompose, interface, game, loop, predict, program, remixing code, repetition code, review, Scratch, sprite, tinker	

	-to understand the dangers of taking personal photographs and sharing them online. - to understand the dangers of chatting to strangers online.	comparing to others; body image; feeling left out. - to watch and discuss the content of NSPCC film Lucy -to watch and discuss the content of the NSPCC film Alex.			
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Rotation 1	Year 5 and 6 Spring				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Programming using Micro:bit. (yr 6) use prior knowledge to write codes to move the car and sequence the traffic lights.	Computer Science Digital Literacy Information Technology - to decompose a program without support. - to write more complex algorithms for a purpose. – to program an animation. - to use loops in the programming. - to use logical thinking to explore software more independently, making predictions based on their previous experience. - to use a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. -to identify ways to improve and edit programs, videos, images etc.	- to predict how software will work based on previous experience. - to know that a Micro:bit is a programmable device. - to know that Micro:bit uses a block coding language similar to Scratch. - to understand and recognise coding structures including variables. - to create a program for a specific purpose (including decomposition).	How can I program a microbit to make an animation, a scoreboard and a pedometer? (yr 5) How can I program the microbit to make the car move safely along the map and sequence the traffic lights so there are no collisions? (yr 6) Do you prefer learning about code on a Microbit or on Scratch?	algorithm, animation, app, blocks, bluetooth, code block, connection, create, debug, decompose, designing, desktop, device, download, images, input, instructions, laptop, load, loop, Micro:bit, outputs, pairing, pedometer, polling, predict, program, repetition, reset, sabotage, scoreboard, screen, systematic, tablet, tinkering, USB, variables, wifi, wireless, wires	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 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
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Rotation 1	Year 5 and 6 Summer				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Bletchley Park – history of computers and coding	Digital literacy Computer Science Information Technology -to learn about the history of computers and how they have evolved over time. -to use past experiences to help solve new problems. -to write increasingly complex algorithms for a purpose -to debug quickly and effectively to make a program more efficient. -to remix existing code to explore a problem. -to change a program to personalise it. -to evaluate code to understand its purpose. -to predict code and adapt it to a chosen purpose. -to use search and word processing skills to create a presentation. -to understand how search engines work. -to know the importance of secure passwords and how to create them. -to use search engines safely and effectively.	- to understand the importance of having a secure password and what “brute force hacking” is. - to recall the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2. -to explain how some historical figures contributed to technological advances in computing. - to create a music presentation using appropriate software.	Why was Bletchley Park important to the World War II war effort? Why is data encryption so important?	acrostic code, brute force hacking, caesar cipher, chip and pin system, cipher, code, combination, contribute, convince, date shift cipher, discovery, hero, invention, Nth Letter Cipher, password, Pig Latin, Pigpen cipher, present, scrambled, secret, secure, technological advancement, trial and error	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. 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
Audacity software	Computer Science Information Technology - to tinker with sound. -to plan, record and edit radio play.	-to create and compose a radio broadcast using ‘Audacity’. -to know that radio plays are plays where the audience can only hear the action so sound effects are important. - to explain that sound clips can be recorded using sound recording software. -to edit and trim sound clips.	What are some of the important things to remember when producing a simple radio broadcast using audacity?	Overlay, radio play, record, sound clip, sound effect, track, background noise, FX, radio play, script, sound effect	

Rotation 2	Year 1 and 2 Autumn				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Jessie and Friends Lee and Kim's Adventures (Sid's Top Tips)	Digital literacy Online Safety - keep personal information and passwords private - show an understanding of what others might do with your personal information - to recognise the need to know who they are sharing their learning with online and recognise the difference between real and imaginary online experiences. - to recognise the Internet as an exciting place to be but understand the need for a balance in how they spend their time and make good choices about age-appropriate activities. - to understand that photos can be shared online and the importance of seeking permission before sharing a photo. - to understand that people online may try to manipulate others and may not always be telling the truth. -to have the right to say 'no'.	-to recognise own personal information and how to keep it safe -to tell an adult if something makes them feel uncomfortable -to question if a game or website is age appropriate -to question if someone is telling you the truth online - to balance online and offline time - to recite Sid's 4 Top tips about how to keep safe on the computer  - - to review the KS1 Acceptable Use Policy and adapt if required.	What is personal information and who are trusted adults who can help? What do you do if you feel unsafe online? Do you need to ask consent before sharing photos online?	Personal information Private information, Online, Internet, Trustworthy, Communicate, Feelings, Trusted adult, Permission, Password, Fear scared, Tell, Cyberbullying, Friends	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.
Improving Mouse Skills (Yr 1) Word Processing (Yr 2)	Digital Literacy -to login to school system using username & password - what a keyboard is and how to locate relevant keys - to develop basic mouse skills such as clicking and dragging - use the home row keys	- to locate specific keys - to investigate what happens when specific keys are pressed - to select text to make it bold or italic - to explore and tinker with hardware to find out how it works.	How do I login to the school system? How to use the mouse to click and drag? How to type simple text using word processing software?	Monitor, Computer tower, Keyboard, Mouse, Log in log out, Symbols, Clicking, Dragging, Backspace, Delete, Spacebar, Word processing, Bold	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

	-use the spacebar and backspace correctly -type and make simple alterations to text using buttons on a word processor -search, import and alter appropriate images - use copy and paste			, italic	
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Rotation 2	Year 1 and 2 Spring				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
What is a computer?	Computer Science Information Technology - to understand what a computer is and that it's made up of different components. - to recognise that buttons cause effects and that technology follows instructions. - to learn how we know that technology is doing what we want it to do via its output. - to learn how computers are used in the wider world	- to explain 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	What is a computer?	battery, buttons, camera, computer, desktop, device, digital, digital recorder, electricity, function, input, invention, keyboard, laptop, monitor, mouse, output, paying till, scanner, screen, system, tablet, technology, video, wires	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Recognise common uses of information technology beyond school.
Programming: Bee Bot (yr. 1) Roamer (yr. 2)	Computer Science - to learn how to explore and tinker with hardware to find out how it works. -to learn how to operate a camera to take photos and videos. -to use decomposition to solve unplugged challenges. -to use logical reasoning to predict the behaviour of simple programs. - to follow a basic set of instructions. To assemble instructions into a simple algorithm. – to program a floor robot to follow a planned route. -to learn to debug instructions when things go wrong.	- to comprehend the basic functions of a Bee-Bot/ Roamer. - to explore using a camera/tablet to make simple videos. - to test algorithms to move a Bee-Bot/ Roamer accurately to a chosen destination.	How do you program a Bee-Bot/ Roamer to reach a specific destination?	algorithm, artificial intelligence, Bee-Bot, clear, code, debug, demonstration, filming, inputting, instructions, pause, precise, predict, program, tinker, video, video recording	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.

	- to use programming language to explain how a floor robot works.				
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Rotation 2	Year 1 and 2 Summer				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Creating Media: Stop motion	Information Technology Digital Literacy - 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 understand that an animation is made up of a sequence of photographs. - to explore and investigate small changes in my frames will create a smoother looking animation. - to explore software and create simple animations using its features e.g. onion skinning.	How can I turn a set of photographs into a successful stop motion animation?	Animation, animator, background, digital device, drawing, flipbook, frames, moving images, opinion skinning, still images	Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school.

Rotation 2	Year 3 and 4 Autumn				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Captain Kara and the SMART Crew	Online Safety Digital literacy --Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button. -Talk about what games they are enjoying playing and what good choices are when playing games e.g. content, screen time. - to accept and talk about responsible behaviour online - to know that information on a website may be fake -to check three websites for reliability - what personal information you need to keep safe when playing online games -screenshotting unkind communication - how to report abuse to thinkuknow.co.uk	-to present an online safety film to include SMART rules for keeping safe online. - to demonstrate knowledge by completing 'Are you SMART online Questionnaire?' - to watch and discuss the content of all episodes of Captain Kara and the SMART Crew - to watch and discuss CEOP film to understand the dangers of talking to strangers online and HOW to report abuse.	What is Reliable? What should you keep Safe? How should you deal with unkind communication? How can you report concerns?	Report abuse button, SMART, safe, meet, accept, reliable, tell, responsible behaviour, stranger, viruses, websites, childline, gaming, profile,	Use technology safely, respectfully and responsibly; recognise. acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

	- Jigsaw CEOP video to reinforce reporting concerns and discuss the ways this can be done.				
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Rotation 2	Year 3 and 4 Spring				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Programming: Pupils learn that computational thinking is made up of four pillars (decomposition, pattern recognition, abstraction and algorithm design)	Computer Science Information Technology <ul style="list-style-type: none"> - to use decomposition to solve a problem by finding out what code was used. - to use decomposition to understand the purpose of a script of code. - to identify patterns through unplugged activities. - to use past experiences to help solve new problems. - to use abstraction to identify the important parts when completing both plugged and unplugged activities. - to create algorithms for a specific purpose. - to use abstraction and pattern recognition to modify code. 	<ul style="list-style-type: none"> - to combine computational thinking skills to help solve a problem. - to identify patterns to help work out how the code works. - to investigate algorithms and they can be used for a number of purposes e.g. animation, games design etc. 	How does computational thinking help you learn about coding?	abstraction, algorithm, code, computational thinking, decomposition, input, logical reasoning, output, pattern recognition, script, sequence, variable	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. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
Emailing	Information Technology Digital Literacy	- To explain that email stands for 'electronic mail.'	How to be a responsible digital citizen by thinking about the content of	attachment, bcc (blind carbon copy) cc (carbon copy),	Use technology safely, respectfully and responsibly; recognise

	<ul style="list-style-type: none"> - to learn to log in and out of an email account. - to write an email including a subject, 'to' and 'from'. - to send an email with an attachment. - to reply to an email. - to understand the purpose of emails. - to learn about cyberbullying. - to learn that not all emails are genuine, recognising when an email might be fake and what to do about it 	<ul style="list-style-type: none"> - to compose an email and know that an attachment is an extra file added to an email. - to understand that emails should contain appropriate and respectful content. - to conclude that cyberbullying is bullying using electronics such as a computer or phone. 	emails and how to send emails with attachments?	compose, content, cyberbullying, document, domain, download, email, email account, email address, emoji, emotions, fake, font, genuine, hacker, icons, inbox, information, link, log in, log out, negative language, password, personal information, positive language, reply, responsible digital citizen, scammer, settings, send, sign in, spam email, subject bar, theme, tone, username, virus, WiFi	acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
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Rotation 2	Year 3 and 4 Summer				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Computational Thinking: Changing HTML and CSS code to alter images and 'remixing' a website's text and images to create a fake news story.	Computer Science Information Technology Digital Literacy <ul style="list-style-type: none"> - to remix existing code. - to build a web page and create content for it. - to understand that information found by searching the internet is not all grounded in fact. - to recognise that information on the Internet might not be true or correct and that some sources are more trustworthy than others 	<ul style="list-style-type: none"> - to identify what "fake news" is and ways to spot websites that carry this type of misinformation. - to compose a 'fake news story'. - to identify examples of HTML tags. - to alter the changing of the HTML and CSS to change the appearance of an object on the web. - to ask questions about copyright 	How do you edit HTML and CSS of a web page to change the layout, the text and images of a website?	code, component, content, copyright, CSS, end tag, fake news, hacking, heading, headline, hex code, HTML, input, internet browser, output, paragraph, permission, remixing, script, start tag, tags, text, URL, webpage	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 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. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
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Rotation 2	Year 5 and 6 Autumn				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Be Internet Legends	Online Safety Digital literacy - Children can explain what it means to have a positive digital footprint. Knowing -Children will be able to describe ways to critically evaluate what we see on social media. -Identify sources of support for someone who is worried about anything online. - to explain why it's important to keep personal information private online. - to demonstrate ways to build positive and healthy online relationships and friendships. - to know if you come across something confusing or tricky, talk to a trusted adult about it. - where pupils can go for extra help and advice online. - Internet Legends- You are now a safe, fearless explorer of the online world by being	-to know what kind of information to put online to create a positive digital footprint and how to protect your online reputation. - to explain how social media can mislead or misrepresent reality. - to identify different online scams children may experience, including 'phishing'. - to describe ways to keep personal information private online by using safety tools and privacy settings. - to describe strategies they can use to respond to hurtful online behaviour, in ways that keep them safe and healthy. -to identify sources of support that can help friends and peers if they are experiencing hurtful behaviour online.	How my digital footprint can affect my future? How to measure and check authenticity online? How to protect your personal information? How can I stand up to others online?	Digital footprint, social media, phishing, scams, privacy settings, positive & healthy online relationships, fraud, unreliable, suspicious, authentic, verifiable, deceptive, firewall, malware, encrypted, bystander, harassment, block,	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

	<p>Sharp: You understand how to share with those you know and those you don't.</p> <p>Alert: You know how to tell the difference between the real and the fake.</p> <p>Secure: You create powerful passwords to safeguard important information</p> <p>Kind: You positively impact others with kindness and disempower bullying behaviour.</p> <p>Brave: You know the importance of openly communicating with trusted adults about online activity.</p>				
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Rotation 2	Year 5 and 6 Spring				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Creating media: Stop motion animation	<p>Computer Science</p> <ul style="list-style-type: none"> - to decompose animations into a series of images. - to decompose a story to be able to plan a program to tell a story. - to use video editing software to animate. - to understand stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. 	<ul style="list-style-type: none"> - to use prior knowledge and build upon knowledge to create an animation. - to decompose is important when creating stop-motion animations. - making edits is an important feature of making and improving a stop motion animation. 	What three tips would you give somebody who was thinking of trying to make an animation?	animation, animator, background, character, decomposition, design, edit, evaluate, flip book, fluid movement, frame, model, moving images, still image, storyboard, thaumatrope, zoetrope	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

Rotation 2	Year 5 and 6 Summer				
Theme	Substantive knowledge	Disciplinary knowledge	Key questions	Key vocabulary	National Curriculum
Data handling: Mars Rover 1	<p>Computer Science</p> <p>Information Technology</p> <ul style="list-style-type: none"> -to learn that external devices can be programmed by a separate computer. – to recognise how the 	<ul style="list-style-type: none"> - to explain that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. 	How does the Mars Rover send information back to Earth?	8-bit binary, addition, ASCII, binary code, boolean, byte, communicate, construction, CPU, data	Select, use and combine a variety of software (including internet services) on a

	<p>size of RAM affects the processing of data. – to learn the vocabulary associated with data: data and transmit.</p> <p>- to recognise that computers transfer data in binary and understanding simple binary addition. Relating binary signals (Boolean) to the simple character-based language, ASCII.</p> <p>- to learn that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations. – to understand how data is collected in remote or dangerous places.</p> <p>– to understand how data might be used to tell us about a location.</p> <p>- to learn about different forms of communication that have developed with the use of technology.</p>	<p>- to investigate what numbers using binary code look like and be able to identify how messages can be sent in this format.</p> <p>- to recall that RAM is Random Access Memory and acts as the computer's working memory.</p> <p>- to explore simple operations and how they can be used to calculate bit patterns.</p>		<p>transmission, decimal numbers, design, discovery, distance, hexadecimal, input, instructions, internet, Mars Rover, moon, numerical data, output, planet, radio signal, RAM, research, scientist, sequence, signal, simulation, space, subtraction, technology, transmit</p>	<p>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.</p> <p>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.</p>
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