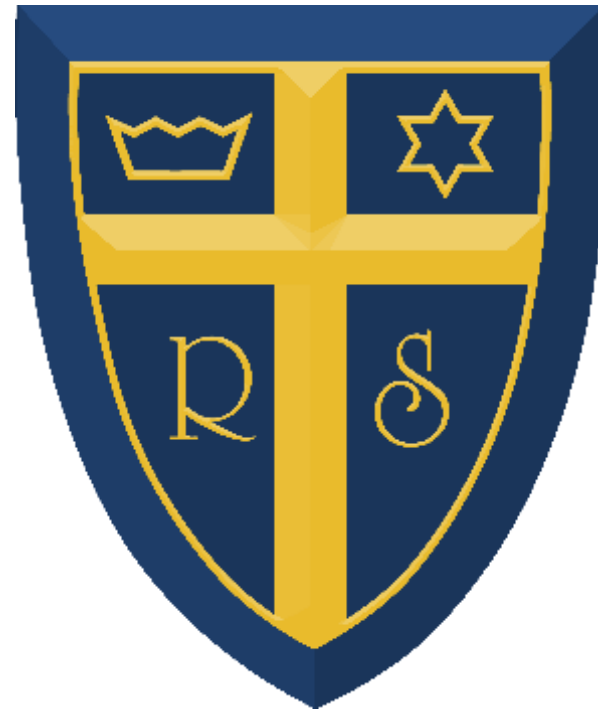




Computing

The Rosary Catholic Primary School
Progression of Knowledge and Skills in Computing



Year	Knowledge			Skills
Reception Autumn	<u>Focus:</u> Computing systems and networks (Basic Online safety)			<u>Computer Science</u>
	<u>Contributing towards:</u> Computer Systems and Networks (Year Reception)			Login using a username and password. Recognising and identifying familiar letters and numbers on a keyboard. Develop basic mouse skills such as moving and clicking.
	Objective	Sticky Knowledge	Key Vocabulary and Definitions	
	I can learn what a keyboard is and how to locate relevant keys	A keyboard can be used to write words	Keyboard- equipment you can use to type with.	
	I can learn how to log in and log out. I can understand why we need to log in and out.	You need to log in with passwords to keep information safe on the computer.	Log on- to make a connection with a computer or system	<u>Information Technology</u> Use a simple online paint tool to create digital art.
	I can learn what a mouse is and to develop basic mouse skills such as moving and clicking.	A mouse moves a cursor round the screen	Mouse- a pieces of equipment attached to a computer that controls the cursor.	<u>Digital Literacy</u> Learning to log in and log out.
	I can use a simple online paint tool to create digital art	You can use a mouse to draw a picture	Click- pressing a button on a control device (such as a mouse)	<u>EYFS Curriculum Links</u>
	I can learn what a mouse is and to develop basic mouse skills such as moving and clicking	You can use a mouse to click and open files and links.	Drag- to move something across the screen	<u>Literacy</u> Spell words by identifying the sounds and then writing the sound with letter/s. Re-read what they have written to check that it makes sense.
	Assessment Tasks	Assessing Sticky Knowledge: Children to use an art programme to create a picture using a mouse.	Assessing Key Vocabulary: Children to use the correct words while creating their work. T and TA to observe and question.	<u>Mathematics</u> Link the number symbol (numeral) with its cardinal number value. <u>Physical development</u> Develop their small motor skills so that they can use a range of tools competently, safely and confidently. <u>Characteristics of Effective Learning</u> Playing and exploring Active learning



Year	Knowledge			Skills
Reception Autumn	Focus: Computing systems and networks: Exploring hardware			Computer Science Learning how to operate a camera to take photographs of meaningful creations or moments. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.
	Prior Learning: Computing systems and networks (Basic Online safety) (Year Reception)			
	Contributing towards: Computer Systems and Networks (Year 1)			
	Objective	Sticky Knowledge	Key Vocabulary and Definitions	Digital Literacy Recognising that a range of technology is used for different purposes.
	I can learn how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary	A computer has many different parts (monitor, keyboard, mouse)	Motherboard- the main printed circuit board (PCB) in a computer	
	I can recognise that a range of technology is used in places such as homes and schools	There are many different types of technology	Technology- the use of knowledge to invent new devices or tools.	EYES Curriculum Links Communication and language Learn new vocabulary. Use new vocabulary through the day. Ask questions to find out more and to check they understand what has been said to them.
	I can learn how to operate a camera and/or iPad and use it to take photographs.	You can use a camera to take pictures.	Camera- an object that takes pictures	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.
Reception Autumn	I can learn how to operate a camera and/or iPad and use it to take photographs.	You can use an iPad to take photos	Photograph- a picture taken with a camera	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.
	Assessment Tasks	Assessing Sticky Knowledge: Children to be able to explain how to use a camera to take photos	Assessing Key Vocabulary: T/TA to question the children when they are doing the activity to check vocabulary knowledge.	Physical development Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Confidently and safely use a range of small apparatus, alone and in a group. Characteristics of Effective learning: Playing and exploring.

Whole School Computing Curriculum



Year	Knowledge			Skills
Reception n Spring	<u>Focus: Programming 1: All about instructions</u> <u>Early Years Outcomes (Development Matters)</u> ELG: Self-regulation: Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions. ELG: Managing self: Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. ELG: Building relationships: Work and play cooperatively and take turns with others. <u>Contributing towards: Programming 2: Programmable Toys (Year Reception)</u>			<u>Computer Science</u> 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. <u>Digital Literacy</u> Recognising that a range of technology is used for different purposes. <u>EYFS Curriculum Links</u> Communication and Language Understand how to listen carefully and why listening is important. Articulate their ideas and thoughts in well-formed sentences. Use talk to help work out problems and organise thinking and activities, and to explain how things works and why they might happen. Describe events in some detail. Physical development Know and talk about the different factors that support their overall health and wellbeing. Further develop the skills they need to manage the school day successfully. Characteristics of Effective Learning Active learning. Creating and thinking critically.
	<u>Objective</u>	<u>Sticky Knowledge</u>	<u>Key Vocabulary and Definitions</u>	
	I can follow instructions as part of practical activities and games (Part 1 following)	Instructions are steps to follow	Instructions- he act of giving knowledge	
	I can follow instructions as part of practical activities and games (Part 2 giving)	We can give instructions to complete tasks.	Movement- is a motion when something changes position	
	I can learn to give simple instructions	We need to give clear instructions to complete a task	Describe- to say what something or someone is like	
	I can learn that an algorithm is a set of instructions to carry out a task, in a specific order	We need to give instructions in the correct order	Algorithm- another word for instruction	
	I can predict the outcome of an algorithm.	When instructions are put in an exact order like this, it is called an algorithm	Prediction- making a good guess what might happen.	
	<u>Assessment Tasks</u>	Assessing Sticky Knowledge: Children to programme the teacher to make a jam sandwich by giving clear instructions in early.	Assessing Key Vocabulary: Children to be observed using the vocab during the tasks	



Year	Knowledge			Skills
Reception Summer	<i>Focus: Data handling: Programming 2: Programmable Toys</i>			<i>Computer Science</i>
	<i>Early Years Outcomes (Development Matters)</i>			Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.
	<i>ELG: Managing Self: Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</i>			Using logical reasoning to understand simple instructions and predict the outcome.
	<i>Prior Learning: Programming 1: All about instructions (Year Reception)</i>			Following instructions as part of practical activities and games.
	<i>Contributing towards: Programming 1: Algorithms unplugged (Year 1)</i>			Learning to give simple instructions.
				Learning to debug instructions, with the help of an adult, when things go wrong.
	<i>Objective</i>	<i>Sticky Knowledge</i>	<i>Key Vocabulary and Definitions</i>	
	<i>I can understand the meaning of directional arrows. I can follow a simple sequence of instructions.</i>	<i>Arrows can tell us which direction to move in.</i>	<i>Forward-</i> move toward a place that is further on <i>Backward-</i> move back to a place behind	<i>EYFS Curriculum Links</i>
	<i>I can experiment with programming a Bee-bot. I can explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.</i>	<i>We can program Bee-bot to tell it where to move.</i>	<i>Program-</i> to tell something what to do.	Mathematics
<i>I can experiment with programming a Bee-bot and learn how to give simple commands. I can debug instructions, with the help of an adult, when things go wrong.</i>	<i>If we go wrong, we can change the commands we given the Bee-bot.</i>	<i>Command-</i> telling someone to do something.	Count objects, actions and sounds.	
<i>I can learn that an algorithm is a set of instructions to carry out a task, in a specific order. I can follow an algorithm as part of an unplugged game. I can learn to debug instructions, with the help of an adult, when things go wrong.</i>	<i>An algorithm is a set of instructions to carry out a task, in a specific order.</i>	<i>Sequence-</i> a pattern where one thing follows another.	Link the number symbol (numeral) with its cardinal number value.	
<i>Assessment Tasks</i>	Assessing Sticky Knowledge: Ask children to follow a set algorithm and create own, describing what they have to do.	Assessing Key Vocabulary: Can use correct vocab when describing how their Bee-bot has moved.	Count beyond ten.	
			Characteristics of Effective Learning	
			Playing and exploring.	
			Active learning.	
			Creating and thinking critically.	



Year	Knowledge			Skills
Year 1 Autumn	<i>Focus: Online Safety (Year 1)</i>			<i>Information Technology</i>
	<i>National Curriculum Knowledge</i>			Recognising devices that are connected to the internet.
	• Recognise common uses of information technology beyond school. • Use technology safely and respectfully, keeping personal information private. • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.			Understanding that we are connected to others when using the internet.
	<i>Prior Learning: Basic Online Safety (Year Reception)</i>			Understanding some of the ways we can use the internet.
	<i>Contributing toward: Online Safety (Year 2)</i>			<i>Digital Literacy</i>
				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.
				Understanding how to interact safely with others online.
				Recognising how actions on the internet can affect others.
				Recognising what a digital footprint is and how to be careful about what we post.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Using the internet safely <i>I can recognise what the internet is and how to use it safely.</i>	<i>Computers, tablets and phones connect together on the internet and can share information</i>	<i>Internet:</i> Lots of computers connected to one another.	
	2: Online emotions <i>I can identify how people’s feelings and emotions can be affected by online content.</i>	<i>Never share personal details (age, birthday, name, address, school, passwords) online.</i>	<i>Personal information:</i> Private information which should not be shared with people we do not know.	
	3: Always be kind and considerate <i>I can recognise how to treat others, both online and in person.</i>	<i>If something does not feel right when online, speak to a responsible grown up.</i>	<i>Trusted adult:</i> An adult who you know well and takes care of you.	
	4. Posting and sharing <i>I can recognise the importance of being careful when posting and sharing online.</i>	<i>Always be kind online.</i>	<i>Posting online:</i> Placing information (such as photos or comments) on the internet.	
	5: How much time should we spend on technology? <i>To discuss ways to balance time spent online and offline.</i>	<i>Whatever is posted online stays there forever.</i>	<i>In-person / Online interactions:</i> The way we talk, play, send messages to people in front of us / using a computer or tablet.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills
Year 1 Autumn	Focus: Programming 1: Algorithms unplugged			Computer Science
	National Curriculum Knowledge			Recognising that some devices are input devices and others are output devices.
	● Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.			Learning that decomposition means breaking a problem down into smaller parts. Using decomposition to solve unplugged challenges.
	● Create and debug simple programs.			Developing the skills associated with sequencing in unplugged activities.
	● Use logical reasoning to predict the behaviour of simple programs.			Following a basic set of instructions.
	Prior Learning: Programming 2: Programmable Toys (Year Reception)			Assembling instructions into a simple algorithm.
	Contributing towards: Programming 2: Bee-bots (Year 1)			Learning to debug instructions when things go wrong.
				Learning to debug an algorithm in an unplugged scenario.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: What is an algorithm? I can understand what an algorithm is.	Algorithms are precise and unambiguous instructions that carry out a task.	Algorithm: A clear set of instructions to carry out a task.	
2: Algorithm pictures I can follow instructions precisely to carry out an action.	Mistakes ('Bugs') in instructions results in unwanted results.	Bug: An error or mistake in computer code.		
4: Step by step I can understand and be able to explain what decomposition is.	Problems can be broken down into smaller chunks that are easier to deal with.	Decompose: To break something down into smaller chunks.		
5: Debugging directions I can debug an algorithm.	Bugs in instruction sets (code) can be found and corrected.	Code: Words, numbers and symbols that make a computer language.		
Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo		
	See also: Knowledge organiser.			

Whole School Computing Curriculum



Year	Knowledge	Skills	
Year 1 Spring	<i>Focus: Computing systems and networks 1: Improving Mouse Skills</i>		
	<i>National Curriculum Knowledge</i>		
	- Use technology purposefully to create, organise, store, manipulate and retrieve digital content. - Recognise common uses of information technology beyond school. - Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.		
	<i>Prior Learning: Computing systems and networks 1: Using a computer (Year Reception)</i>		
	<i>Contributing towards: Computing systems and networks 1: What is a Computer? (Year 2)</i>		
	Lesson	Sticky Knowledge	Key Vocabulary
	1: Logging in I can log in to a computer and access a website.	To "log in and log out" means to begin and end a connection with a computer. Passwords are important for security.	Log in: To put in a username and password unique to you, to allow access your personal account. Log out: To lock your account.
	2: Click and drag skills I can develop mouse skills.	A computer mouse can be used to click and drag, allowing items, such as text or shapes to be selected and changes applied.	Click: To ask a computer to do something when you press a button on a mouse or keyboard. Drag: When you move an image on a computer.
	3: Drawing shapes I can use mouse skills to draw and edit shapes.	Changes made can be undone and/or repeated with Undo & Redo	Drag and drop: When you move and place an image on a computer.
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab
<i>See also: Knowledge organiser.</i>			



Year	Knowledge	Skills																		
Year 1 Spring	<u>Focus: Programming 2: Bee-Bot (Year 1)</u> <u>National Curriculum Knowledge</u> - Create and debug simple programs. - Use logical reasoning to predict the behaviour of simple programs. - Understand what algorithms are, how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. <u>Prior Learning: Programming 2: Programming Bee-Bots (Year Reception)</u> <u>Contributing towards: Programming 2: ScratchJr (Year 2)</u> <table border="1"> <thead> <tr> <th>Lesson</th><th>Sticky Knowledge</th><th>Key Vocabulary</th></tr> </thead> <tbody> <tr> <td>1: Getting to know a Bee-Bot I can explore a new device.</td><td>Instructions are needed to programme a programmable toy / robot.</td><td>Predict: To make a guess. Review: Checking to see if something worked.</td></tr> <tr> <td>3: Precise instructions I can plan and follow a precise set of instructions.</td><td>It is important to review instructions to check the results against what was expected to happen.</td><td>Precise: Exact and accurate.</td></tr> <tr> <td>4: Bee-Bot world I can program a device.</td><td>There is more than 1 way to solve a problem.</td><td>Alternative: Another possibility or way to do something.</td></tr> <tr> <td>5: Three little pigs I can create a program that tells a story.</td><td>Some algorithms are more efficient at solving a problem than others.</td><td>Efficient: Solving the problem with little or no waste.</td></tr> <tr> <td>Assessment</td><td>Assessing Sticky Knowledge Kapow Unit Quiz</td><td>Assessing Key Vocabulary Match definition to key vocab</td></tr> </tbody> </table> <u>See also: Knowledge organiser.</u>	Lesson	Sticky Knowledge	Key Vocabulary	1: Getting to know a Bee-Bot I can explore a new device.	Instructions are needed to programme a programmable toy / robot.	Predict: To make a guess. Review: Checking to see if something worked.	3: Precise instructions I can plan and follow a precise set of instructions.	It is important to review instructions to check the results against what was expected to happen.	Precise: Exact and accurate.	4: Bee-Bot world I can program a device.	There is more than 1 way to solve a problem.	Alternative: Another possibility or way to do something.	5: Three little pigs I can create a program that tells a story.	Some algorithms are more efficient at solving a problem than others.	Efficient: Solving the problem with little or no waste.	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	<u>Computer Science</u> Learning how to operate a camera or tablet to take photos and videos. Learning how to explore and tinker with hardware to find out how it works. Using decomposition to solve unplugged challenges. Using logical reasoning to predict the behaviour of simple programs. Developing the skills associated with sequencing in unplugged activities. Following a basic set of instructions. Assembling instructions into a simple algorithm. Programming a Floor robot to follow a planned route. Learning to debug instructions when things go wrong. Learning to debug an algorithm in an unplugged scenario.
Lesson	Sticky Knowledge	Key Vocabulary																		
1: Getting to know a Bee-Bot I can explore a new device.	Instructions are needed to programme a programmable toy / robot.	Predict: To make a guess. Review: Checking to see if something worked.																		
3: Precise instructions I can plan and follow a precise set of instructions.	It is important to review instructions to check the results against what was expected to happen.	Precise: Exact and accurate.																		
4: Bee-Bot world I can program a device.	There is more than 1 way to solve a problem.	Alternative: Another possibility or way to do something.																		
5: Three little pigs I can create a program that tells a story.	Some algorithms are more efficient at solving a problem than others.	Efficient: Solving the problem with little or no waste.																		
Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab																		



Year	Knowledge			Skills
Year 1 Summer	<i>Focus: Computing systems and networks 2: Digital Imagery</i>			<i>Computer Science</i>
	<i>National Curriculum Knowledge</i>			Learning how to operate a camera or tablet to take photos and videos. Learning how to explore and tinker with hardware to find out how it works. Learning where keys are located on the keyboard. Developing the skills associated with sequencing in unplugged activities.
	- Use technology safely and respectfully, keeping personal information private. - Use logical reasoning to predict the behaviour of simple programs. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content. - Recognise common uses of Information technology beyond school.			<i>Information Technology</i>
	<i>Prior Learning: Computing systems and networks 2: Exploring hardware (Year Reception)</i>			Using a basic range of tools within graphic editing software. Taking and editing photographs.
	<i>Contributing towards: Creating Media: Using iPads (Year 3)</i>			Developing control of the mouse through dragging, clicking and resizing of images to create different effects. Developing understanding of different software tools.
	Lesson	Sticky Knowledge	Key Vocabulary	<i>Digital Literacy</i>
	1: Planning a photo story I can understand and create a sequence of pictures.	Photo stories can have distinct parts, such as beginning, middle and end.	Photo story: A story made only from pictures. Sequence: A set order or pattern for something to follow.	Searching and downloading images from the internet safely. 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.
	2: Taking photos I can take clear photos.	Photos need to be clear, not blurred.	Delete: To remove from a computer, text or files such as images.	
	3: Editing photos I can edit photos.	Images can be changed after being taken. This is called editing.	Edit: To change or alter an image. Crop: When you change the height and/or width of an image.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills
Year 2 Autumn	<i>Focus: Online Safety</i>			<i>Digital Literacy</i>
	<i>National Curriculum Knowledge</i> - Use technology safely, respectfully and responsibly. - Recognise acceptable/unacceptable behaviour. - Identify a range of ways to report concerns about content and contact.			Learning how to create a strong password. 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. Identifying whether information is safe or unsafe to be shared online. Learning to be respectful of others when sharing online and ask for their permission before sharing content. Learning strategies for checking if something they read online is true.
	<i>Prior Learning: Online Safety (Year 1)</i>			
	<i>Contributing towards: Online Safety (Year 3)</i>			
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: What happens when I post online? I can decide which information is safe to share online.	Some information is safe to share online, and other information is not.	Consent: Agreeing to something knowingly.	
	2: How do I keep my things safe online? I can practise keeping information safe and private online.	Weak Passwords are short and can be easily guessed. Strong passwords use a range of characters and appear quite random.	Permission: Being allowed to do something.	
	3: It’s my choice I can recognise when to deny permission online.	Users of online services have a right to say “No.” When unsure, it’s always best to ask a trusted adult.	Trusted adult: An adult who you know well and takes care of you.	
	4: Is it true? I can recognise that not everything online is true.	People post truth, lies and opinions online. Not everything online is true.	Real: Something that actually exists or happens. Fake: Something that is made-up and not real.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills
Year 2 Autumn	Focus: Computing systems and networks: What is a Computer?			Computer Science
	National Curriculum Knowledge			Understanding what a computer is and that it's made up of different components.
	- Use technology purposefully to create, organise, store, manipulate and retrieve digital content. - Recognise common uses of information technology beyond school. - Use logical reasoning to predict the behaviour of simple programs.			Recognising that buttons cause effects and that technology follows instructions.
	Prior Learning: Computing systems and networks: Improving mouse skills (Year 1)			Learning how we know that technology is doing what we want it to do via its output.
	Contributing towards: Computing systems and networks (Year 3)			Information Technology
				Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.
				Using word processing software to type and reformat text.
				Creating and labelling images.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Computer parts I can recognise the parts of a computer.	The monitor / screen shows what is happening The keyboard and mouse are used to tell the computer what to do The computer/laptop can store digital information	Computer: An electronic machine that accepts and processes information to produce an output and then stores the results.	
	2: Inputs I can recognise how technology is controlled.	The monitor/screen is an output device The Keyboard and mice are input devices Laptops and Tower computers contain the processor	Input: A way of telling the computer what you want it to do. Output: Information or data that is sent by the computer to an output device such as a printer or speakers.	
	5. Real-world role play I can understand the role of computers.	Computers are used to control much of the world around us.	Technology: Using scientific knowledge to help us to create new devices or tools.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	See also: Knowledge organiser.			

Whole School Computing Curriculum



Year	Knowledge	Skills
Year 2 Spring	<i>Focus: International Space station (ISS – Data Handling)</i>	<i>Computer Science</i>
	<i>National Curriculum Knowledge</i>	<i>Developing confidence with the keyboard and the basics of touch typing.</i>
	•Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	
	<i>Prior Learning: Programming 1: Algorithm unplugged (Year 1)</i>	<i>Information Technology</i>
	<i>Contributing towards: Data handling: Investigating weather (Year 4)</i>	<i>Creating and labelling images.</i>
		<i>Collecting and inputting data into a spreadsheet.</i>
		<i>Interpreting data from a spreadsheet.</i>
		<i>Learning how computers are used in the wider world.</i>

Whole School Computing Curriculum



Year	Knowledge			Skills
Year 2 Spring	<i>Focus: Programming 1: Algorithms and Debugging</i>			<i>Computer Science</i>
	<i>National Curriculum Knowledge</i>			Developing confidence with the keyboard and the basics of touch typing.
	•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.			Articulating what decomposition is.
	<i>Prior Learning: Programming 1: Algorithm unplugged (Year 1)</i>			Decomposing a game to predict the algorithms used to create it.
	<i>Contributing towards: Programming 2: Scratch Jr (Year 2)</i>			Learning that there are different levels of abstraction.
				Explaining what an algorithm is.
				Following an algorithm.
				Creating a clear and precise algorithm.
				Using logical thinking to explore software, predicting, testing and explaining what it does.
				Using an algorithm to write a basic computer program.
	Lesson	Sticky Knowledge	Key Vocabulary	<i>Information Technology</i>
	1: Dinosaur algorithm I can decompose a game to predict the algorithms that are used.	Errors in an algorithm (instructions) are called bugs and fixing these is debugging.	Decomposition: breaking a problem into manageable chunks.	Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.
	2: Machine learning I can understand that computers can use algorithms to make predictions (machine learning).	Computers use algorithms to make predictions.	Predict: to make a guess.	
	4: Making Maps I can understand what abstraction is.	We use abstraction to read digital maps. It helps to decide how much detail you need to see.	Abstraction: removing unnecessary detail to help solve a problem.	
	5. Unplugged debugging I can understand what debugging is.	A bug is an error or mistake in computer code.	Debugging: the process of finding and correcting errors.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills
Year 2 Summer	Focus: Programming 2: Scratch Jr			Computer Science
	National Curriculum Knowledge			Recognising that buttons cause effects and that technology follows instructions.
	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instruction. • Use logical reasoning to predict the behaviour of simple programs. • Create and debug simple programs.			Explaining what an algorithm is.
	Prior Learning: Programming 1: Algorithms and Debugging (Year 2)			Following an algorithm.
	Contributing towards: Programming Scratch (Year 3)			Creating a clear and precise algorithm.
				Using logical thinking to explore software, predicting, testing and explaining what it does.
				Using an algorithm to write a basic computer program.
				Information Technology
				Using software (and unplugged means) to create story animations.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Using Scratch Jr To explore a new application.	Scratch Jr is a coding application in which you can instruct a character to move.	Code: A set of instructions written in programming language, to tell a computer what to do.	
	2: Creating an animation To create an animation.	Computers can present a series of images or positions which give the impression of movement.	Animation: Pictures or photographs in a sequence to give the illusion of movement.	
	4: Programming a joke To follow an algorithm.	Computers can record and play back recordings of sound, when the correct input is given	Block: An instruction which can be dragged and dropped in to a sequence.	
	5: 'The Three Little Pigs' algorithms To plan and use code to create an algorithm.	A loop can be used to repeat an instruction.	Program: A series of instructions that are written for a computer to follow.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz	
See also: Knowledge organiser.				



Year	Knowledge	Skills																		
Year 3 Autumn	<u>Focus:</u> Online Safety	<u>Information Technology</u> Recognising how social media platforms are used to interact.																		
	<u>National Curriculum Knowledge</u> ●Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. ●Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. ●Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	<u>Digital Literacy</u> Recognising that different information is shared online including facts, beliefs and opinions. Learning how to identify reliable information when searching online. Learning how to stay safe on social media. Considering the impact technology can have on mood. Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.																		
	<u>Prior Learning:</u> Online Safety (Year 2)																			
	<u>Contributing towards:</u> Online Safety (Year 4)																			
	<table><tr><td>Lesson</td><td>Sticky Knowledge</td><td>Key Vocabulary</td></tr><tr><td>1: Beliefs, opinions and facts on the internet I can understand how the internet can be used to share beliefs, opinions and facts.</td><td>Not everything on the internet is true: people share facts, beliefs and opinions online.</td><td>Opinion: a view or judgement formed about something, not necessarily based on fact or knowledge.</td></tr><tr><td>2: Who should I ask? I can explain what should be done before sharing information online.</td><td>Privacy settings limit who can access your important personal information such as your name, age, gender etc.</td><td>Privacy settings: the part of a social networking website, internet browser, etc. that allows you to control who sees information</td></tr><tr><td>3: When being online makes me upset I can identify the effects that the internet can have on people’s feelings.</td><td>The internet can affect your moods and feelings.</td><td>Emotions: a strong feeling which comes from what we see, feel, hear and think.</td></tr><tr><td>4: Sharing of information I can understand the ways personal information can be shared on the internet.</td><td>There are age restrictions on social media.</td><td>Social Media: websites and apps that enable users to create and share content or to interact with others</td></tr><tr><td>Assessment</td><td>Assessing Sticky Knowledge Kapow Unit Quiz</td><td>Assessing Key Vocabulary Class Bingo</td></tr></table>	Lesson	Sticky Knowledge	Key Vocabulary	1: Beliefs, opinions and facts on the internet I can understand how the internet can be used to share beliefs, opinions and facts.	Not everything on the internet is true: people share facts, beliefs and opinions online.	Opinion: a view or judgement formed about something, not necessarily based on fact or knowledge.	2: Who should I ask? I can explain what should be done before sharing information online.	Privacy settings limit who can access your important personal information such as your name, age, gender etc.	Privacy settings: the part of a social networking website, internet browser, etc. that allows you to control who sees information	3: When being online makes me upset I can identify the effects that the internet can have on people’s feelings.	The internet can affect your moods and feelings.	Emotions: a strong feeling which comes from what we see, feel, hear and think.	4: Sharing of information I can understand the ways personal information can be shared on the internet.	There are age restrictions on social media.	Social Media: websites and apps that enable users to create and share content or to interact with others	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	Lesson	Sticky Knowledge	Key Vocabulary																	
	1: Beliefs, opinions and facts on the internet I can understand how the internet can be used to share beliefs, opinions and facts.	Not everything on the internet is true: people share facts, beliefs and opinions online.	Opinion: a view or judgement formed about something, not necessarily based on fact or knowledge.																	
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Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo																		
<u>See also:</u> Knowledge organiser.																				

Whole School Computing Curriculum



Year	Knowledge			Skills
Year 3 Autumn	<i>Focus: Computing Systems and Networks: Networks</i>			<i>Computer Science</i>
	<i>National Curriculum Knowledge</i>			<i>Learning about the purpose of routers.</i>
	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.			<i>Understanding the role of the key components of a network.</i>
	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.			<i>Identifying the key components within a network, including whether they are wired or wireless.</i>
	<i>Prior Learning: Computing Systems and Networks: What is a computer? (Year 2)</i>			<i>Understanding that websites and videos are files that are shared from one computer to another.</i>
	<i>Contributing towards: Computing Systems and Networks: Collaborative learning (Year 4)</i>			<i>Learning about the role of packets.</i>
				<i>Understanding how networks work and their purpose.</i>
				<i>Recognising links between networks and the internet.</i>
			<i>Learning how data is transferred.</i>	
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: What is a network? I can recognise what a network is.	A network enables us to make video calls, play online games and search for information on the internet.	Network: A group of computers or devices connected to share information.	
	3: How a website works I can demonstrate how a website works.	A server responds to a user request to deliver a website (text and images & sounds etc).	Server: A computer that supplies data and information to other devices.	
	5: What is packet data? I can identify the role of packet data.	Packet data is used when website content is too large to send in one go.	Packet data: The transmission of data in small pieces over a network, which are then reassembled at their destination.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	See also: Knowledge organiser.			



Year	Knowledge			Skills
Year 3 Spring	<i>Focus: Computing systems and networks 3: Journey Inside A Computer</i> <i>National Curriculum Knowledge</i> • 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. • 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. • 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 logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. <i>Prior Learning:</i> What is a computer? (Year 2) <i>Contributing towards:</i> Computing Systems and network: Collaborative Learning (Year 4)			<i>Computer Science</i> Understanding what the different components of a computer do and how they work together. Drawing comparisons across different types of computers. Using decomposition to explain the parts of a laptop computer. Explaining the purpose of an algorithm.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Inputs and outputs <i>I can recognise basic inputs and outputs.</i>	<i>A computer receives information from inputs and sends instructions to output.</i>	Input: A way of telling the computer what you want it to do Output: A way of seeing whether the computer has done what you asked it to.	
	2: Building a paper laptop <i>I can identify the components inside a laptop.</i>	<i>The basic components include the CPU, hard drive and RAM.</i>	CPU: Central Processing Unit. The brain of a computer that deals with all the data it receives from input and output devices as well as programs run within the computer	
	5: Dismantling a tablet <i>I can decompose a tablet computer.</i>	<i>A tablet is handheld and a lot smaller than a laptop therefore making it more accessible and mobile.</i>	Components: The parts that make up a computer.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills
Year 3 Spring	<i>Focus: Creating Media: Video Trailers</i>			<i>Computer Science</i> Using logical thinking to explore more complex software; predicting, testing and explaining what it does.
	<i>National Curriculum Knowledge</i> ●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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. ●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; solves problems by decomposing them into smaller parts.			<i>Information Technology</i> Taking photographs and recording video to tell a story. Using software to edit and enhance their video adding music, sounds and text on screen with transitions.
	<i>Prior Learning: Creating Media: Digital Imagery (Year 1)</i>			
	<i>Contributing towards: Creating Media: Stop Motion (Year 5)</i>			
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Planning a book trailer I can plan a book trailer.	A book trailer is used to entice the audience to buy and read the book.	Storyboard: A sequence of drawings which tell a story.	
	2: Filming I can take photos or videos that tell a story.	Shots can be framed differently to create different effects.	Video: Recorded moving pictures that can make up a clip or film.	
	3: Editing the trailer I can edit a video.	Sound effects and text must match what is happening on screen.	Voiceover: A voice recording which overlays a video or presentation. Sound effects: Sounds to enhance an event or bring fantasy aspects to life in a film or other media, for example, the whoosh of a time machine.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills																	
Year 3 Summer	<i>Focus: Programming: Scratch</i>			<i>Computer Science</i>																	
	<i>National Curriculum Knowledge</i>			<i>Using decomposition to explore the code behind an animation.</i>																	
	•Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.			<i>Using repetition in programs.</i>																	
	•Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.			<i>Using logical reasoning to explain how simple algorithms work.</i>																	
	•Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.			<i>Explaining the purpose of an algorithm.</i>																	
	<i>Prior Learning: Programming: Scratch Junior (Year 2)</i>			<i>Forming algorithms independently.</i>																	
	<i>Contributing towards: Programming: Computational thinking (Year 4)</i>			<i>Using logical thinking to explore more complex software; predicting, testing and explaining what it does.</i>																	
				<i>Incorporating loops to make code more efficient.</i>																	
				<i>Continuing existing code.</i>																	
	<table><tr><td>Lesson</td><td>Sticky Knowledge</td><td>Key Vocabulary</td></tr><tr><td>1: Tinkering with Scratch I can explore a programming application.</td><td>Scratch is a coding application which uses building blocks, staging and other key tools.</td><td>Tinker: To explore and play with something to discover the key functions.</td></tr><tr><td>2: Using loops I can use repetition (a loop) in a program.</td><td>Use a loop in programming to achieve repetition. You can use them to program music.</td><td>Repetition: Doing something over and over again. Loop: A repeated sequence of instructions.</td></tr><tr><td>3: Making an animation I can program an animation.</td><td>You can run several algorithms at once to produce a more complex animation.</td><td>Remixing code: Altering code that already exists.</td></tr><tr><td>5: Programming a game I can program a game.</td><td>An algorithm is a sequence of instructions that, when followed, solve a problem.</td><td>Decomposition: Breaking a problem into smaller parts.</td></tr><tr><td>Assessment</td><td>Assessing Sticky Knowledge Kapow Unit Quiz</td><td>Assessing Key Vocabulary Multiple Choice Quiz</td></tr></table>			Lesson	Sticky Knowledge	Key Vocabulary	1: Tinkering with Scratch I can explore a programming application.	Scratch is a coding application which uses building blocks, staging and other key tools.	Tinker: To explore and play with something to discover the key functions.	2: Using loops I can use repetition (a loop) in a program.	Use a loop in programming to achieve repetition. You can use them to program music.	Repetition: Doing something over and over again. Loop: A repeated sequence of instructions.	3: Making an animation I can program an animation.	You can run several algorithms at once to produce a more complex animation.	Remixing code: Altering code that already exists.	5: Programming a game I can program a game.	An algorithm is a sequence of instructions that, when followed, solve a problem.	Decomposition: Breaking a problem into smaller parts.	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz
Lesson	Sticky Knowledge	Key Vocabulary																			
1: Tinkering with Scratch I can explore a programming application.	Scratch is a coding application which uses building blocks, staging and other key tools.	Tinker: To explore and play with something to discover the key functions.																			
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Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz																			
	<i>See also: Knowledge organiser.</i>																				



Year	Knowledge			Skills
Year 4 Autumn	<i>Focus: Online Safety</i>			<i>Information Technology</i>
	<i>National Curriculum Knowledge</i>			Understanding why some results come before others when searching.
	●Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.			Understanding that information found by searching the internet is not all grounded in fact.
	<i>Prior Learning: Online Safety (Year 3)</i>			<i>Digital Literacy</i>
	<i>Contributing towards: Online Safety (Year 5)</i>			Recognising that information on the internet might not be true or correct and that some sources are more trustworthy than others.
				Learning to make judgements about the accuracy of online searches. Identifying forms of advertising online.
				Recognising what appropriate behaviour is when collaborating with others online.
				Reflecting on the positives and negatives of time spent online.
			Identifying respectful and disrespectful online behaviour.	
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: What happens when I search online? <i>I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy.</i>	<i>Several searches might be needed to find a reliable answer online.</i>	<i>Reliable:</i> Can be trusted or believed.	
	2: How do companies encourage us to buy online? <i>I can describe some of the methods used to encourage people to buy things online.</i>	<i>Some of the methods used to encourage people to buy things online include in-app purchases and influencers.</i>	<i>In-app purchases:</i> Extra content or services that are advertised and can be bought when using an app. <i>Influencer:</i> A person who recommends products or services on social media.	
	3: Fact, opinion or belief? <i>I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.</i>	<i>Opinions and beliefs do not make something a fact.</i>	<i>Fact:</i> Something that can be proven to be true by evidence.	
	5: What is my #TechTimetable like? <i>I can explain how technology can be a distraction and identify when I might need to limit the amount of time spent using technology.</i>	<i>Technology can be a distraction and identify when someone might need to limit the amount of time spent using technology.</i>	<i>Screen time:</i> The amount of time a person spends looking at an electronic device with a screen (e.g. computer, tablet, phone or TV).	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge			Skills
Year 4 Autumn	<u>Focus: Computing systems and networks: Collaborative learning (Microsoft Office 365)</u>			<u>Computer Science</u> Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.
	<u>National Curriculum Knowledge</u>			<u>Information Technology</u> Use online software for documents, presentations, forms and spreadsheets. Using software to work collaboratively with others. Understanding that software can be used collaboratively online to work as a team.
	- 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. - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.			
	<u>Prior Learning: Computing systems and networks: Networks (Year 3) & Journey Inside A Computer (Year 3)</u>			
	<u>Contributing towards: Computing systems and networks: Search Engines (Year 5)</u>			<u>Digital Literacy</u> Recognising what appropriate behaviour is when collaborating with others online.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Teamwork I can understand that software can be used to work online collaboratively.	Software can be used to work online collaboratively.	Collaborate: Working with others to achieve a specific goal.	
	3: Microsoft Forms 1 I can understand how to create a digital survey.	A digital survey can be used for finding out activities people like or don't like.	Survey: Asking people questions that examine their opinions or behaviour on a subject.	
	4: Microsoft Forms 2 I can create and share a Microsoft Form.	The advantages in sharing a digital survey are that it is easier to share with many people and faster responses.	Share: To show or give a part of something	
	5: Shared spreadsheets I can analyse data.	Digital, numerical data can be analysed, e.g. to quickly calculate totals and averages.	Numerical data: Information shown using numbers	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	<u>See also: Knowledge organiser.</u>			



Year	Knowledge			Skills
Year 4 Spring	<i>Focus: Data handling: Investigating weather</i> <i>National Curriculum Knowledge</i> • 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • 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. <i>Prior Learning: Data Handling: ISS (Year 2)</i> <i>Contributing towards: Data Handling: Mars Rover 1 (Year 5)</i>			<i>Computer Science:</i> Using tablets or digital cameras to film a weather forecast. Understanding that weather stations use sensors to gather and record data which predicts the weather. <i>Information Technology</i> Searching the internet for data. Understanding that data is used to forecast weather. Recording data in a spreadsheet independently. Sorting data in a spreadsheet to compare using the 'sort by...' option. Designing a device which gathers and records sensor data.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: What is the weather? I can log data taken from online sources in a spreadsheet.	You can access online sources for numerical data for example the weather.	Measurement: Using standard units to describe an object, for example, its temperature in degrees or weight in kilograms.	
	3: Extreme weather I can design an automated machine to respond to sensor data.	Sensor data can be used to help predict extreme weather.	Sensor data: Information or measurements received from a device that is designed to monitor, detect and respond to changes.	
	4: Satellites and forecasts I can understand how weather forecasts are made.	Experts use data sets (forecasts) to make predictions.	Data sets: A collection of related sets of information that is composed of separate elements but can be analysed as a unit by a computer	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	
	See also: Knowledge organiser.			



Year	Knowledge	Skills	
Year 4 Spring	<u>Focus:</u> <i>Programming 1: Further coding with Scratch</i>		
	<u>National Curriculum Knowledge</u>		
	• 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.		
	<u>Prior Learning:</u> <i>Programming: Scratch (Year 3)</i>		
	<u>Contributing towards:</u> <i>Computational thinking (Year 4)</i>		
	Lesson	Sticky Knowledge	Key Vocabulary
	2: Identifying what code does I can understand how a Scratch game works by using decomposition to identify key features.	Coding can be understood through decomposition.	Decompose: To break down something into smaller parts.
	3: Introduction to variables I can recognise what a variable is.	Variables can store lots of different types of data and are often used for words or numbers.	Variable: A container or holder for storing information that can change, e.g. numbers or text.
	4: Making a variable I can understand how to make a variable in Scratch.	Using a variable can add flexibility to code and change the output.	Script: A list of computer commands written in a particular programming language.
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab
<u>See also:</u> <i>Knowledge organiser.</i>			
		<u>Computer Science:</u> Using decomposition to solve a problem by finding out what code was used. Using decomposition to understand the purpose of a script of code. Remixing existing code. Creating algorithms for a specific purpose. Coding a simple game. Incorporating variables to make code more efficient.	



Year	Knowledge			Skills
Year 4 Summer	<u>Focus: Programming 2: Computational Thinking</u> <u>National Curriculum Knowledge</u> - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. <u>Prior Learning: Programming 1: Scratch (Year 4)</u> <u>Contributing towards: Programming Music: Scratch (Year 5)</u>			<u>Computer Science:</u> Using decomposition to solve a problem by finding out what code was used. Using decomposition to understand the purpose of a script of code. Identifying patterns through unplugged activities. Using abstraction to identify the important parts when completing both plugged and unplugged activities. Creating algorithms for a specific purpose. Coding a simple game. Using abstraction and pattern recognition to modify code. Incorporating variables to make code more efficient.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: What is computational thinking? I can understand that computational thinking is made up of four key strands.	Computational thinking is made up of four key strands.	Computational thinking: Using logic to solve problems step by step.	
	2: Decomposition I can understand what decomposition is and how to apply it to solve problems.	Decomposition can be useful when solving a complex problem.	Abstraction: Identifying the important detail and ignoring irrelevant information.	
	3: Abstraction and pattern recognition I can understand what pattern recognition and abstraction mean.	Pattern recognition and abstraction help to solve a problem.	Pattern Recognition: Identifying similarities and recurrences in data.	
	4: Algorithm design I can understand how to create an algorithm and what it can be used for.	Algorithm design take all your collected information to create a recipe for success.	Algorithm Design: Creating a formula or set of instructions to solve the problem. A set of mathematical instructions or rules that, especially if given to a computer, will help to calculate an answer to a problem.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz	
	See also: Knowledge organiser.			

Whole School Computing Curriculum



Year	Knowledge			Skills
Year 5 Autumn	<i>Focus: Online Safety</i>			<i>Digital Literacy</i>
	<i>National Curriculum Knowledge</i>			Understand that passwords need to be strong and that apps require some form of password.
	●Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.			Recognise some types of online communication and know who to go to if they need help with any communication matters online.
	●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.			Search for simple information about a person, such as their birthday or key life moments.
	<i>Prior Learning: Online Safety (Year 4)</i>			Know what bullying is and that it can occur both online and in the real world.
	<i>Contributing towards: Online Safety (Year 6)</i>			Recognise when health and well-being are being affected in either a positive or negative way through online use.
				Offer some advice and tips to combat the negative effects of online use.
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Online protection I can understand how apps can access personal information and how to alter the permissions.	A strong password keeps personal information secure.	Password: A unique combination of letters, numbers or symbols that protects personal information online. Strong passwords: Contain at least 15 characters and are made up of symbols, numbers and lower and upper case letters.	
	4: Online bullying I can discover ways to overcome bullying.	I can go to BBC Own It for support if I am being bullied online or feel that my health is being affected by time online.	Bullying: The deliberate act of harming, intimidating or threatening someone else to cause them physical or emotional distress.	
5: Online health I can understand how technology can affect health and wellbeing.	Technology can affect health and wellbeing. I can talk with my trusted adult or organisations like the NSPCC.	Mental health: Emotional, psychological and social well-being. Well-being: The state of mind, health and happiness.		
Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo		
	<i>See also: Knowledge organiser.</i>			



Year	Knowledge	Skills																		
Year 5 Autumn	<i>Focus: Computing systems and networks: Search engines</i>	<i>Information Technology</i> Developing searching skills to help find relevant information on the internet. Learn about different forms of communication that have developed with the use of technology. Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.																		
	<i>National Curriculum Knowledge</i>																			
	•Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.																			
	•Select, use and combine a variety of software (including internet services) to create a content that accomplishes given goals, including collecting 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.																			
	<i>Prior Learning: Computing systems and networks: Collaborative learning (Year 4)</i>	<i>Digital Literacy</i> Recognising that information on the internet might not be true or correct and learning ways of checking validity.																		
	<i>Contributing towards: Computing systems and networks: Bletchley Park and the history of computers (Year 6)</i>																			
	<table><tr><td>Lesson</td><td>Sticky Knowledge</td><td>Key Vocabulary</td></tr><tr><td>1: Searching basics I can understand what a search engine is and how to use it.</td><td>A search engine helps to navigate the web.</td><td>Search engine: A website that helps people find information on the world wide web. (www)</td></tr><tr><td>2: Inaccurate information I can be aware that not everything online is true.</td><td>Anyone can create a website and publish content, which may be true, false, opinion and/or dishonest.</td><td>Fake news: False and inaccurate information that is shared in a convincing way, usually on social media and websites.</td></tr><tr><td>3: Web quest I can search effectively.</td><td>Keywords will help me find the content I am looking for more accurately and faster.</td><td>Keywords: A set of words used to define and produce an accurate search engine result.</td></tr><tr><td>4: Information poster I can create an informative poster.</td><td>Creators of content have rights and that it is fair seek permission and give credit when using this content.</td><td>Copyright: The law which states that anything created belongs to the person who created it.</td></tr><tr><td>Assessment</td><td>Assessing Sticky Knowledge Kapow Unit Quiz</td><td>Assessing Key Vocabulary Class Bingo</td></tr></table>	Lesson	Sticky Knowledge	Key Vocabulary	1: Searching basics I can understand what a search engine is and how to use it.	A search engine helps to navigate the web.	Search engine: A website that helps people find information on the world wide web. (www)	2: Inaccurate information I can be aware that not everything online is true.	Anyone can create a website and publish content, which may be true, false, opinion and/or dishonest.	Fake news: False and inaccurate information that is shared in a convincing way, usually on social media and websites.	3: Web quest I can search effectively.	Keywords will help me find the content I am looking for more accurately and faster.	Keywords: A set of words used to define and produce an accurate search engine result.	4: Information poster I can create an informative poster.	Creators of content have rights and that it is fair seek permission and give credit when using this content.	Copyright: The law which states that anything created belongs to the person who created it.	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
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<i>See also: Knowledge organiser.</i>																				



Year	Knowledge			Skills
Year 5 Spring	<i>Focus: Data handling: Creating media: Stop motion animation > Stop-motion animation – Option 1: Stop Motion Studio</i>			<i>Computer Science</i> Decomposing animations into a series of images. Decomposing a story to be able to plan a program to tell a story. <i>Information Technology</i> Using the video editing software to animate.
	<i>National Curriculum Knowledge</i> • 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 sequence, selection and repletion in programs; work with variables and various forms of input and output. • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller part.			
	<i>Prior Learning: Creative Media: Video Trailers (Year 3)</i>			
	<i>Contributing towards: Creating Media (Year 6)</i>			
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Animation explored <i>I can understand what animation is.</i>	An animation is made up of a sequence of photographs.	Still image: A single, unchanging picture.	
	2: Exploring stop-motion <i>I can understand what stop motion animation is.</i>	To make a good stop motion, you must keep your tablet completely still and make the movements as small as possible.	Frame: Each picture or page in an animation. Stop motion: A sequence of images or photographs used to create an animation.	
	3: Planning my stop-motion project <i>I can plan a stop motion video.</i>	In stop motion, everything is carefully adjusted between taking each photo.	Storyboard: A sequence of sketches to show what will be included.	
	4: Stop motion creation <i>I can create a stop motion animation.</i>	After taking all the photos, animators use software to put the frames together, add sounds and edit the animation into a final product.	Onion skinning: A way of seeing the previous frame to help create the next frame in an animation.	
	<i>Assessment</i>	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	
<i>See also: Knowledge organiser.</i>				



Year	Knowledge	Skills															
Year 5 Spring	<u>Focus: Data handling: Mars Rover 1</u> <u>National Curriculum Knowledge</u> • 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. <u>Prior Learning: Data Handling: Investigating Weather (Year 4)</u> <u>Contributing towards: Data handling 1: Big Data 1 (Year 6)</u> <table border="1"> <tr> <th>Lesson</th><th>Sticky Knowledge</th><th>Key Vocabulary</th></tr> <tr> <td>1: Mars Rover I can identify how and why data is collected from space.</td><td>Information was collected by Mars Rover and was transmitted to Earth in a binary format.</td><td>Data transmission: The movement of information from one or more points to another.</td></tr> <tr> <td>2: Binary code I can read and calculate numbers using binary code.</td><td>Binary is the most basic way that computers communicate. Each number (one or zero) is referred to as a bit.</td><td>Binary: A code used in computers, based around the binary values of zero and one.</td></tr> <tr> <td>4: Using binary – numbers I can use simple operations to calculate bit patterns.</td><td>Computers use binary mathematically to calculate data.</td><td>Revise Input & Output in the context of binary processing</td></tr> <tr> <td><u>Assessment</u></td><td>Assessing Sticky Knowledge Kapow Unit Quiz</td><td>Assessing Key Vocabulary Match definition to key vocab</td></tr> </table> <u>See also: Knowledge organiser.</u>	Lesson	Sticky Knowledge	Key Vocabulary	1: Mars Rover I can identify how and why data is collected from space.	Information was collected by Mars Rover and was transmitted to Earth in a binary format.	Data transmission: The movement of information from one or more points to another.	2: Binary code I can read and calculate numbers using binary code.	Binary is the most basic way that computers communicate. Each number (one or zero) is referred to as a bit.	Binary: A code used in computers, based around the binary values of zero and one.	4: Using binary – numbers I can use simple operations to calculate bit patterns.	Computers use binary mathematically to calculate data.	Revise Input & Output in the context of binary processing	<u>Assessment</u>	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	<u>Computer Science</u> Learning that external devices can be programmed by a separate computer. Learning the vocabulary associated with data: data and transmit. Recognising that computers transfer data in binary and understanding simple binary addition. Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations. <u>Information Technology</u> Understanding how data is collected in remote or dangerous places. Understanding how data might be used to tell us about a location. Learn about different forms of communication that have developed with the use of technology.
Lesson	Sticky Knowledge	Key Vocabulary															
1: Mars Rover I can identify how and why data is collected from space.	Information was collected by Mars Rover and was transmitted to Earth in a binary format.	Data transmission: The movement of information from one or more points to another.															
2: Binary code I can read and calculate numbers using binary code.	Binary is the most basic way that computers communicate. Each number (one or zero) is referred to as a bit.	Binary: A code used in computers, based around the binary values of zero and one.															
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Year	Knowledge		Skills	
Year 5 Summer	Focus: Data handling: Programming 1: Music – Option 2: Scratch (tablet and Chromebook users)		Computer Science Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose. Iterating and developing their programming as they work. Confidently using loops in their programming. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Writing code to create a desired effect. Using a range of programming commands. Using repetition within a program. Amending code within a live scenario. Using logical thinking to explore software more independently, making predictions based on their previous experience. Using a software programme (Scratch) to create music. Identify ways to improve and edit programs, videos, images etc.	
	National Curriculum Knowledge			
	•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 begun 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.			
	Prior Learning: Programming 1: Further coding with Scratch (Year 4)			
	Contributing towards: Programming Intro to python (Year 6)			
	Lesson	Sticky Knowledge		Key Vocabulary
	1: Tinkering with Scratch music elements I can tinker with a new piece of software.	Scratch is a coding application with music elements. Different coding blocks can do to sounds.		Program language: The particular library of code which a piece of software is written in (e.g. Java, Python or C++).
	2: Scratch soundtracks I can create a program that plays themed music.	A sequence of programmed instructions which produce sounds, when linked and/or looped can produce music.		Loop: A repeated sequence of instructions.
	3: Planning a soundtrack I can plan a soundtrack program.	The use of a soundtrack can guide the audience into how they should be feeling.		Soundtrack: A music recording that accompanies a film or TV show.
	4: Programming a soundtrack I can program a soundtrack.	Using loops can reduce the chance of bugs. Fewer blocks are needed which means a faster program too.		Bug: A mistake or error in the code which stops the program from working as intended.
Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz		
See also: Knowledge organiser.				



Year	Knowledge			Skills
Year 6 Autumn	<u>Focus:</u> Online Safety			<u>Digital Literacy</u> Learning about the positive and negative impacts of sharing online. Learning strategies to create a positive online reputation. Understanding the importance of secure passwords and how to create them. Learning strategies to capture evidence of online bullying in order to seek help. Using search engines safely and effectively. Recognising that updated software can help to prevent data corruption and hacking.
	<u>National Curriculum Knowledge</u> ● Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.			
	<u>Prior Learning:</u> Online Safety (Year 5)			
	<u>Contributing towards:</u> National Curriculum: Computing (Key Stage Three)			
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Life online I can describe online issues that give us negative feelings and know how to get help.	An online issue that might give negative feelings is... someone calling you names.	Block: To stop online messages, emails or phone calls from being received.	
	2: Sharing online I can explore the impact and consequences of sharing online.	It is risky to share things online even if they are sent privately.	Consent: Allowing something to happen.	
	4: Capturing evidence To describe how to capture bullying content as evidence.	There are a range of strategies to collect evidence including a screen grab and finding the UR.	Screen grab: To make an image of what is shown on a device's screen so it can be copied, saved or shared (also known as a screenshot). URL: The Uniform Resource Locator is the website address.	
	6: Think before you click To be aware of strategies that help protect people online.	Online content is used to get money or information from people illegally (called cybercrime, online fraud and identity theft).	Antivirus: A program that protects a device from malware. Malware: Malicious software that collects personal and financial information. Phishing: When online scammers try to get hold of personal or financial information.	
Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo		
<u>See also:</u> Knowledge organiser.				



Year	Knowledge			Skills
Year 6 Autumn	Focus: Computing systems and networks: Bletchley Park and the history of computers			Computer Science
	National Curriculum Knowledge			Learning about the history of computers and how they have evolved over time. 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.
	- 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. - 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. - 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.			Information Technology
	Prior Learning: Computing systems and networks: Search Engines (Year 5)			Using search and word processing skills to create a presentation. Understanding how search engines work.
	Contributing towards: National Curriculum: Computing (Key Stage Three)			Digital Literacy
	Lesson	Sticky Knowledge	Key Vocabulary	Understanding the importance of secure passwords and how to create them. Using search engines safely and effectively.
	1: Secret codes I can understand there are many different types of secret codes.	Codes are ways of changing information to keep it hidden from others.	Cipher: A way of writing information in a secret code.	
	2: Brute force hacking I can understand the importance of having a secure password.	It is important to have a very secure password. Longer passwords are more secure than short ones.	Brute force hacking: When a hacker uses different methods, such as trial and error, to break into secured information.	
	3: Computers of the past I can recognise the importance of the history of computers and create a well-researched presentation.	The first electronic computers were created at Bletchley Park to crack German codes during World War 2.	Technological advancement: The development of new technologies or improvements to existing ones to make life better, often based on scientific discoveries.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Class Bingo	
	See also: Knowledge organiser.			



Year	Knowledge			Skills
Year 6 Spring	<u>Focus: Data handling 1: Big Data 1</u>			<u>Information Technology</u> Understanding how barcodes, QR codes and RFID work. Gathering and analysing data in real time. Creating formulas and sorting data within spreadsheets. Learning how 'big data' can be used to solve a problem or improve efficiency.
	<u>National Curriculum Knowledge</u> - 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.			
	<u>Prior Learning:</u> Data handling: Mars Rover 1 (Year 5)			
	<u>Contributing towards:</u> National Curriculum: Computing (Key Stage Three)			
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Barcodes I can identify how barcodes and QR codes work.	Barcodes work by containing a series of numbers identifying a certain product. QR or Quick Response code is a more advanced version of a barcode and can contain more detail and information.	Barcode: A machine-readable code made of lines and numbers that is printed on an item and then scanned to identify it and its information. QR code: A Quick Response Code, similar to a bar code, that can be scanned and take people to a specific website or provide information.	
	3: RFID I can recognise how RFID is used.	RFID (Radio Frequency Identification) is a form of wireless communication that allows tracking or matching an item or individual.	Chip: Where the data is encrypted. Radio waves: Invisible electromagnetic waves that can transmit information via an antenna, which converts the electrical signal it receives into another format (e.g. a sound wave).	
	4: Using RFID I can input and analyse real-world data.	RFID can be used at theme parks to share information such as ride popularity.	Spreadsheet: A computer program where data can be stored and analysed. Columns, Rows and Cells: Places in a spreadsheet where data can be input	
	5: Transport data I can analyse and evaluate data.	Spreadsheets can be used to sort and compare data.	Systems analyst: A person who manages, sorts, analyses and models data to identify key trends and solve problems within a system.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Match definition to key vocab	
<u>See also: Knowledge organiser.</u>				



Year	Knowledge	Skills
Year 6 Summer	<i>Focus: Computer Systems and Networks: AI</i>	<i>Computer Science</i>
	TO BE PUBLISHED OCTOBER 2024	Learning about the history of computers and how they have evolved over time.
	<i>National Curriculum Knowledge</i>	Understanding and identifying barcodes, QR codes and RFID.
		Identifying devices and applications that can scan or read barcodes, QR codes and RFID.
	<i>Prior Learning:</i> Computing systems and networks: Bletchley Park and the history of computers (Year 6)	Decomposing a program into an algorithm.
	<i>Contributing towards:</i> National Curriculum: Computing (Key Stage Three)	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.
		Using and adapting nested loops.
	Programming using the language Python.	
	Changing a program to personalise it.	
	Evaluating code to understand its purpose.	
	Predicting code and adapting it to a chosen purpose.	
	<i>Information Technology</i>	
	Using logical thinking to explore software independently, iterating ideas and testing continuously.	
	Using search and word processing skills to create a presentation.	
	Understanding how search engines work.	
	Understanding how barcodes, QR codes and RFID work.	
	Gathering and analysing data in real time.	
	Creating formulas and sorting data within spreadsheets.	
	Learning how 'big data' can be used to solve a problem or improve efficiency.	
	<i>Digital Literacy</i>	
	Learning about the positive and negative impacts of sharing online.	
	Learning strategies to create a positive online reputation.	
	Understanding the importance of secure passwords and how to create them.	
	Learning strategies to capture evidence of online bullying in order to seek help.	
	Using search engines safely and effectively.	
	Recognising that updated software can help to prevent data corruption and hacking.	



Year	Knowledge			Skills
Year 6 Summer	Focus: Programming: Intro to Python			<u>Computer Science</u> Decomposing a program into an algorithm. 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. Using and adapting nested loops. Programming using the language Python. Changing a program to personalise it. Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose. <u>Information Technology</u> Using logical thinking to explore software independently, iterating ideas and testing continuously.
	<u>National Curriculum Knowledge</u> ●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.			
	<u>Prior Learning: Programming: Music</u> (Year 5)			
	<u>Contributing towards: National Curriculum: Computing</u> (Key Stage Three)			
	Lesson	Sticky Knowledge	Key Vocabulary	
	1: Tinkering with Logo I can tinker with a new piece of software.	Logo is an early programming language.	Command: To give an order or instruction to a computer to complete a particular task.	
	2: Nested loops I can understand nested loops.	A repeat is a piece of code written more than once.	Nested loop: A loop within a loop.	
	3: Using Python I can understand basic Python commands.	To make alterations you can remix a code.	Import: To pull another file into software to place, edit and manipulate.	
	4: Using loops in Python I can use loops when programming.	Using loops in python can help you to create more complex patterns.	Indentation: Used in programming (e.g. Python) to define a block of code.	
	Assessment	Assessing Sticky Knowledge Kapow Unit Quiz	Assessing Key Vocabulary Multiple Choice Quiz	
See also: Knowledge organiser.				