

Yearly Overview

Subject: Computing

Year Group: 2

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	<b>What is a computer?</b>	<b>Algorithms and debugging</b>	<b>Word Processing</b>	<b>Programming - Scratch JR</b>	<b>Stop Motion (option 2)</b>	<b>International Space Station</b>
Link to programme of study	Computer systems and networks	Programming	Computer systems and networks	Programming	Creating media	Data handling
Composite Knowledge	To know the difference between a desktop and laptop computer.  To know that people control technology.  To know some input devices that give a computer an instruction about what to do (output).  To know that computers often work together.	To understand what machine learning is and how it enables computers to make predictions.  To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.  To know that abstraction is the removing of unnecessary detail to help solve a problem.	To know that touch typing is the fastest way to type.  To know that I can make text a different style, size and colour.  To know that "copy and paste" is a quick way of duplicating text.	To know 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 understand that an animation is made up of a sequence of photographs.  To know that small changes in my frames will create a smoother looking animation.  To understand what software creates simple animations and some of its features e.g. onion skinning.	To understand that you can enter simple data into a spreadsheet.  To understand what steps you need to take to create an algorithm.  To know what data to use to answer certain questions.  To know that computers can be used to monitor supplies.
Key Concepts and Key skills (Component / intentional knowledge - what they need to understand)	<b>Computer Science - Hardware</b> Understanding what a computer is and that it's made up of different components. Recognising that buttons cause effects and that technology follows instructions. Learning how we know that technology is doing what we want it to do via its output. Using greater control when taking photos with tablets or computers  <b>Information Technology</b> 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. Learning how computers are used in the wider world	<b>Computer Science</b> Developing confidence with the keyboard and the basics of touch typing. Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it. Learning that there are different levels of abstraction. Explaining what an algorithm is. Following an algorithm. Creating a clear and precise algorithm. Learning that programs execute by following precise instructions. Incorporating loops within algorithms. Using logical thinking to explore software, predicting, testing and explaining what it does. Using an algorithm to write a basic computer program.  <b>Information Technology</b> Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.	<b>Computer Science - Hardware</b> Developing confidence with the keyboard and the basics of touch typing.  <b>Information Technology - Using Software</b> Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text.  <b>Digital Literacy and Online Safety</b> Searching for appropriate images to use in a document. Understanding what online information is. Identifying whether information is safe or unsafe to be shared online.	<b>Computer Science - Computational Thinking</b> Learning that programs execute by following precise instructions. Recognising that buttons cause effects and that technology follows instruction.  <b>Computer Science - Programming</b> Using logical thinking to explore software, predicting, testing and explaining what it does. Explaining what an algorithm is. Using an algorithm to write a basic computer program. Following an algorithm. Creating a clear and precise algorithm. Incorporating loops within algorithms. Using loop blocks when programming to repeat an instruction more than once.  <b>Information Technology - Using Software</b> Using software (and unplugged means) to create story animations.	<b>Computer Science</b> Using greater control when taking photos with cameras, tablets or computers.  Using logical thinking to explore software, predicting, testing and explaining what it does.  <b>Information Technology</b> Using software (and unplugged means) to create story animations.	<b>Information Technology - Using Data</b> Creating and labelling images. Collecting and inputting data into a spreadsheet. Interpreting data from a spreadsheet. Learning how computers are used in the wider world.
Learning objectives:	<b>Lesson 1:</b> To recognise the parts of a computer. <b>Lesson 2:</b> To recognise how technology is controlled. <b>Lesson 3:</b> To recognise technology. <b>Lesson 4:</b> To create a design for an invention. <b>Lesson 5:</b> To understand the role of computers.	<b>Lesson 1:</b> To decompose a game to predict the algorithms that are used. <b>Lesson 2:</b> To understand that computers can use algorithms to make predictions.(machine learning) <b>Lesson 3:</b> To plan algorithms that will solve problems. <b>Lesson 4:</b> To understand what abstraction is. <b>Lesson 5:</b> To understand what debugging is.	<b>Lesson 1:</b> To begin to learn to touch type. <b>Lesson 2:</b> To understand how to use a word processor. <b>Lesson 3:</b> To understand how to add images to a text document. <b>Lesson 4:</b> To create a poetry book using sources from the internet. <b>Lesson 5:</b> To understand what happens to information posted online.	<b>Lesson 1:</b> To explore a new application. <b>Lesson 2:</b> To create an animation. <b>Lesson 3:</b> To use characters as buttons. <b>Lesson 4:</b> To follow an algorithm. <b>Lesson 5:</b> To plan and use code to create an algorithm.	<b>Lesson 1:</b> To understand what animation is. <b>Lesson 2:</b> To understand what stop motion animation is. <b>Lesson 3:</b> To take clear photos using a camera. <b>Lesson 4:</b> To create a stop motion animation. <b>Lesson 5:</b> To plan my stop motion animation. <b>Lesson 6:</b> To create a stop motion animation	<b>Lesson 1:</b> To understand how computers can help humans survive in space. <b>Lesson 2:</b> To create a digital drawing of essential items for life in space. <b>Lesson 3:</b> To understand the role of sensors on the ISS. <b>Lesson 4:</b> To create an algorithm for growing a plant in space. <b>Lesson 5:</b> To interpret data.
Vocabulary	battery, buttons, computer, desktop, device, electricity, invention, laptop, technology, wire	artificial intelligence (AI), bug, correct, data, debug, decompose, error, key features, loop, predict, unnecessary	backspace, copyright, image, import, keyboard character, paste, undo/redo, touch typing, bold, italics	animation, bug, code, debug, icon, imitate, instructions, sequence	animator, storyboard, contraption, upload, decompose, design, download, film review, filming, import, image, plan, sketch, software, stop-motion.	approximate, astronaut, data, digital content, experiment, interactive map, laboratory, monitor (verb), satellite, sensor, space, survival, thermometer
Links to Prior Knowledge	<b>Year 1:</b> <b>Getting started - Improving mouse skills</b>	<b>Year 1:</b> <b>Programming Bee Bots</b>	<b>Year 1:</b> <b>Skills showcase: Rocket to the moon</b>	<b>Year 1:</b> <b>Programming: Algorithms and debugging</b>	<b>Year 1:</b> Creating media: Digital imagery	<b>Year 1:</b> <b>Introduction to data</b>
Key knowledge for assessment	What is the difference between a desktop and laptop computer?  Who controls technology?	What is machine learning and how does it enable computers to make predictions?  What are loops in programming?	What is the fastest way to type?  How can you make text a different style, size and colour?	What is coding? Why do we need to use code with computers?  How is the character(sprite) in Scratchjr	What is an animation?  How can small changes in the frames improve the animation?	How do you enter simple data into a spreadsheet?  What steps do you need to take to create an

	What devices can give computers instructions (inputs)?	What is abstraction?	What is a quick way of duplicating text?	controlled? How can you write a program to create a musical instrument or tell a joke?	What software can you use to creates simple animations?	algorithm? Do you know what data to use to answer certain questions?  How can computers be used to monitor supplies?
Possible cross curricular links	D&T, Science		PSHE		English	Science
Resources	<a href="https://www.kapowprimary.com/wp-content/uploads/2020/07/Y2-Comp-What-is-a-computer-KO.pdf">https://www.kapowprimary.com/wp-content/uploads/2020/07/Y2-Comp-What-is-a-computer-KO.pdf</a>	<a href="https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Algorithms-and-debugging-KO.pdf">https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Algorithms-and-debugging-KO.pdf</a>	<a href="https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Word-processing-KO-1.pdf">https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Word-processing-KO-1.pdf</a>	<a href="https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Programming-Scratch-JR-KO.pdf">https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Programming-Scratch-JR-KO.pdf</a>	<a href="https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Programming-Scratch-JR-KO.pdf">https://www.kapowprimary.com/wp-content/uploads/2020/11/Y2-Programming-Scratch-JR-KO.pdf</a>	<a href="https://www.kapowprimary.com/wp-content/uploads/2020/10/Y2-International-space-station-KO.pdf">https://www.kapowprimary.com/wp-content/uploads/2020/10/Y2-International-space-station-KO.pdf</a>
Online safety unit:	<b>Lesson 1</b>	<b>Lesson 2</b>	<b>Lesson 3</b>	<b>Lesson 4</b>	<b>Lesson 5</b>	<b>Lesson 6</b>
National Curriculum KS1 (skills)	<p><b>Key stage 1</b>  <b>Pupils should be taught to:</b></p> <ul style="list-style-type: none"> <li>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>• create and debug simple programs</li> <li>• use logical reasoning to predict the behaviour of simple programs</li> <li>• use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> <li>• recognise common uses of information technology beyond school</li> <li>• 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.</li> </ul>					