



Year 2
Computing
Autumn 1
Computings systems and networks 1: What is a computer?

Previous learning

Before starting this unit, you might want to check that children can recall:

Log in and log out means to begin and end a connection with a computer.

A computer mouse can be used to click, drag, fill and select.

Passwords are important for security.

Adding backgrounds, text, layers, shapes and clipart in a digital art program. (The basics of Sketchpad are covered again in this unit.)

Substantive Knowledge in Computing

By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.

Disciplinary knowledge in Computing

Our Computing curriculum will equip children not only with the skills and knowledge to learn and grow in the digital world we live in, but more importantly in a safe and secure manner. They will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.

Lesson 1

Computer parts

To recognise the parts of a computer.

I can name the key parts of a computer.
I can explain the purpose of different computer parts.
I can explain that a keyboard contains lots of buttons.

Lesson 2

Inputs

To recognise how technology is controlled.

I can understand that people control technology.
I can understand that technology follows instructions.
I can predict what technology will do.

Lesson 3

Technology safari

To recognise technology.

I can suggest what might have a computer inside.
I can explain why I think this.
I can suggest what the technology does.

Lesson 4

Invention

To create a design for an invention.

I can include an input and output as part of my invention.
I can explain how it works, including how to control it.
I can label my design clearly.

Lesson 5

Real-world role play

To understand the role of computers.

I can explain where computers are used.

	I can suggest what their job is. I can understand that computers work together.
Vocabulary	
Battery, Buttons, Camera, Computer, Desktop, Device, Digital, Digital recorder, Electricity, Function, Input, Invention, Keyboard, Laptop, Monitor, Mouse, Output, Paying till, Scanner, Screen, System, Tablet, Technology, Video, Wires	

Year 2 Computing Autumn 2 Programming 1: Algorithms and debugging	
Previous learning	
<p>Before starting this unit, you might want to check that the children can recall:</p> <p>Algorithms are instructions in the correct order. Decomposition means breaking a problem into manageable chunks. Errors in an algorithm (instructions) are called bugs and fixing these is debugging.</p>	
Substantive Knowledge in Computing	Disciplinary knowledge in Computing
By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.	Our Computing curriculum will equip children not only with the skills and knowledge to learn and grow in the digital world we live in, but more importantly in a safe and secure manner. They will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.
Lesson 1	Dinosaur algorithm
	<p>To decompose a game to predict the algorithms that are used.</p> <p>I can understand what the terms decomposition and algorithm mean. I can decompose a game to predict algorithms. I can plan algorithms for a more complex game.</p>
Lesson 2	Machine learning
	<p>To understand that computers can use algorithms to make predictions (machine learning).</p> <p>I can explain what an algorithm is. I can explain that computers use algorithms to make predictions. I can write a clear and precise algorithm.</p>
Lesson 3	Through the maze
	<p>To plan algorithms that will solve problems.</p> <p>I can devise and create algorithms to solve problems. I can include loops in my algorithms (count controlled). I can visualise directions from a 2D environment.</p>
Lesson 4	Making maps
	<p>To understand what abstraction is.</p> <p>I can explain what abstraction is. I can give an example of when abstraction might be useful.</p>
Lesson 5	Unplugged debugging
	To understand what debugging is.

	<p>I can understand the meaning of the word debugging. I can listen to my peer's verbal instructions. I can perform a task by following step-by-step instructions.</p>
Vocabulary	
Abstraction, Algorithm, Artificial intelligence, Bug, Clear, Correct, Data, Debug, Decompose, Error, Key features, Loop, Predict, Unnecessary	

Year 2 Computing Spring 1 Computing systems and networks 2: Word processing	
Previous learning	
<p>Before starting this unit, you might want to check that the children can recall:</p> <p>Can you think of any examples of computer inputs? (A mouse, a keyboard.) Is a screen/monitor a computer input? (It is an output as it displays the information that has been put in.) Do you know where the spacebar is on a keyboard? (In the middle of the bottom row.)</p>	
Substantive Knowledge in Computing	Disciplinary knowledge in Computing
By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.	Our Computing curriculum will equip children not only with the skills and knowledge to learn and grow in the digital world we live in, but more importantly in a safe and secure manner. They will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.
Lesson 1	Getting to know the keyboard
	<p>To begin to learn to touch type.</p> <p>I can find keys on a computer keyboard. I can type capital letters using 'shift'. I can identify that the keyboard is an important input device.</p>
Lesson 2	Getting started with word processing
	<p>To understand how to use a word processor.</p> <p>I can type a sentence into a word processor. I can select text and make it bold or italic. I can explain how to make other changes to a document.</p>
Lesson 3	Newspaper writer
	<p>To understand how to add images to a text document.</p> <p>I can use keyboard shortcuts to alter text. I can search for and find an appropriate image. I can import and alter an image in a document.</p>
Lesson 4	Poetry book
	<p>To create a poetry book using sources from the internet.</p> <p>I can use text styles to create headings and subtitles. I can copy and paste text into a document. I can identify the importance of crediting source materials.</p>

Lesson 5	Digital writer
	<p>To create a digital piece of writing.</p> <p>I can use keyboard shortcuts. I can use different text styles. I can import and alter an image in a document. I can evaluate my writing.</p>
Vocabulary	
<p>Backspace, Bold, Copy, Copyright, Cut, Delete, Forward button, Highlight, Home row, Home screen, Image, Import, Italics, Keyboard, Keyboard character, Keyboard shortcut, Keyword, Layout, Navigate, Paste, Redo, Search, Space bar, Text, Text effects, Touch typing, Underline, Undo, Word processing</p>	

<p>Year 2 Computing Spring 2 Programming 2: ScratchJr</p>	
Previous learning	
<p>Before starting this unit, you might want to check that the children can recall:</p> <p>What is an algorithm? (A clear set of instructions.) What is a loop? (A repeat.) What do we call the process of fixing an error in an algorithm? (Debugging.)</p>	
Substantive Knowledge in Computing	Disciplinary knowledge in Computing
<p>By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.</p>	<p>Our Computing curriculum will equip children not only with the skills and knowledge to learn and grow in the digital world we live in, but more importantly in a safe and secure manner. They will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.</p>
Lesson 1	Using ScratchJr
	<p>To explore a new application.</p> <p>I can predict what something new will do. I can explore something independently. I can explain what I found using ScratchJr.</p>
Lesson 2	Creating an animation
	<p>To create an animation.</p> <p>I can use the programming blocks for a purpose. I can recognise a loop in programming. I can think about how animals move. I can use my programming skills to represent an animal moving.</p>
Lesson 3	Making a musical instrument
	<p>To use characters as buttons.</p> <p>I can design a musical instrument. I can program code to run 'on tap'. I can select appropriate blocks for my purpose.</p>
Lesson 4	Programming a joke

	<p>To follow an algorithm.</p> <p>I can use an algorithm to help with my programming. I can sequence the blocks appropriately. I can explain what each block in the program does.</p>
Lesson 5	The Three Little Pigs' algorithms
	<p>To plan and use code to create an algorithm.</p> <p>I can explain what an algorithm is. I can choose the code to match my algorithm. I can use an algorithm to write a computer program.</p>
Vocabulary	
Algorithm, Animation, Blocks, Bug, Button, CGI, Computer code, Code, Debug, Fluid, Icon, Imitate, Instructions, Loop, 'On tap', Programming, Repeat, ScratchJR, Sequence, Sound recording	

Year 2 Computing Summer 1 Creating media: Stop motion	
Previous learning	
N/A	
Substantive Knowledge in Computing	Disciplinary knowledge in Computing
By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.	Our Computing curriculum will equip children not only with the skills and knowledge to learn and grow in the digital world we live in, but more importantly in a safe and secure manner. They will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.
Lesson 1	What is animation?
	<p>To understand what animation is</p> <p>I understand and explain what animation means I understand how to create a short animation using a flip book I can talk about how animation began</p>
Lesson 2	What is stop motion?
	<p>To understand what stop motion animation is</p> <p>I can explain what 'stop motion' means I understand how to create a short animation using animation software I understand what 'onion skinning' is and how animators use it I can use onion skinning to make small changes to my object to make my animation smooth</p>
Lesson 3	Taking photographs
	<p>To take clear photographs using a digital camera</p> <p>I can use a digital camera to take photographs I understand how to take a good photograph</p>
Lesson 4	My first animation
	To create a stop motion animation

	<p>I can find and upload images from the school network I can change the duration of my images I can save my work.</p>
Lesson 5	Planning my project
	<p>To plan my stop motion animation</p> <p>I can work collaboratively with others to plan an animation I can think carefully about keeping my idea simple and easy to animate I can decompose my story into smaller parts</p>
Lesson 6	Creating my project
	<p>I can use my planning sheet to structure my animation I can work collaboratively I can create an animation of at least 10 frames</p>
Vocabulary	
<p>Animate, Animation, Animation, Background, Decompose, Digital camera, Duration, Flipbook, Focus, Frames, Import, Moving, images, Object, Onion skinning, Plan, Save, Still images, Upload</p>	

<p>Year 2 Computing Summer 2 Data handling: International space station</p>	
Previous learning	
<p>Before starting this unit, you might want to check that children can recall:</p> <p>A branching database is a way of classifying a group of objects. How to represent data on a computer (e.g. using software to create bar charts or pictograms). How to navigate and use Sketchpad.</p>	
Substantive Knowledge in Computing	Disciplinary knowledge in Computing
<p>By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.</p>	<p>Our Computing curriculum will equip children not only with the skills and knowledge to learn and grow in the digital world we live in, but more importantly in a safe and secure manner. They will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.</p>
Lesson 1	Homes in space
	<p>To understand how computers can help humans survive in space.</p> <p>I can consider human survival needs. I can retrieve digital content from an interactive map. I can consider how a computer is used to monitor data relating to human survival needs.</p>
Lesson 2	Space bag
	<p>To create a digital drawing of essential items for life in space.</p> <p>I know the items that astronauts need to survive in the habitat of the ISS. I can use mouse and keyboard skills to draw and add text to a project. I can identify the importance of exercise, eating healthily and staying clean. I can consider how computers would monitor items on the ISS.</p>
Lesson 3	Warmer, colder

	<p>To understand the role of sensors on the ISS.</p> <p>I can read temperatures using a thermometer. I understand that sensors monitor the ISS to make sure the astronauts are safe and healthy. I can design a display to show the data that the sensors collect.</p>
Lesson 4	Experiments in space
	<p>To create an algorithm for growing a plant in space.</p> <p>I know what plants need to grow. I can create an algorithm for growing a plant. I can explain how space exploration benefits human life on Earth.</p>
Lesson 5	Goldilocks planets
	<p>To interpret data.</p> <p>I know that water is very important to life on Earth. I can interpret data. I can identify temperatures within a range to decide if they are a Goldilocks planet.</p>
Vocabulary	
<p>Algorithm, Astronaut, Data, Digital, Digital content, Experiment, Galaxy, Insulation, Interactive map, International Space Centre, International Space Station, Interpret, Laboratory, Monitor, Planet, Satellite, Sensor, Space, Temperature, Thermometer, Water reservoir</p>	