

Yearly Overview

Subject: Computing

Year Group: 4

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Collaborative learning	Further coding with Scratch	Investigating Weather	Computational Thinking	Web Design	HTML
Link to programme of study	Computer systems and networks	Programming	Data handling	Programming	Creating media	Skills Showcase
Composite Knowledge	<p>To understand that software can be used collaboratively online to work as a team.</p> <p>To know what type of comments and suggestions on a collaborative document can be helpful.</p> <p>To know that you can use images, text, transitions and animation in presentation slides.</p>	<p>To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch.</p> <p>To know what a conditional statement is in programming.</p> <p>To understand that variables can help you to create a quiz on Scratch.</p>	<p>To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data').</p> <p>To know that a weather machine is an automated machine that respond to sensor data.</p> <p>To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.</p>	<p>To know that combining computational thinking skills can help you to solve a problem.</p> <p>To understand that pattern recognition means identifying patterns to help them work out how the code works.</p> <p>To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.</p>	<p>To know that a website is a collection of pages that are all connected.</p> <p>To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks.</p> <p>To know that websites should be informative and interactive.</p>	<p>To understand and identify examples of HTML tags.</p> <p>To understand what changing the HTML and CSS does to alter the appearance of an object on the web.</p> <p>To understand that copyright means that those images are protected and to understand that we should do a "creative commons" image search if we wish to use images from the internet.</p> <p>To know what "fake news" is and ways to spot websites that carry this type of misinformation.</p> <p>To know what the "inspect" elements tool is and ways of using it to explore and alter text and images.</p>
Key Concepts and Key skills (Component / intentional knowledge - what they need to understand)	<p>Computer Science - Networks and Data Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.</p> <p>Information Technology 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.</p> <p>Digital Literacy and Online Safety Recognising what appropriate behaviour is when collaborating with others online.</p>	<p>Computer Science - Computational Thinking Using decomposition to solve a problem by finding out what code was used.</p> <p>Using decomposition to understand the purpose of a script of code.</p> <p>Creating algorithms for a specific purpose.</p> <p>Coding a simple game.</p> <p>Incorporating variables to make code more efficient.</p> <p>Remixing existing code.</p>	<p>Computer Science Using a device to film a weather forecast.</p> <p>Understanding that weather stations use sensors to gather and record data that predicts the weather.</p> <p>Information Technology - Using Data Designing a device that gathers and records sensor data.</p> <p>Recording data in a spreadsheet independently.</p> <p>Sorting data in a spreadsheet to compare using the 'sort by...' option.</p> <p>Understanding that data is used to forecast weather.</p> <p>Digital Literacy and Online Safety Using keywords to effectively search for information on the internet.</p> <p>Searching the internet for data.</p>	<p>Computer Science - Computational Thinking Using decomposition to solve a problem by finding out what code was used.</p> <p>Using decomposition to understand the purpose of a script of code.</p> <p>Identifying patterns through unplugged activities.</p> <p>Using past experiences to help solve new problems.</p> <p>Using abstraction to identify the important parts when completing both plugged and unplugged activities.</p> <p>Creating algorithms for a specific purpose.</p> <p>Using abstraction and pattern recognition to modify code.</p>	<p>Information Technology - Using Software Building a web page and creating content for it. Designing and creating a webpage for a given purpose. Work collaboratively with others.</p>	<p>Information Technology - Using Software Building a web page and creating content for it.</p> <p>Understanding that information found by searching the internet is not all grounded in fact.</p> <p>Computer Science Remixing existing code.</p> <p>Digital Literacy and Online Safety Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others.</p>
Learning objectives	<p>Lesson 1: To understand that software can be used collaboratively online to work as a team.</p> <p>Lesson 2: To understand how to contribute to someone else's work effectively</p> <p>Lesson 3: To understand how to create effective presentations.</p> <p>Lesson 4: To understand how to create and share Google Forms.</p> <p>Lesson 5: To understand how to use a shared spreadsheet to explore data.</p>	<p>Lesson 1: To recall the key features of Scratch.</p> <p>Lesson 2: To understand how a Scratch game works by using decomposition to identify key features.</p> <p>Lesson 3: To understand what a variable is and how to make one.</p> <p>Lesson 4: To understand how to make a variable in Scratch.</p> <p>Lesson 5: To use knowledge of how variables work to create a quiz.</p>	<p>Lesson 1: To log data taken from online sources within a spreadsheet.</p> <p>Lesson 2: To design a weather station.</p> <p>Lesson 3: To design an automated machine to respond to sensor data.</p> <p>Lesson 4: To understand how weather forecasts are made.</p> <p>Lesson 5: To use green screen technology in a video to present a weather forecast.</p>	<p>Lesson 1: To understand that computational thinking is made up of four key strands.</p> <p>Lesson 2: To understand what decomposition is and how to apply it to solve problems.</p> <p>Lesson 3: To understand what pattern recognition and abstraction mean.</p> <p>Lesson 4: To understand how to create an algorithm and what it can be used for.</p> <p>Lesson 5: To combine computational thinking skills to solve a problem.</p>	<p>Lesson 1: To explore the features of Google Sites to learn how to create content for a web page.</p> <p>Lesson 2: To plan content for a web page as a collaborative online piece of work.</p> <p>Lesson 3: To create a web page as part of a collaborative class website.</p> <p>Lesson 4: To plan and create a website.</p> <p>Lesson 5: To create a website and evaluate its success.</p>	<p>Lesson 1: To understand and identify examples of HTML tags.</p> <p>Lesson 2: To change HTML code for a specific purpose.</p> <p>Lesson 3: To change the HTML and CSS to alter the appearance of an object on the web.</p> <p>Lesson 4: To understand and explore more complex components of a web page.</p> <p>Lesson 5: To alter key elements on a webpage including text and images.</p>
Vocabulary	collaborate, comment, edit, email, insert (file), presentation, reply, share spreadsheet,	code (computer), code block, conditional statement, decompose, orientation, position,	algorithm, automated machine, calculate, climate, device, forecast, log data, predict,	abstraction, algorithm, design, code, code blocks, computer, decompose, problem	collaboration, website, content, WWW, create, design, edit, embed, feature, header,	code, content, copyright, CSS, hacker, hex code, internet browser, permission, script, URL

	transition	program (verb), sprite, tinker, variable	record, sensor, source, spreadsheet, temperature, weather		hyperlink, insert (file), online, plan, tab	web page
Links to Prior Knowledge	Year 3: Emailing	Year 3: Programming: Scratch	Year 3: Data handling: Comparison cards databases	Year 2: Programming 1: Algorithms and debugging	Year 4: Computing systems and networks: Collaborative learning	Year 4: Creating media: Website design
Key knowledge for assessment	<p>What is the value of sharing and collaborating on a document?</p> <p>To understand that software can be used collaboratively online to work as a team.</p> <p>How can comments and suggestions help when working on a document?</p> <p>What can be added to the presentation to grab the reader's attention?</p>	<p>What is a variable? How can you create one in Scratch? (Why might we need 'variables' in a program, such as Scratch?)</p> <p>What is a conditional statement in programming?</p> <p>How can 'variables' in a program, such as Scratch help us to create a quiz?</p>	<p>What is sensor data?</p> <p>What is a weather machine?</p> <p>Why do weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films?</p>	<p>How can computational thinking skills help you to solve a problem?</p> <p>What is pattern recognition? How can pattern recognition help with finding out how code works?</p> <p>Where do we use algorithms?</p>	<p>What is a website?</p> <p>What 3 components does a website usually have?</p> <p>Why should your website be informative and interactive?</p>	<p>What does HTML stand for? (Hypertext Markup Language) What are HTML tags?</p> <p>What does changing the HTML and CSS do to alter the appearance of an object on the web?</p> <p>What does copyright mean when talking about images on the internet?</p> <p>What is 'fake news' and how can it be spotted on the internet?</p> <p>What is the "inspect" elements tool and how can it be used?</p>
Cross curricular links	RSE / Maths	Maths - coordinates, times tables.	Science / Geography / Maths	Maths / PE - movement /	RSE / English - Reading	RSE,
Resources	https://www.kapowprimary.com/wp-content/uploads/2020/11/Y4-Collaborative-learning-KO-1.pdf	https://www.kapowprimary.com/wp-content/uploads/2020/11/Y4-Further-coding-with-Scratch-KO.pdf	https://www.kapowprimary.com/wp-content/uploads/2020/08/Y4-Comp-Investigating-weather-KO-1.pdf	https://www.kapowprimary.com/wp-content/uploads/2020/11/Y4-Computational-thinking-KO.pdf	https://www.kapowprimary.com/wp-content/uploads/2020/11/Y4-Website-design-KO-1.pdf	https://www.kapowprimary.com/wp-content/uploads/2020/11/Y4-HTML-KO-20.pdf
Online safety unit:	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
National Curriculum KS2 (skills)	<p>Key stage 2 Pupils should be taught to:</p> <ul style="list-style-type: none"> • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. • 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. 					