



Computing Curriculum KS2

Key Stage 2

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Year 3/4

Cycle two

Autumn 1

Autumn 2

Spring 1

Spring 2

Summer 1

Summer 2



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Topic	Computing systems and networks - The internet. <ul style="list-style-type: none"> ● To describe how networks physically connect to other networks. ● To recognise how networked devices make up the internet. ● To outline how websites can be shared via World Wide Web (WWW) ● To describe how content can be added and accessed on the World Wide Web (WWW). ● To recognise how the content of the WWW is created by people. ● To evaluate the consequences of unreliable content. 	Creating media - Audio production. <ul style="list-style-type: none"> ● To identify that sound can be recorded. ● To explain that audio recordings can be edited. ● To recognise the different parts of creating a podcast project. ● To apply audio editing skills independently. ● To combine audio to enhance my podcast project. ● To evaluate the effective use of audio. 	Programming A - Repetition in shapes. <ul style="list-style-type: none"> ● To identify that accuracy in programming is important. ● To create a program in a text-based language. ● To explain what 'repeat' means. ● To modify a count-controlled loop to produce a given outcome. ● To decompose a task into small steps. ● To create a program that uses count-controlled loops to produce a given outcome. 	Data and information - Data logging. <ul style="list-style-type: none"> ● To explain that data gathered over time can be used to answer questions. ● To use a digital device to collect data automatically. ● To explain that a data logger collects 'data points' from sensors over time. ● To recognise how a computer can help us analyse data. ● To identify the data needed to answer questions. ● To use data from sensors to answer questions. 	Creating media - Photo editing. <ul style="list-style-type: none"> ● To explain that the composition of digital images can be changed. ● To explain that colours can be changed in digital images. ● To explain how cloning can be used in photo editing. ● To explain that images can be combined. ● To combine images for a purpose. ● To evaluate how changes can improve an image. 	Programming B - Repetition in games. <ul style="list-style-type: none"> ● To develop the use of count-controlled loops in a different programming environment. ● To explain that in programming there are infinite loops and count controlled loops. ● To develop a design that includes two or more loops which run at the same time. ● To modify an infinite loop in a given program. ● To design a project that includes repetition. ● To create a project that includes repetition.
Knowledge	recognise the	learn how to capture	learn to use a	learn to recognise	learn to manipulate	learn to use a



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<p>Pupils will ...</p>	<p>internet as a network of networks including the WWW, and why we should evaluate online content</p> <p>learn how the WWW is created by people and how to safely use the internet both at school and at home</p>	<p>and edit audio to produce a podcast, ensuring that copyright is considered</p> <p>learn to recognise the different parts of making a podcast and will be able to plan to include all of these parts with support</p>	<p>text-based programming language to explore count-controlled loops when drawing shapes</p> <p>learn what repeat means and how this process can be used to produce a given outcome</p>	<p>how and why data is collected over time, before using data loggers to carry out an investigation</p> <p>learn how computers can help us analyse data and use this to answer questions</p>	<p>digital images, and reflect on the impact of changes and whether the required purpose is fulfilled</p> <p>learn to clone images, merge images, edit colour and composition to reach a desired outcome</p>	<p>block-based programming language to explore count-controlled and infinite loops when creating a game</p> <p>learn to develop their own design ensuring this includes repetition.</p>
<p>Skills Pupils will ...</p>	<p>Recognise that not everything on the internet is accurate</p> <p>Evaluate the quality of a website's content</p>	<p>Experiment with effects available from multimedia packages</p> <p>Give examples of information which can be copied because permission has been given</p>	<p>Create a simple algorithm with a loop</p> <p>Explain why repetition makes programs more efficient</p>	<p>Discuss information gathered on a data logger</p> <p>Discuss information gathered on a data logger</p>	<p>Experiment with effects available from multimedia packages</p>	<p>Create a simple algorithm with a loop</p> <p>Give instructions involving repetition</p>
<p>Key vocabulary</p>	<p>internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web,</p>	<p>audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback,</p>	<p>logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition,</p>	<p>data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion</p>	<p>image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine,</p>	<p>scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate,</p>



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	content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	selection, load, save, export, MP3, evaluate, feedback	count-controlled loop, value, trace, decompose, procedure		made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font	modify, design, algorithm, debug, refine, evaluate
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Year 5/6						
Cycle two						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2



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Topic	Computing systems and networks - Communication and collaboration <ul style="list-style-type: none"> ● To explain the importance of internet addresses. ● To recognise how data is transferred across the internet. ● To explain how sharing information online can help people to work together. ● To evaluate different ways of working together online. ● To recognise how we communicate using technology. ● To evaluate different methods of online communication. 	Creating media - Web page creation. <ul style="list-style-type: none"> ● To review an existing website and consider its structure. ● To plan the features of a web page. ● To consider the ownership and use of images (copyright). ● To recognise the need to preview pages. ● To outline the need for a navigation path. ● To recognise the implications of linking to content owned by other people. 	Programming A - Variables in games. <ul style="list-style-type: none"> ● To define a 'variable' as something that is changeable. ● To explain why a variable is used in a program. ● To choose how to improve a game by using variables. ● To design a project that builds on a given example. ● To use my design to create a project. ● To evaluate my project. 	Data and information - spreadsheets. <ul style="list-style-type: none"> ● To create a data set in a spreadsheet. ● To build a data set in a spreadsheet. ● To explain that formulas can be used to produce calculated data. ● To apply formulas to data. ● To create a spreadsheet to plan an event. ● To choose suitable ways to present data. 	Creating media - 3D Modelling. <ul style="list-style-type: none"> ● To recognise that you can work in three dimensions on a computer. ● To identify that digital 3D objects can be modified. ● To recognise that objects can be combined in a 3D model. ● To create a 3D model for a given purpose. ● To plan my own 3D model. ● To create my own digital 3D model. 	Programming B- Sensing movement <ul style="list-style-type: none"> ● To create a program to run on a controllable device ● To explain that selection can control the flow of a program ● To update a variable with a user input ● To use an conditional statement to compare a variable to a value ● To design a project that uses inputs and outputs on a controllable device <p style="text-align: right;">Microbits at Vyner</p>
Knowledge	learn about	learn to design and	learn to explore	learn to answer	learn that you can	learn to design and



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<p>Pupils will ...</p>	<p>communication and collaboration</p> <p>explore how data is transferred by working collaboratively online</p> <p>learn different ways people can work together online and how to do this safely</p>	<p>create web pages, giving consideration to copyright, aesthetics, and Navigation</p> <p>learn why there is a need to preview pages and why web pages need a navigation path</p>	<p>variables when designing and coding a game</p> <p>build on project that has been given as an example and learn to improve a game using variables</p> <p>understand how to evaluate their project and that of their peers</p>	<p>questions by using spreadsheets to organise and calculate data</p> <p>learn to use formulas to produce calculated data and explore suitable ways to present data in their own project</p>	<p>work in three dimensions on a computer and that these objects can be modified</p> <p>learn to plan, develop and evaluating 3D computer models of physical objects</p>	<p>code a project that captures inputs from a physical device</p> <p>apply their knowledge of the programming constructs and use their design to create their own micro: bit-based step counter</p>
<p>Skills</p> <p>Pupils will ...</p>	<p>Work collaboratively with someone</p> <p>Communicate and share with others using appropriate online tools</p>	<p>Recognise that material on the internet is the property of someone</p> <p>Recognise you do not have to have the copyright symbol on work for it to be copyright</p>	<p>Introduce a variable into their program</p> <p>Design programs that achieve specific goal</p>	<p>Collect and present data in a spreadsheet</p> <p>Explain in simple terms how a basic spreadsheet works</p>	<p>Store work in appropriate files/folders</p>	<p>Combine a variety of digital devices to produce their work</p> <p>Design programs that achieve specific goals</p>
<p>Key vocabulary</p>	<p>communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck,</p>	<p>website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page,</p>	<p>variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share,</p>	<p>data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation,</p>	<p>TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid,</p>	<p>Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction,</p>



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	reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many	preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed	assign, declare	range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools	sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify	navigation, design, task, algorithm, step counter, plan, create, code, test, debug
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