

Computing Curriculum map

Colour key:
 Computer Science
 Information Technology
 Digital Literacy – See separate curriculum map for detail

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	There is no specific requirement to teach children about technology as part of the Early Years curriculum but it can be integrated into “Understanding the world” and this includes ‘unplugged’ activities that begin to build up the foundations that are required to develop computational thinking and basic computing skills. Computational skills will be developed through activities such as those on https://www.barefootcomputing.org/earlyyears					
Year 1	Our digital literacy curriculum is delivered on a regular basis across the year, see our Computing map – Digital Literacy for further details					
	Additional information technology opportunities across the year – Children to create at least 1 digital artefact of written work using fonts and changing sizes, colours and fonts styles and adding a picture. Children to create at least 1 digital image using paint or another imaging app.					
	<p>What makes me marvellous?</p> <p style="text-align: center;">Knowledge The children will know:</p> <ul style="list-style-type: none"> • Computing systems and networks – Technology around us • Different types of technology • What a computer is and its main parts • How to use a mouse in different ways • How to use a keyboard to type on a computer • How to use the keyboard to edit text <p>Potential project idea – Typing about themselves to share something that makes them marvellous</p> <p>Potential resources – https://teachcomputing.org/curriculum/ky-stage-1/computing-systems-and-networks-technology-around-us https://www.bbc.co.uk/bitesize/topics/zy-mykqt/articles/z9myvcw</p>	<p>What’s in the toy box?</p> <p style="text-align: center;">Knowledge The children will know:</p> <ul style="list-style-type: none"> • Creating media – Digital painting • What different freehand computing tools do • What the shape tool and the line tools do • How to alter colour choices • How to make careful choices when painting a digital picture <p>Potential project idea – The children draw a picture of a favourite toy</p> <p>Possible resources - https://teachcomputing.org/curriculum/ky-stage-1/creating-media-digital-painting https://paintz.app/</p>	<p>What makes our school ground special?</p> <p style="text-align: center;">Knowledge The children will know:</p> <ul style="list-style-type: none"> • Moving a robot • The meaning of key vocabulary such as algorithm, decomposition and abstraction • What a given command will do • How to plan and input a simple program • How to find more than one solution to a problem <p>Potential project idea – Children will program their Beebots to move around a map of the school grounds</p> <p>Possible resources - https://teachcomputing.org/curriculum/ky-stage-1/programming-a-moving-a-robot https://www.barefootcomputing.org/docs/default-source/default-document-library/barefoot-bytes-5-7.pdf?sfvrsn=1e0792ea_0 https://beebot.terrapinlogo.com/ Beebots - Physical</p>	<p>Where do I live?</p> <p style="text-align: center;">Knowledge The children will know:</p> <ul style="list-style-type: none"> • Data and information – Grouping data • How to label objects • That objects can be counted • How to describe objects in different ways • How to count objects with the same properties • How to compare groups of objects • How to answer questions about groups of objects <p>Potential project idea – Counting and grouping images of local landmarks, flowers, trees etc.</p> <p>Possible resources - https://teachcomputing.org/curriculum/ky-stage-1/data-and-information-grouping-data</p>	<p>What is the weather like today?</p> <p style="text-align: center;">Knowledge The children will know:</p> <ul style="list-style-type: none"> • Creating media – Digital writing • How to use a computer to write • How to add and remove text on a computer • That the look of text can be changed on a computer • To make careful choices when changing text <p>Potential project idea – Typing a weather report</p> <p>Possible resources – https://teachcomputing.org/curriculum/ky-stage-1/creating-media-digital-writing Office 365 accounts</p>	<p>Why does Falmouth have a castle?</p> <p style="text-align: center;">Knowledge The children will know:</p> <ul style="list-style-type: none"> • Programming animations • How to choose a command for a given purpose • That a series of commands can be joined together • The effect of changing a value • That each sprite has its own instructions • How to design the parts of a project • How to use an algorithm to create a program <p>Potential project idea – Creating a project using Pendennis Castle as the background and inspiration</p> <p>Possible resources - https://teachcomputing.org/curriculum/ky-stage-1/programming-b-introduction-to-animation https://www.scratchjr.org/</p>
	<p style="text-align: center;">Skills The children will be able to:</p> <ul style="list-style-type: none"> • Identify the key features of an object that makes it a piece of technology • Name different parts of a computer, whether they are combined with other elements or not • Select the correct device to complete a task on a computer • Select the correct keys to type 	<p style="text-align: center;">Skills The children will be able to:</p> <ul style="list-style-type: none"> • Move a mouse to a specific point • Select appropriate tools for the task required • Choose colours to match a computer image to the actual object 	<p style="text-align: center;">Skills The children will be able to:</p> <ul style="list-style-type: none"> • Decompose a route into smaller steps • Visualise a series of commands • Apply decomposition and abstraction to include the most relevant commands • Predict the outcome of a set of instructions • Choose the order of commands in a sequence 	<p style="text-align: center;">Skills The children will be able to:</p> <ul style="list-style-type: none"> • Identify similarities between groups of objects • Count groups of similar objects accurately • Select labels that appropriately label a group of objects 	<p style="text-align: center;">Skills The children will be able to:</p> <ul style="list-style-type: none"> • Log onto their Office365 accounts • Open a word processor document • Recognise keys on a keyboard • Identify and find keys on a keyboard • Use letter, number, and space keys • Use backspace to remove text • Type capital letters 	<p style="text-align: center;">Skills The children will be able to:</p> <ul style="list-style-type: none"> • Using ‘logic’ to determine the steps required on a command • Find which commands move a sprite • Use commands to move a sprite • Compare different programming tools • Use more than one block by joining them together

			<ul style="list-style-type: none"> Check for errors and debug any issues 		<ul style="list-style-type: none"> Identify the toolbar and use bold, italic, and underline Select a word by double-clicking Select all of the text by clicking and dragging Change the font 	<ul style="list-style-type: none"> Use a Start block in a program Find blocks that have numbers Change the value Show that a project can include more than one sprite Delete a sprite Add blocks to each of my sprites Choose appropriate artwork for my project Decide how each sprite will move Use sprites that match my design Add programming blocks based on my algorithm Test the programs I have created
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Year 2

Our digital literacy curriculum is delivered on a regular basis across the year, see our Computing map – Digital Literacy for further details

Additional information technology opportunities across the year – Children to select an appropriate device to create at least 1 digital artefact of written work using fonts and changing sizes, colours and fonts styles and adding a picture. Children to save and reopen. Children to create at least 1 digital image using drawing software, a photograph or another imaging app.

<p>How would I survive on a desert island?</p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> Computing systems and networks – IT around us The uses and features of information technology The uses of information technology in the school The uses of information technology beyond school How information technology helps us How to use information technology safely That choices are made when using information technology <p>Potential project idea – Use IT to research desert islands and print examples off, share using QR codes.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-1/computing-systems-and-networks-it-around-us PCs, laptops, tablets, scanners, barcode scanners, printers, smart speakers. www.waspbarcode.com/buzz/barcode https://www.qr-code-generator.com/ Office 365 accounts</p>	<p>What made the fire of London so great?</p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> Robot algorithms How to describe a series of instructions as a sequence What happens when we change the order of instructions How to use logical reasoning to predict the outcome of a program That programming projects can have code and artwork How to design an algorithm and 'evaluate' it How to create and debug a program that we have written <p>Potential project idea – Children create their own Fire of London floor mat. They have to find different ways to escape from the fire as it moves, forcing them to adapt their algorithms.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-1/programming-a-robot-algorithms https://beebot.terrapinlogo.com/ Beebots - Physical</p>	<p>Why are Florence Nightingale and Rosa Parks remembered today?</p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> Programming quizzes That a sequence of commands has a start That a sequence of commands has an outcome How to create a program using a given design How to change a given design How to create a program using my own design How to decide how my project can be improved <p>Potential project idea – Children create a quiz based on the lives of Florence Nightingale or Rosa Parks.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-1/programming-b-an-introduction-to-quizzes https://www.scratchjr.org/ Children create a 'Forms' quiz on Office 365 to understand how they don't see the coding behind this.</p>	<p>What makes Constantine special?</p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> Creating media – Digital photography How to use a digital device to take a photograph How to make choices when taking a photograph How to describe what makes a good photograph How digital photographs can be improved How to use tools to change an image That digital photos can be changed <p>Potential project idea – Photographs of key places around Constantine and digitally altering some of them.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-1/creating-media-digital-photography https://www.stem.org.uk/resources/collektion/466582/creating-media-digital-photography Using Office 365 to write up a description of the image.</p>	<p>Why are rainforests unique?</p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> Creating media - Digital music How music can make us feel That there are patterns in music How to experiment with sound using a computer How to use a computer to create a musical pattern How to create music for a purpose How to review and refine our computer work <p>Potential project idea – Children write and produce a piece of music to reflect a rainforest animal of their choice. Could use "Carnival of the animals" by Camille Saint-Saens to show how different animals are reflected in music.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-1/creating-media-making-music https://musiclab.chromeexperiments.com/Song-Maker/</p>	<p>What was is like to be a tin miner?</p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> Data and information – Pictograms That we can count and compare objects using tally charts That objects can be represented as pictures How to create a pictogram How to select objects by attribute and make comparisons That we can present information using a computer <p>Potential project idea – Recording the materials removed from a mine as a tally and pictogram.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-1/data-and-information-pictograms https://www.j2e.com/jit5#pictogram Office 365 accounts</p>
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	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> • Identify examples of computers • Describe some uses of computers • Identify that a computer is a part of IT • Identify examples of IT • Sort school IT by what it's used for • Identify that some IT can be used in more than one way • Find examples of IT • Sort IT by where it is found • Talk about uses of IT • Recognise common types of technology • Demonstrate how IT devices work together • Say why we use IT • Recognise common types of technology • List different uses of information technology • Talk about different rules for using IT • Say how rules can help keep me safe • Identify the choices that I make when using IT • Use IT for different types of activities • Explain the need to use IT in different ways 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> • Use abstraction to focus on key details of a command • Spot 'patterns' to 'repeat' the same instructions to create different algorithms • Use an algorithm to program a sequence on a floor robot • Show the difference in outcomes between two sequences that consist of the same commands • Follow a sequence and predict the outcome of a sequence • Compare my prediction to the program outcome • Identify different routes around my mat and 'decompose' the steps to create appropriate algorithms • Test and debug each part of the program 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> • Identify the start of a sequence • Identify that a program needs to be started • Predict the outcome of a sequence of commands • Match two sequences with the same outcome • Change the outcome of a sequence of commands • Work out the actions of a sprite in an algorithm • Decide which blocks to use to meet the design • Sequence blocks to achieve an outcome • Choose backgrounds for the design • Choose characters for the design • Create a program based on a design • Choose the images for our own design • Create an algorithm • Build a sequence of blocks to match a design • Compare a project to a design • Improve a project by adding features • Debug a program 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> • Recognise what devices can be used to take photographs • Explain the process of taking a good photograph • Take photos in both landscape and portrait format • Improve a photograph by retaking it • Explore the effect that light has on a photo • Experiment with different light sources • Recognise that images can be changed • Use a tool to achieve a desired effect • Recognise which photos have been changed 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> • Identify simple differences in pieces of music • Create a rhythm pattern • Use a computer to experiment with pitch • Use a mouse or touchscreen to interact with a program • Refine my musical pattern on a computer • Save a piece of learning on a computer 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> • Enter data onto a computer • Use a computer to view data in a different format • Organise data in a tally chart • Use a tally chart to create a pictogram • Create a pictogram to arrange objects by an attribute • Collect the data we need • Create a pictogram and draw conclusions from it • Use a computer program to present information in different ways
<p>End of Key Stage One powerful knowledge</p>	<ul style="list-style-type: none"> • What a computer is and its main parts • How to use a mouse in different ways • How to use a keyboard to type on a computer • How to use the keyboard to edit text • Move a mouse to a specific point • That the look of text can be changed on a computer • Identify and find keys on a keyboard • Use letter, number, and space keys • Use backspace to remove text • Type capital letters • Identify the toolbar and use bold, italic, and underline • Change the font • The uses and features of information technology • Identify examples of computers • Describe some uses of computers • Demonstrate how IT devices work together • Talk about different rules for using IT • How to use a digital device to take a photograph • How to use tools to change an image • Recognise that images can be changed • Use a tool to achieve a desired effect • Recognise which photos have been changed • How to use a computer to create a musical pattern • That we can present information using a computer • Enter data onto a computer • Use a computer to view data in a different format • Use a computer program to present information in different ways 		<ul style="list-style-type: none"> • The meaning of key vocabulary such as algorithm, decomposition and abstraction • How to plan and input a simple program • How to find more than one solution to a problem • Apply decomposition and abstraction to include the most relevant commands • Predict the outcome of a set of instructions • Choose the order of commands in a sequence • How to use an algorithm to create a program • Using 'logic' to determine the steps required on a command • Use commands to move a sprite • Use more than one block by joining them together • Use a Start block in a program • Add programming blocks based on my algorithm • What happens when we change the order of instructions • How to use logical reasoning to predict the outcome of a program • How to create and debug a program that we have written • Use abstraction to focus on key details of a command • Spot 'patterns' to 'repeat' the same instructions to create different algorithms • Test and debug each part of the program • Change the outcome of a sequence of commands • Build a sequence of blocks to match a design 			

Our digital literacy curriculum is delivered on a regular basis across the year, see our Computing map – Digital Literacy for further details

Additional information technology opportunities across the year – Children to create at least 2 digital artefacts of written work using fonts with changing sizes, colours and fonts styles. Children to use photo editing and images within work. Children to experience Powerpoint to present their learning.

<p><u>What was life like in the Stone Age?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Creating media - Stop-frame animation • That animation is a sequence of drawings or photographs • How to plan an animation • Animated movement is a sequence of images • How to review and improve an animation • The impact of adding other media to an animation <p>Potential project idea – Stop motion animation of a Stone Age person</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-animation Puppet Pals (Paid version to personalise) or other stop motion animation app.</p>	<p><u>What is it like to live in Greece?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Sequencing sounds • A new programming environment • That commands have an outcome • That a program has a start • That a sequence of commands should have an order • How to change the appearance of a project • How to create a project from a task description • How to describe a project using 'abstraction' <p>Potential project idea – Create a piece of music to relax by the pool in Greece to</p> <p>Potential resources – https://teachcomputing.org/curriculum/ky-stage-2/programming-a-sequence-in-music https://scratch.mit.edu/</p>	<p><u>How did the ancient Greeks change the world?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Computing systems and networks – Connecting computers • How digital devices function • How to identify input and output devices • Digital devices can change the way we work • A computer network can be used to share information • Digital devices can be connected • The physical components of a network <p>Potential project idea – Comparing how the Ancient Greeks communicated and stored information with how we do in the modern age. https://teachcomputing.org/curriculum/ky-stage-2/computing-systems-and-networks-connecting-computers</p> <p>Potential resources – School network such as wireless access points and printers.</p>	<p><u>Why is fair trade important?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Data and information – Branching databases • How to create questions with yes/no answers • The attributes needed to collect data about an object • How to create a branching database • Why it is helpful for a database to be well structured • The structure of a branching database • How to create an identification tool <p>Potential project idea – Sorting different Fair trade foods by their characteristics or sorting foods based on their food groups (Link to science curriculum)</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/data-and-information-branching-databases https://www.i2e.com/jit5#branch</p>	<p><u>How have holidays in Cornwall changed over time?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Creating media – Desktop publishing • How text and images convey information • That text and layout can be edited • How to choose appropriate page settings • How to add content to a desktop publishing publication • How different layouts can suit different purposes • The benefits of desktop publishing <p>Potential project idea – Create a magazine cover to advertise holidays in Cornwall.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-desktop-publishing Use Office 365 accounts for Publisher. Other software such as Powerpoint, Canva or Adobe Spark are also available.</p>	<p><u>Why are our coasts changing?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • How to build a physical circuit for a Crumble • What events and actions in programs are • How to create a program to create a sequence of actions • How to sequence actions correctly to produce a physical output • How to identify and fix bugs in a program • How to design and create a project with a real-life output <p>Potential project idea – Create a simple lighthouse design on a piece of card and the children program one light to switch on and off.</p> <p>Potential resources – Crumbles http://code-it.co.uk/cards/</p>
<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Draw a sequence of pictures • Explain how an animation/flip book works • Create an effective stop-frame animation • Explain why little changes are needed for each frame • Work consistently and carefully • Predict what an animation will look like • Describe an animation that is achievable on screen • Evaluate the quality of an animation • Review a sequence of frames to check our work • Use onion skinning to help us make small changes between frames • Add other media to an animation • Evaluate our final film 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Identify the objects in a Scratch project (sprites, backdrops) • Recognise that commands in Scratch are represented as blocks • Create a program following a design • Create a sequence of connected commands • Start a program in different ways • Combine sound commands • Order notes into a sequence • Decide the actions for each sprite in a program • Make design choices for my artwork • Identify and name the objects we will need for a project • Implement an algorithm as code • Relate a task description to a design 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Follow a process • Classify input and output devices • Recognise similarities between using digital devices and non-digital tools • Discuss why we need a network switch • Explain how messages are passed through multiple connections • Demonstrate how information can be passed between devices • Explain the role of a switch, server, and wireless access point in a network • Recognise that a computer network is made up of a number of devices • Identify how devices in a network are connected together • Identify networked devices around us • Identify the benefits of computer networks 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Create two groups of objects separated by one attribute • Investigate questions with yes/no answers • Make up a yes/no question about a collection of objects • Arrange objects into a tree structure • Create a group of objects within an existing group • Select an attribute to separate objects into groups • Test a branching database to see if it works • Compare two branching database structures • Create a branching database that reflects a plan • Suggest real-world uses for branching databases 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Explain the difference between text and images • Identify the advantages and disadvantages of using text and images • Recognise that text and images can communicate messages clearly • Change font style, size, and colours for a given purpose • Edit text • Create a template for a particular purpose • Define the term 'page orientation' • Recognise placeholders and say why they are important • Choose the best locations for content • Make changes to content after it has been added • Search for relevant images online • Paste text and images to create a finished product • Choose a suitable layout for a given purpose 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Choose blocks to set up a program • Choose which blocks to use for actions • Use the 'loop' block to repeat a program repeatedly • Build more sequences of commands to make a design work • Match a piece of code to an outcome • Identify a way to improve a program • Modify a program using a design • Test a program against a given design

- Identify different layouts
- Match a layout to a purpose

Year 4

Our digital literacy curriculum is delivered on a regular basis across the year, see our Computing map – Digital Literacy for further details

Additional information technology opportunities across the year – Children to create at least 2 digital artefacts of written work skills from across KS1 and lower KS2. Children to create a graph and table to display information and add to a presentation or written document. Use photo editing and images within work. Children to experience Powerpoint to present their learning.

<p><u>What makes our Earth angry?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • How to create a Crumble circuit with multiple outputs (Two lights/motor in sequence) • How to create a sequence that alternates commands e.g. changing light colours • How to develop the use of loops in a different programming environment • That in programming there are infinite loops and count controlled loops • How to develop a design that includes loops • How to design a project that includes repetition <p>Potential project idea – Create a volcano with flashing lights to represent an eruption</p> <p>Potential resources - Crumbles http://code-it.co.uk/cards/</p> <p>Be aware that Year 6 also need the resources in Spring 2.</p>	<p><u>What have the Romans ever done for us?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Creating media - Audio production • That sound can be recorded • That audio recordings can be edited • The different parts of creating a podcast project • How to apply audio editing skills independently • How to combine audio to enhance a podcast project • How to evaluate the effective use of audio <p>Potential project idea – Creating a podcast based upon the Sound Collector poem.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-audio-editing</p> <p>https://audacityteam.org/download Or Powerpoint – record audio</p>	<p><u>Where in the world is Nigeria?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Computing systems and networks – The Internet • Networks physically connect to other networks • Networked devices make up the internet • How websites can be shared via the World Wide Web (WWW) • How content can be added and accessed on the World Wide Web (WWW) • The content of the WWW is created by people • The consequences of unreliable content <p>Potential project idea – Research Nigeria online and recognise an unreliable piece of content (e.g. Wikipedia v. Britannica)</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/computing-systems-and-networks-the-internet</p>	<p><u>What happened to the kingdom of Benin?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Repetition in shapes • That accuracy in programming is important • How to create a program in a text-based language • What ‘repeat’ means • How to modify a count-controlled loop to produce a given outcome • How to decompose a task into small steps • How to create a program that uses count-controlled loops to produce a given outcome <p>Potential project idea – create an image using a repeating pattern that could be used on a greetings card</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/programming-a-repetition-in-shapes</p> <p>https://turtleacademy.com/playground</p>	<p><u>Why are the Tudors remembered?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Creating media – Photo editing • That the composition of digital images can be changed • That colours can be changed in digital images • How cloning can be used in photo editing • That images can be combined • How to combine images for a purpose • How to evaluate how changes can improve an image <p>Potential project idea – Using images of Henry VIII to edit photos, link to art focus on portraiture</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-photo-editing</p> <p>Photo editing software on laptop https://pixlr.com/e/#editor</p>	<p><u>How does the river get to the sea?</u></p> <p>Knowledge The children will know:</p> <ul style="list-style-type: none"> • Data and information – Data logging • That data gathered over time can be used to answer questions • To use a digital device to collect data automatically • That a data logger collects ‘data points’ from sensors over time • How a computer can help us analyse data • How to identify the data needed to answer questions • How to use data from sensors to answer questions <p>Potential project idea – Use data loggers with science learning about changing states of matter and evaporation in the water cycle.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/data-and-information-data-logging</p> <p>Data loggers in science resources</p>
<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • List an everyday task as a set of instructions including repetition • Modify a snippet of code to create a given outcome • Predict the outcome of a snippet of code • Choose when to use a loop • Modify loops to produce a given outcome • Identify which parts of a loop can be changed • Build a Crumble circuit with more than one output in sequence • Build a program that follows a design • Refine the algorithm in a design 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Identify the input and output devices used to record and play sound • Use a computer to record audio • Inspect the soundwave view to know where to trim a recording • Re-record a voice to improve a recording • Plan appropriate content for a podcast • Save a project so the different parts remain editable • Arrange multiple sounds to create the effect wanted • Explain the difference between saving a project and exporting an audio file • Open a project to continue working on it 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Identify networked devices and describe how they connect • Describe how to access websites on the WWW • Explain the types of media that can be shared on the WWW • Explain that there are rules to protect content • Suggest who owns the content on websites • Explain that not everything on the World Wide Web is true • Explain why we need to think carefully before we share or reshare content 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Create a code snippet for a given purpose • Explain the effect of changing a value of a command • Program a computer by typing commands • Test an algorithm in a text-based language • Use a template to create a design for a program • Write an algorithm to produce a given outcome • Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves • Identify patterns in a sequence 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Crop an image • Improve an image by rotating it • Experiment with different colour effects • Add to the composition of an image by cloning • Remove parts of an image using cloning • Experiment with tools to select and copy part of an image • Use a range of tools to copy between images • Create a project that is a combination of other images • Combine text and a finished image to complete the project 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> • Choose a data set to answer a given question • Identify data that can be gathered over time • Suggest questions that can be answered using a given data set • Explain what data can be collected using sensors • Use data from a sensor to answer a given question • Identify the intervals used to collect data • Talk about the data that has been captured • Sort data to find information • Use a data logger to collect data • Draw conclusions from the data that has been collected

		<ul style="list-style-type: none"> Suggest improvements to an audio recording 	Identify why some information found online may not be honest, accurate, or legal	<ul style="list-style-type: none"> Use a count-controlled loop to produce a given outcome Choose which values to change in a loop Identify the effect of changing the number of times a task is repeated Predict the outcome of a program containing a count-controlled loop Develop a program by debugging it 		
Year 5	<u>Our digital literacy curriculum is delivered on a regular basis across the year, see our Computing map – Digital Literacy for further details</u>					
Additional information technology opportunities across the year – Children to create at least 2 digital artefacts of written work. Children to save and reopen. Children to use text and images to display information and add to a presentation or written document. Children to experience Sway and/or multimodal texts such as Bookcreator to present their learning. Online research and safe keyword usage for topic research.						
	<u>Why is the planet melting?</u> Knowledge The children will know: <ul style="list-style-type: none"> Creating media - Video production What makes a video effective How to identify digital devices that can record video How to capture video using a range of techniques How to create a storyboard That video can be improved through reshooting and editing The impact of the choices made when making and sharing a video That additional tools such as greenscreen can improve an output Potential project idea – Videoring a documentary or warning video about climate change, potential links to literacy. Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-video-editing	<u>What was it like to be a Victorian?</u> Knowledge The children will know: <ul style="list-style-type: none"> Computing systems and networks - Systems and searching That computers can be connected together to form systems The role of computer systems in our lives How to experiment with search engines How search engines select results How search results are ranked Why the order of results is important, and to whom Potential project idea – Creating online searches for Victorian information. Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/computing-systems-and-networks-sharing-information	<u>Why did the world go to war?</u> Knowledge The children will know: <ul style="list-style-type: none"> Data and information – Flat-file databases How to use a form to record information The differences between paper and computer-based databases How you can answer questions by grouping and then sorting data That tools can be used to select specific data That computer programs can be used to compare data visually How to use a real-world database to answer questions Potential project idea – Using the databases to identify flights to different countries around the world, per the suggested lesson. Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/data-and-information-flat-file-databases https://www.j2e.com/data/examples/countries	<u>Why is London an important city?</u> Knowledge The children will know: <ul style="list-style-type: none"> Selection in quizzes How selection is used in computer programs That a conditional statement connects a condition to an outcome How selection directs the flow of a program How to design a program which uses selection How to create a program which uses selection Potential project idea – Create a quiz about London that can be shared with the children who attended. Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/programming-b-selection-in-quizzes https://scratch.mit.edu/	<u>How do forces work?</u> Knowledge The children will know: <ul style="list-style-type: none"> Creating media – Introduction to vector graphics That drawing tools can be used to produce different outcomes How to create a vector drawing by combining shapes How to use tools to achieve a desired effect That vector drawings consist of layers How to group objects to make them easier to work with Potential project idea – Create a poster to advertise “The Man on the Moon” theatre show – Links to DT and science learning. Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-vector-drawing https://docs.google.com/drawings/d/12ScI93DIQF0nqashITz_WZrkbOSkUTp31f0X9CdIz-E/edit	<u>Who won the Space Race?</u> Knowledge The children will know: <ul style="list-style-type: none"> Selection in physical computing How to control a simple circuit connected to a computer How to write a program that includes count-controlled loops That a loop can stop when a condition is met That a loop can be used to repeatedly check whether a condition has been met How to design a physical project that includes selection How to create a program that controls a physical computing project Potential project idea – The Crumble is integrated with the DT project to allow for a simple circuit that is programmable (Builds towards more complex instructions in Year 6) Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/programming-a-selection-in-physical-computing http://code-it.co.uk/cards/

	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> Compare features in different videos Experiment with different camera angles Select appropriate images for a greenscreen Use greenscreen to alter the background of a video Make use of a microphone Create and save video content Outline the scenes of a video Explain how to improve a video by reshooting and editing Select the correct tools to make edits to a video Make edits to a video and improve the final outcome 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> Describe that a computer system features inputs, processes, and outputs Compare results from different search engines Make use of a web search to find specific information Refine my web search Explain why we need tools to find things online Recognise the role of web crawlers in creating an index Relate a search term to the search engine's index Explain that a search engine follows rules to rank results Give examples of criteria used by search engines to rank results Order a list by rank Describe some of the ways that search results can be influenced Recognise some of the limitations of search engines 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> Create a database using cards Explain how information can be recorded Order, sort, and group data cards Choose which field to sort data by to answer a given question Explain what a field and a record is in a database Combine grouping and sorting to answer specific questions Explain that data can be grouped using chosen values Group information using a database Choose multiple criteria to answer a given question Choose which field and value are required to answer a given question Outline how 'AND' and 'OR' can be used to refine data selection Refine a chart by selecting a particular filter Select an appropriate chart to visually compare data Ask questions that will need more than one field to answer Present findings to a group 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> Identify conditions in a program Modify a condition in a program Create a program with different outcomes using selection Identify the condition and outcomes in an 'if... then... else...' statement Use selection in an infinite loop to check a condition Design the flow of a program which contains 'if... then... else...' Explain that program flow can branch according to a condition Identify the outcome of user input in an algorithm Test a program Identify ways the program could be improved 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> Experiment with the shape and line tools Recognise that vector drawings are made using shapes Explain that each element added to a vector drawing is an object Identify the shapes used to make a vector drawing Move, resize, and rotate objects that have been duplicated Modify objects to create a new image Use the zoom tool to help add detail to drawings Change the order of layers in a vector drawing Use layering to create an image Copy part of a drawing by duplicating several objects Recognise when to group and ungroup objects 	<p>Skills</p> <p>The children will be able to:</p> <ul style="list-style-type: none"> Create a simple circuit and connect it to a microcontroller Explain what an infinite loop does Program a microcontroller to make an LED switch on Connect more than one output component to a microcontroller Design sequences that use count-controlled loops Use a count-controlled loop to control outputs Design a conditional loop Program a microcontroller to respond to an input Use selection (an 'if...then...' statement) to direct the flow of a program Test and debug a project Use selection to produce an intended outcome
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Year 6

[Our digital literacy curriculum is delivered on a regular basis across the year, see our Computing map – Digital Literacy for further details](#)

Additional information technology opportunities across the year – Children to create at least 2 digital artefacts of written work using links to document areas and websites. Children to save and reopen. Children to use text and images to display information and add to a presentation or written document. Children to experience Sway and/or multimodal texts such as Bookcreator to present their learning. Online research and safe keyword usage for topic research.

<p><u>What did the Egyptians teach us?</u></p> <p>Knowledge</p> <p>The children will know:</p> <ul style="list-style-type: none"> Computing systems and networks - Communication and collaboration The importance of internet addresses How data is transferred across the internet How sharing information online can help people to work together Different ways of working together online How to communicate using technology <p>Potential project idea – Work collaboratively online for learning within the topic.</p> <p>Potential resources - https://teachcomputing.org/curriculum/k</p>	<p><u>Are rainforests important?</u></p> <p>Knowledge</p> <p>The children will know:</p> <ul style="list-style-type: none"> Creating media – Web page creation How to review an existing website and consider its structure The features of a web page How to consider the ownership and use of images (copyright) The need to preview pages The need for a navigation path The implications of linking to content owned by other people <p>Potential project idea – Making a web page for a specific rainforest or to promote protecting rainforests.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-web-page-creation</p>	<p><u>What legacy did the Celts leave in Cornwall?</u></p> <p>Knowledge</p> <p>The children will know:</p> <ul style="list-style-type: none"> Creating media – 3D Modelling That you can work in three dimensions on a computer That digital 3D objects can be modified That objects can be combined in a 3D model How to create a 3D model for a given purpose <p>Potential project idea – Create a 3-d model of a Celt house or village.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/creating-media-3d-modelling https://www.tinkercad.com/3d-design</p>	<p><u>What powers Earth?</u></p> <p>Knowledge</p> <p>The children will know:</p> <ul style="list-style-type: none"> Sensing movement How to create a program to run on a controllable device That selection can control the flow of a program How to update a variable with a user input To use a conditional statement to compare a variable to a value How to design a project that uses inputs and outputs on a controllable device <p>Potential project idea – Building a robotic buggy to transport resources, which uses a Crumble to allow programming of instructions and responses (Overlaps with DT project)</p>	<p><u>Were all Vikings vicious?</u></p> <p>Knowledge</p> <p>The children will know:</p> <ul style="list-style-type: none"> Variables in games A 'variable' as something that is changeable Why a variable is used in a program How to improve a game by using variables How to design a project that builds on a given example <p>Potential project idea – Designing and making a Viking themed game.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/programming-a-variables-in-games https://scratch.mit.edu/</p>	<p><u>Can you find your way home?</u></p> <p>Knowledge</p> <p>The children will know:</p> <ul style="list-style-type: none"> Data and information – Spreadsheets How to create a data set in a spreadsheet That formulas can be used to produce calculated data How to choose suitable ways to present data <p>Potential project idea – Budget for a welcome home/end of school party.</p> <p>Potential resources - https://teachcomputing.org/curriculum/ky-stage-2/data-and-information-spreadsheets Office 365 – Excel.</p>
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<p>ey-stage-2/computing-systems-and-networks-communication Office 365 – Notebook.</p>	<p>https://sites.google.com/raspberrypi.org/allaboutanimals/home https://sites.google.com/u/0/new?pli=1&authuser=0</p>	<p>Potential resources - Crumbles https://teachcomputing.org/curriculum/ky-stage-2/programming-b-sensing http://code-it.co.uk/cards/</p>				
<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> Describe how computers use addresses to access websites Explain that internet devices have addresses Explain that all data transferred over the internet is in packets Identify and explain the main parts of a data packet Explain that the internet allows different media to be shared Recognise how to access shared files stored online Send information over the internet in different ways Identify different ways of working together online Compare different methods of communicating on the internet Decide when we should and should not share information online Explain that communication on the internet may not be private 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> Discuss the different types of media used on websites Know that websites are written in HTML Recognise the common features of a web page Suggest media to include on a page Describe what is meant by the term 'fair use' Find copyright-free images Add content to a web page Preview what a web page looks like Describe why navigation paths are useful Make multiple web pages and link them using hyperlinks Create hyperlinks to link to other people's work Explain the implication of linking to content owned by others 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> Add 3D shapes to a project Move 3D shapes relative to one another View 3D shapes from different perspectives Lift/lower 3D objects Recolour a 3D object Resize an object in three dimensions Duplicate 3D objects Group 3D objects Rotate objects in three dimensions Accurately size 3D objects Combine a number of 3D objects Show that placeholders can create holes in 3D objects Analyse a 3D model Combine objects in a design Construct a 3D model based on a design Modify a 3D model to improve it 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> Apply knowledge of programming to a new environment Test a program on an emulator Transfer a program to a controllable device Determine the flow of a program using selection Use a variable in an if, then, else statement to select the flow of a program Experiment with different physical inputs Explain that checking a variable doesn't change its value Use a condition to change a variable Explain the importance of the order of conditions in else, if statements Modify a program to achieve a different outcome Use an operand (e.g. <=>) in an if, then statement Decide what variables to include in a project Design the algorithm for a project Test a program against a design Use a range of approaches to find and fix bugs 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> Explain that the way a variable changes can be defined Identify examples of information that is variable Identify that variables can hold numbers or letters Recognise that the value of a variable can be changed Decide where in a program to change a variable Make use of an event in a program to set a variable Create algorithms for a project Choose a name that identifies the role of a variable Test the code that has been written Identify ways that a game could be improved 	<p>Skills The children will be able to:</p> <ul style="list-style-type: none"> Collect data Enter data into a spreadsheet Apply an appropriate format to a cell Choose an appropriate format for a cell Explain what an item of data is Construct a formula in a spreadsheet Explain which data types can be used in calculations Identify that changing inputs changes outputs Apply a formula to multiple cells by duplicating it Calculate data using different operations Create a formula which includes a range of cells Apply a formula to calculate the data needed to answer questions Use a spreadsheet to answer questions Produce a chart Suggest when to use a table or chart Use a chart to show the answer to questions 	
<p>KS2 End of Key Stage Two powerful knowledge</p>	<ul style="list-style-type: none"> How to identify input and output devices Digital devices can change the way we work Identify the benefits of computer networks The attributes needed to collect data about an object How to add content to a desktop publishing publication Change font style, size, and colours for a given purpose Search for relevant images online Networked devices make up the internet How content can be added and accessed on the World Wide Web (WWW) The consequences of unreliable content Identify why some information found online may not be honest, accurate, or legal Use a computer to record audio Save a project so the different parts remain editable How to combine images for a purpose Crop an image Improve an image by rotating it Experiment with different colour effects How a computer can help us analyse data How to identify the data needed to answer questions Sort data to find information How search engines select results How search results are ranked Explain that a search engine follows rules to rank results Describe some of the ways that search results can be influenced How you can answer questions by grouping and then sorting data Outline how 'AND' and 'OR' can be used to refine data selection Select an appropriate chart to visually compare data 			<ul style="list-style-type: none"> That commands have an outcome That a program has a start That a sequence of commands should have an order How to describe a project using 'abstraction' Implement an algorithm as code How to identify and fix bugs in a program Choose blocks to set up a program Build more sequences of commands to make a design work Match a piece of code to an outcome What 'repeat' means How to decompose a task into small steps How to create a program that uses count-controlled loops to produce a given outcome Program a computer by typing commands Test an algorithm in a text-based language Write an algorithm to produce a given outcome That in programming there are infinite loops and count controlled loops How to design a project that includes repetition How to create a program that controls a physical computing project Use selection (an 'if...then...' statement) to direct the flow of a program Create a program with different outcomes using selection A 'variable' as something that is changeable Make use of an event in a program to set a variable How to design a project that uses inputs and outputs on a controllable device Use a variable in an if, then, else statement to select the flow of a program 		

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| | <ul style="list-style-type: none">• How to communicate using technology• Recognise how to access shared files stored online• Decide when we should and should not share information online• The implications of linking to content owned by other people• Add content to a web page• Construct a 3D model based on a design• That formulas can be used to produce calculated data• Enter data into a spreadsheet• Construct a formula in a spreadsheet• Apply a formula to multiple cells by duplicating it• Calculate data using different operations• Produce a chart | |
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