

Computing Progression Map



"The web does not just connect machines, it connects people." Tim Berners-Lee

Our Curriculum Intent:

Our curriculum is designed to take into account individual starting points to ensure an equality of opportunity to a broad, balanced and **knowledge-rich** curriculum, with a particular **emphasis on VOCABULARY**. The content of our **ambitious** curriculum is carefully **sequenced** to encourage progression of **skills, connections** and **transference to long-term memory**, and is chosen for its **usefulness** and **relevance** to our pupils. Pupils are immersed in **rich, relevant and contextualised** first-hand experiences, which enthuse, excite and challenge them. Pupils are encouraged to investigate, explore and take risks. As a result, pupils make excellent progress in their development and application of knowledge, understanding and skills (across different contexts).

At Ladybridge, we encourage our pupils to, 'Think like an I.T. Professional'

Intent:

At Ladybridge, we provide a carefully sequenced and ambitious Computing curriculum that progressively builds pupils' knowledge, implementation and evaluative skills over time. Adapted from the NCFE Teach Computing Curriculum, our curriculum is tailored to meet the needs of our pupils while ensuring full coverage of the National Curriculum. Our aim is to develop confident, responsible and creative users of technology who can understand and apply the fundamental principles of computer science. Pupils gain secure knowledge of computer systems and networks, programming, data and information, and digital media. They learn how digital systems work, how to design and debug programs, how data is collected and used, and how media can be created and shared effectively. Through meaningful, hands-on experiences using iPads and a range of software and digital tools, pupils are immersed in computing that is purposeful and relevant to their lives. We want our children to become digitally literate learners who can use technology safely, respectfully and responsibly. They are encouraged to think logically, solve problems creatively, evaluate digital content critically, and understand the impact of technology in the modern world. Our curriculum empowers pupils to see themselves as computer scientists, programmers, digital creators and innovators. Ultimately, we equip them with the knowledge, vocabulary and skills they need to thrive in an increasingly digital society.

Implementation:

At Ladybridge, Computing is taught weekly across all year groups. Each year, pupils study the four key strands of the National Curriculum: Systems and Networks, Creating Media (taught twice annually), Programming (taught twice annually) and Data and Information. This structure ensures breadth, balance and progression, while allowing pupils regular opportunities to revisit and deepen their understanding of key concepts. A detailed progression map outlines both substantive knowledge (what pupils know about computing systems, programming structures and digital tools) and disciplinary knowledge (how pupils think computationally, solve problems, debug, evaluate and create). Teachers use this progression to deliver carefully sequenced lessons that build learning cumulatively year on year. To ensure coherence across the curriculum, we have developed a consistent set of Computing lenses, which embed the four core areas of computing across every year group. These lenses support pupils in making meaningful connections between topics, strengthening their understanding of how different aspects of computing interrelate. Lessons are supported by carefully adapted planning and presentations, ensuring clarity, structure and consistency in delivery. Vocabulary is explicitly taught and revisited to ensure pupils can articulate their understanding using precise technical language. Online safety is woven throughout the curriculum rather than taught in isolation. Pupils develop a secure understanding of how to stay safe online, manage digital footprints, and engage respectfully in digital communities. Through regular opportunities to practise, refine and apply their skills using a range of software and devices, pupils build confidence and fluency in computing.

Impact:

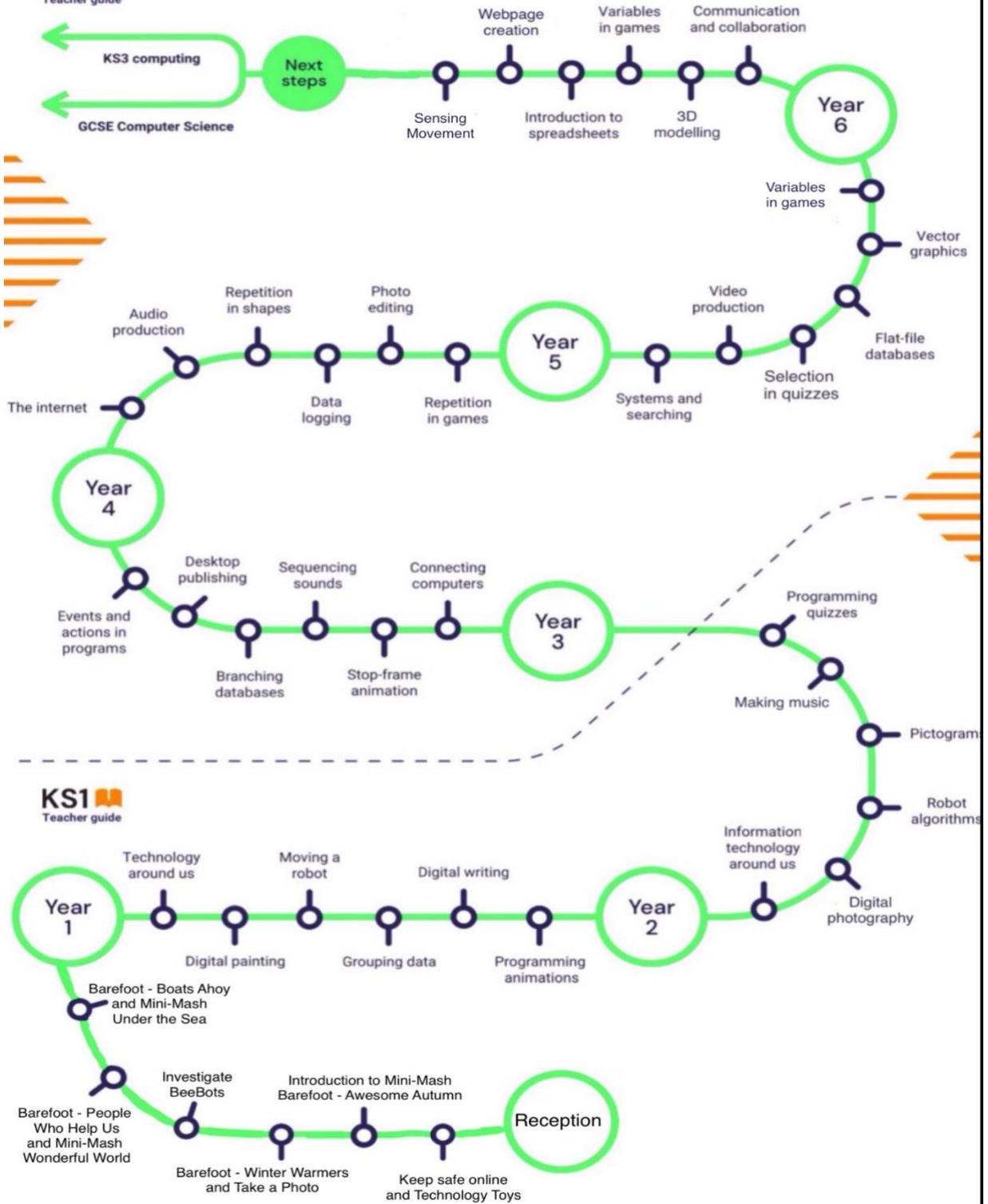
At Ladybridge, the impact of our Computing curriculum is seen in pupils who think computationally and approach challenges with confidence and resilience. They can explain how digital systems work, design and debug programs, organise and interpret data, and create purposeful digital media. Pupils demonstrate a strong foundation of computing knowledge and a rich technical vocabulary, enabling them to articulate their understanding clearly. Their work shows progression in complexity, independence and creativity across year groups. Through discussions, and pupil voice, children demonstrate secure understanding of key computing concepts and the ability to transfer skills across contexts. They evaluate their own and others' digital work thoughtfully and can identify ways to improve. Our pupils leave Ladybridge as digitally literate learners who use technology safely, respectfully and responsibly. They are well prepared for the next stage of their education and equipped with the curiosity, imagination and problem-solving skills needed for an ever-evolving digital world. Above all, we want every child to enjoy computing, feel empowered by technology, and be inspired to explore the possibilities of the digital future.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Exploring the iPad and the Internet		 CREATING MEDIA Photos, Videos, Voice Recordings		 PROGRAMMING Simple algorithms, Bee-Bots	
						
Year 1	COMPUTING SYSTEMS AND NETWORKS Technology Around Us (Paintz.app)	CREATING MEDIA Digital Painting (Paintz.app)	PROGRAMMING Moving a Robot (Bee-Bots)	DATA AND INFORMATION Grouping Data	CREATING MEDIA Digital Writing (Pages)	PROGRAMMING Programming Animations (Scratch Jnr)
Year 2	COMPUTING SYSTEMS AND NETWORKS Information Technology Around Us	CREATING MEDIA Digital Photography	PROGRAMMING Robot Algorithms (Bee-Bots)	DATA AND INFORMATION Pictograms (Purple Mash) Are PP correct?	CREATING MEDIA Making Music (Chrome Music Lab)	PROGRAMMING Programming Quizzes (Scratch Jnr)
Year 3	COMPUTING SYSTEMS AND NETWORKS Connecting Computers (Paintz.app)	CREATING MEDIA Stop-Frame Animation (iMotion)	PROGRAMMING Sequencing Sounds (Scratch)	DATA AND INFORMATION Branching Databases (j2e)	CREATING MEDIA Desktop Publishing (Purple Mash)	PROGRAMMING Events and Actions in Programmes (Scratch)
Year 4	COMPUTING SYSTEMS AND NETWORKS The Internet	CREATING MEDIA Audio Production (Garageband)	PROGRAMMING Repetition in shapes (2Logo) Are PP correct?	DATA AND INFORMATION Data Logging (Arduino Science Journal + iMovie)	CREATING MEDIA Photo Editing	PROGRAMMING Repetition in Games (Scratch)
Year 5	COMPUTING SYSTEMS AND NETWORKS Systems and Searching	CREATING MEDIA Video Production (iMovie and Green Screen) Lesson 5??	PROGRAMMING Selection in Quizzes (Scratch)	DATA AND INFORMATION Flat-file Databases (j2e)	CREATING MEDIA Introduction to Vector Drawing (Keynote)	PROGRAMMING Variables in Games (Y6 unit) (Scratch) <i>From 2026</i>
Year 6	COMPUTING SYSTEMS AND NETWORKS Communication and Collaboration (Teams)	CREATING MEDIA 3D Modelling (Tinkercad)	PROGRAMMING Variables in Games (Y6 unit) (Scratch)	DATA AND INFORMATION Introduction to Spreadsheets (Numbers)	CREATING MEDIA Webpage Creation (Keynote)	PROGRAMMING Sensing (Micro:Bits)

Teach Computing Curriculum

Primary Journey

KS2
Teacher guide

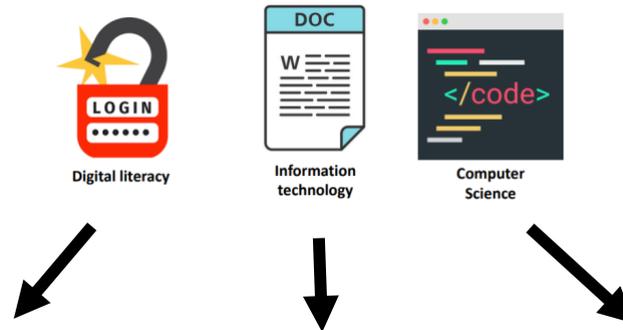


Knowledge:

<u>Substantive Knowledge</u>	<u>Declarative Knowledge</u>	<u>Procedural Knowledge</u>
<p data-bbox="257 443 797 727">All knowledge from strands of Computer Science, Information Technology and Digital Literacy.</p> <div data-bbox="257 837 763 1023"><p data-bbox="271 991 371 1010">Digital literacy</p><p data-bbox="472 986 560 1023">Information technology</p><p data-bbox="656 991 730 1023">Computer Science</p></div>	<p data-bbox="938 472 1388 571">The facts and rules about computing.</p> <p data-bbox="891 608 1435 703">Functions, network knowledge, online safety knowledge.</p> <p data-bbox="945 743 1382 895">Terminology, network knowledge, online safety knowledge.</p>	<p data-bbox="1576 467 2022 563">The methods and processing of computing.</p> <p data-bbox="1603 600 1995 695">Formatting, searching, debugging, data.</p>

Themes:

Themes build knowledge sequentially with opportunities to revisit and build on children's prior learning – deepening knowledge and understanding. Links are made in learning through recurring themes throughout our curriculum.



	<u>Creating Media</u>	<u>Data and Information</u>	<u>Systems and Networks</u>	<u>Programming</u>
<u>Key Concepts:</u>				

National Curriculum

	<u>Key Stage 1</u>	<u>Key Stage 2</u>
 <p align="center">Computer Science</p>	<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>Create and debug simple programs.</p> <p>Use logical reasoning to predict the behaviour of simple programs.</p>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain simple algorithms and to detect and correct errors in algorithms and programs.</p> <p>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.</p> <p>Appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>
 <p align="center">Information technology</p>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>Use search technologies effectively.</p> <p>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</p>
 <p align="center">Digital literacy</p>	<p>Recognise common uses of information technology beyond school.</p> <p>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</p>	<p>Understand the opportunities [networks] offer for communication and collaboration.</p> <p>Be discerning in evaluating digital content.</p> <p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p>

Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Keeping Safe Online Understand how to keep safe online (not talking to others, asking a grown up for help when unsure)</p> <p>Technology in Toys Show an interest in technological toys Explore how things work</p>	<p>Identify technology Understand technology helps us Locate examples of technology in the classroom Explain how technology examples helps us</p> <p>Identify an iPad and its main parts Switch on an iPad Understand that to use an iPad you need to touch it in different ways: swiping, pinching and long-pressing</p> <p>Use an iPad in different ways Touch apps to open software Use touch to create a picture</p> <p>Use a pop-up keyboard to type on an iPad Understand what a keyboard is for Type on an iPad Save work to a file</p> <p>Use the pop-up keyboard to edit text Save and download work to the files app Open work from the files app Use the space bar to move the cursor Delete letters</p>	<p>Recognise the uses and features of information technology Identify examples of computers Describe some uses of computers</p> <p>Identify the uses of information technology in the school Sort school IT by what it's used for Identify that some IT can be used in more than one way</p> <p>Identify information technology beyond school Sort IT by where it is found Talk about uses of information technology</p> <p>Explain how information technology helps us Recognise common types of technology Demonstrate how IT devices work together Say why we use IT</p> <p>Explain how to use information technology safely List different uses of information technology Talk about different rules for using IT</p>	<p>Explain how digital devices function Explain that digital devices accept inputs Explain that digital devices produce outputs Follow a process Explain what makes a secure password</p> <p>Identify input and output devices Classify input and output devices Describe a simple process Design a digital device</p> <p>Recognise how digital devices can change the way that we work Explain how to use digital devices for different activities Recognise similarities between using digital devices and using non-digital tools</p> <p>Explain how a computer network can be used to share information Recognise different connections Explain how messages are passed through multiple connections Discuss why we need a network switch</p>	<p>Describe how networks physically connect to other networks Describe the internet as a network of networks Demonstrate how information is shared across the internet Discuss why a network needs protecting</p> <p>Recognise how networked devices make up the internet Describe networked devices and how they connect Explain that the internet is used to provide many services Recognise that the World Wide Web contains websites and web pages</p> <p>Outline how websites can be shared via the World Wide Web (WWW) Explain the types of media that can be shared on the WWW Describe where websites are stored when uploaded to the WWW Describe how to access websites on the WWW</p> <p>Describe how content can be added and</p>	<p>Explain that computers can be connected together to form systems Explain that systems are built using a number of parts Describe the input, process, and output of a digital system Explain that computer systems communicate with other devices</p> <p>Recognise the role of computer systems in our lives Identify tasks that are managed by computer systems Identify the human elements of a computer system Explain the benefits of a given computer system Explain how to keep personal information safe online</p> <p>Identify how to use a search engine Use a web search to find specific information Refine a web search Compare results from different search engines Recognise trustworthy websites</p>	<p>Explain the importance of internet addresses Recognise that data is transferred using agreed methods Explain that internet devices have addresses Understand how computers use addresses to access websites</p> <p>Recognise how data is transferred across the internet Identify and explain the main parts of a data packet Understand that data is transferred over networks in packets Understand that all data transferred over the internet is in packets</p> <p>Explain how sharing information online can help people to work together Recognise how to access shared files stored online Send information over the internet in different ways Understand that the internet allows different media to be shared</p>

		<p>Create rules for using technology responsibly Identify rules to keep us safe and healthy when we are using technology in and beyond the home Discuss how we benefit from these rules</p>	<p>Say how rules can help keep me safe</p> <p>Recognise that choices are made when using information technology 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>	<p>Explore how digital devices can be connected Recognise that a computer network is made up of a number of devices Demonstrate how information can be passed between devices Understand that the switch, server, and wireless access point in a network have a job</p> <p>Recognise the physical components of a network Identify how devices in a network are connected together Identify networked devices in the school</p>	<p>accessed on the World Wide Web (WWW) Explain what media can be found on websites Recognise that I can add content to the WWW Explain that internet services can be used to create content online</p> <p>Recognise how the content of the WWW is created by people Explain that websites and their content are created by people Suggest who owns the content on websites Explain that there are rules to protect content</p> <p>Evaluate the consequences of unreliable content Explain that not everything on the World Wide Web is true Explain why some information online may not be honest, accurate, or legal Explain carefully before sharing or resharing content</p>	<p>Describe how search engines select results 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</p> <p>Explain how search results are ranked Order a list by rank Explain that a search engine follows rules to rank results Give examples of criteria used by search engines to rank results</p> <p>Recognise why the order of results is important, and to whom Describe some of the ways that search results can be influenced Recognise some of the limitations of search engines Understand how search engines make money</p>	<p>Evaluate different ways of working together online Identify different ways of working together online Recognise that working together on the internet can be public or private Explain how the internet enables effective collaboration</p> <p>Recognise how we communicate using technology Explain the different ways in which people communicate Identify that there are a variety of ways to communicate over the internet</p> <p>Evaluate different methods of online communication Compare different methods of communicating on the internet Decide whether to share or not share information online Understand that communication on the internet may not be private Explain how to report inappropriate content online</p>
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Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Creating Media A</p> 	<p>Introduction to Mini-mash Explore 2simple software</p> <p>Take a photo, using an iPad Use the iPad camera to take a photograph of work</p>	<p>Describe what different freehand tools do Make marks on a touchscreen Draw lines on a touchscreen Use the paint tools to draw a picture</p> <p>Use the shape tool and the line tools Make marks with the square and line tools Use the shape and line tools effectively Use the shape and line tools to recreate the work of an artist</p> <p>Make careful choices when painting a digital picture Choose appropriate shapes Make appropriate colour choices Create a picture in the style of an artist</p> <p>Explain why I chose the tools I used Explain that different paint tools do different jobs Choose appropriate paint tools and colours to recreate the work of an artist</p> <p>Use an iPad to paint a picture</p>	<p>Use a digital device to take a photograph Recognise what/which devices can be used to take photographs Talk about how to take a photograph Explain how to capture a digital photo</p> <p>Make choices when taking a photograph Explain the process of taking a good photograph Take photos in both landscape and portrait format Explain why a photo looks better in portrait or landscape format</p> <p>Describe what makes a good photograph Identify what is wrong with a photograph Discuss how to take a good photograph Improve a photograph by retaking it</p> <p>Decide how photographs can be improved Explore the effect that light has on a photo Experiment with different light sources Explain why a picture may be unclear</p> <p>Use tools to change an image</p>	<p>Explain that animation is a sequence of drawings or photographs Draw a sequence of pictures Create an effective flip book—style animation Explain how an animation/flip book works</p> <p>Relate animated movement with a sequence of images Predict what an animation will look like Explain why little changes are needed for each frame Create an effective stop-frame animation</p> <p>Plan an animation Break down a story into settings, characters and events Create a storyboard Identify the need to work consistently and carefully Use onion skinning to help me make small changes between frames Review a sequence of frames to check my work Evaluate the quality of my animation</p> <p>Review and improve an animation</p>	<p>Identify that sound can be recorded Identify the input and output devices used to record and play sound Use an iPad to record audio</p> <p>Explain that audio recordings can be edited Re-record a voice to improve the recording Inspect the soundwave view to know where to trim the recording Discuss what sounds can be added to a podcast</p> <p>Recognise the different parts of creating a podcast project Explain how sounds can be combined to make a podcast more engaging Save a project so the different parts remain editable Plan appropriate content for a podcast</p> <p>Apply audio editing skills independently Record content following a plan Review the quality of recordings Improve the voice recordings</p>	<p>Explain what makes a video effective Explain that video is a visual media format Identify features of videos Compare features in different videos Know what to do if I see any content online that makes me feel uncomfortable</p> <p>Use a digital device (an iPad) to record video Identify and find features on a digital video recording device Experiment with different camera angles</p> <p>Capture video using a range of techniques Suggest filming techniques for a given purpose Capture video using a range of filming techniques Review how effective the video is</p> <p>Create a storyboard Outline the scenes of the video Decide which filming techniques are to be used Create and save video content</p>	<p>Recognise that you can work in three dimensions on a computer Add 3D shapes to a project View 3D shapes from different perspectives Move 3D shapes relative to one another</p> <p>Identify that digital 3D objects can be modified Resize an object in three dimensions Lift/lower 3D objects Recolour a 3D object</p> <p>Recognise that objects can be combined in a 3D model Rotate objects in three dimensions Duplicate 3D objects Group 3D objects</p> <p>Create a 3D model for a given purpose Accurately size 3D objects Show that placeholders can create holes in 3D objects Combine a number of 3D objects</p> <p>Plan a 3D model Analyse a 3D model Choose objects to use in a 3D model Combine objects in a design</p>

		<p>Make dots of colour on the page Change the colour and brush sizes Use dots of colour to create a picture in the style of an artist</p> <p>Compare painting a picture on a computer and on paper Explain that pictures can be made in lots of different ways Spot the differences between painting on a computer and on paper Have an opinion on whether a painting using technology or using paper is better</p>	<p>Recognise that images can be changed Use a tool to achieve a desired effect Explain the choices that have been made</p> <p>Recognise that photos can be changed Apply a range of photography skills to capture a photo Recognise which photos have been changed Identify which photos are real and which have been changed</p>	<p>Explain ways to make my animation better Evaluate another learner's animation Improve my animation based on feedback</p> <p>Evaluate the impact of adding other media to an animation Add other media to my animation Explain why I added other media to my animation Evaluate my final film</p>	<p>Combine audio to enhance my podcast project Open a project to continue working on it Arrange multiple sounds to create the effect needed Explain the difference between saving a project and exporting an audio file</p> <p>Evaluate the effective use of audio Listen to an audio recording to identify its strengths Suggest improvements to an audio recording Choose appropriate edits to improve a podcast</p>	<p>Identify that video can be improved through reshooting and editing Store, retrieve, and import video to iMovie Explain how to improve a video by reshooting and editing Select the correct tools to make edits to the video</p> <p>Consider the impact of the choices made when making and sharing a video Make edits to the video and improve the final outcome Recognise that choices made when making a video will impact the quality of the final outcome Evaluate the video and share opinions</p>	<p>Create a designed digital 3D model Construct a 3D model based on a design Explain how a 3D model could be improved Modify a 3D model to improve it</p>
<p>Creating Media B</p> 	<p>Mini-Mash A Wonderful World Explore 2simple software</p> <p>Mini-Mash Under the Sea Explore 2simple software</p>	<p>Use an iPad to write Open a word processor (pages) Recognise keys on a keyboard Identify and find keys on a keyboard</p> <p>Add and remove text on a computer Enter text into a computer Use letter, number, and Space keys Use Backspace to remove text</p> <p>Identify that the look of text can be changed on a computer</p>	<p>Say how music can make us feel Identify simple differences in pieces of music Describe music using adjectives Give an opinion on a piece of music</p> <p>Identify that there are patterns in music Create a rhythm pattern Play an instrument following a rhythm pattern Explain that music is created and played by humans</p>	<p>Recognise how text and images convey information Explain the difference between text and images Recognise that text and images can communicate messages clearly Identify the advantages and disadvantages of using text and images Understand how to use emojis respectfully online</p> <p>Recognise that text and layout can be edited</p>	<p>Explain that the composition of digital images can be changed Improve an image by rotating it Explain why an image might be cropped Use photo editing software to crop an image Understand that editing images can be unethical</p> <p>Explain that colours can be changed in digital images Explain that different colour effects make</p>	<p>Identify that drawing tools can be used to produce different outcomes Recognise that vector drawings are made using shapes Experiment with the shape and line tools Discuss how vector drawings are different from paper-based drawings</p> <p>Create a vector drawing by combining shapes Identify the shapes used to make a vector drawing</p>	<p>Review an existing website and consider its structure Explore a website Discuss the different types of media used on websites Know that websites are written in HTML</p> <p>Plan the features of a web page Recognise the common features of a web page Suggest media to include on a page Draw a web page layout that suits a purpose</p>

		<p>Type capital letters Explain what the keys that I have already learnt about do Identify the toolbar and use bold, italic, and underline</p> <p>Make careful choices when changing text Select a word by double-tapping Select all of the text by tapping and dragging Change the font style</p> <p>Select tools for specific reasons Understand which tool is used to change the text Decide if changes have improved the writing Use 'Undo' to remove changes</p> <p>Compare typing on an iPad to writing on paper Make changes to text on an iPad Explain the differences between typing and writing Have a preference to typing or writing</p>	<p>Experiment with sound using a computer Connect images with sounds Use an iPad to experiment with pitch Relate an idea to a piece of music</p> <p>Use an iPad to create a musical pattern Identify that music is a sequence of notes Explain how my music can be played in different ways Refine my musical pattern on an iPad</p> <p>Create music for a purpose Create a rhythm which represents an animal Create an animal's rhythm on an iPad Add a sequence of notes to a rhythm</p> <p>Review and refine iPad work Review my work Explain how the work was changed Listen to music and describe how it makes me feel</p>	<p>Change font style, size, and colours for a given purpose Edit text Explain that text can be changed to communicate more clearly</p> <p>Choose appropriate page settings Explain what 'page orientation' means Recognise placeholders and say why they are important Create a template for a particular purpose</p> <p>Add content to a desktop publishing publication Choose the best locations for my content Paste text and images to create a magazine cover Make changes to content after it has been added</p> <p>Consider how different layouts can suit different purposes Identify different layouts Match a layout to a purpose Choose a suitable layout for a given purpose</p> <p>Consider the benefits of desktop publishing</p>	<p>you think and feel different things Experiment with different colour effects Explain why I chose certain colour effects</p> <p>Explain how cloning can be used in photo editing Add to the composition of an image by cloning Identify how a photo edit can be improved Remove parts of an image using cloning</p> <p>Explain that images can be combined Experiment with tools to select and copy part of an image Use a range of tools to copy between images Explain why photos might be edited</p> <p>Combine images for a purpose Describe the image that will be created Choose suitable images for a project Create a project that is a combination of other images</p> <p>Evaluate how changes can improve an image Review images against a given criteria Use feedback to guide making changes Combine text and images to complete the project</p>	<p>Explain that each element added to a vector drawing is an object Move, resize, and rotate objects which have been duplicated</p> <p>Use tools to achieve a desired effect Use the zoom tool to help add detail to drawings Explain how alignment grids and resize handles can be used to improve consistency Modify objects to create a new image</p> <p>Recognise that vector drawings consist of layers Identify that each added object creates a new layer in the drawing Change the order of layers in a vector drawing Use layering to create an image</p> <p>Group objects to make them easier to work with Copy part of a drawing by duplicating several objects Recognise when it is needed to group and ungroup objects Re-use a group of objects to further develop the vector drawing</p>	<p>Consider the ownership and use of images (copyright) Say why copyright-free images should be used Find copyright-free images Describe what is meant by the term 'fair use' Know how to use technology respectfully and responsibly when online</p> <p>To recognise the need to preview pages Add content to a web page Preview what a web page looks like Evaluate what a web page looks like on different devices and suggest/make edits.</p> <p>Outline the need for a navigation path Explain what a navigation path is Describe why navigation paths are useful Make multiple web pages and link them using hyperlinks</p> <p>To recognise the implications of linking to content owned by other people Explain the implication of linking to content owned by others Create hyperlinks to link to other people's work</p>
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				Identify the uses of desktop publishing in the real world Say why desktop publishing might be helpful Compare work made on desktop publishing to work created by hand		Apply what has been learned about vector drawings Create a vector drawing for a specific purpose Reflect on the skills that have been used Compare vector drawings to freehand paint drawings	Evaluate the user experience of a website
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Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 <p>Programming A</p>	<p>Barefoot Computing Awesome Autumn– Leaf Labyrinth Negotiate space and obstacles safely, with consideration for themselves and others</p> <p>Barefoot Computing Winter Warmers – Feed the Birds Work and play cooperatively and take turns with others</p>	<p>Explain what a given command will do Predict the outcome of a command on a device Match a command to an outcome Run a command on a device</p> <p>Act out a given word Follow an instruction Recall words that can be acted out Give directions</p> <p>Combine ‘forwards’ and ‘backwards’ commands to make a sequence Compare forward and backward movements Start a sequence from the same place Predict the outcome of a sequence involving ‘forwards’ and ‘backwards’ commands</p> <p>Combine four direction commands to make sequences Compare left and right turns Experiment with ‘turn’ and ‘move’ commands to move a robot Predict the outcome of a sequence involving up to four commands</p> <p>Plan a simple program</p>	<p>Describe a series of instructions as a sequence Follow instructions given by someone else Choose a series of words that can be acted out as a sequence Give clear instructions</p> <p>Explain what happens when we change the order of instructions Use 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 instructions</p> <p>Use logical reasoning to predict the outcome of a program Follow a sequence Predict the outcome of a sequence Compare the prediction to the program outcome</p> <p>Explain that programming projects can have code and artwork Explain the choices that have been made for a mat design</p>	<p>Explore a new programming environment Identify the objects in a Scratch project (Sprites, backdrops) Explain that objects in Scratch have attributes (linked to) Recognise that commands in Scratch are represented as blocks</p> <p>Identify that commands have an outcome Create a program following a design and understand that each sprite is controlled by the commands Predict the coding blocks used to move a sprite Match coding blocks to their actions</p> <p>Explain that a program has a start Start a program in different ways Create a sequence of connected commands Understand that the objects in a project will respond exactly to the code</p> <p>Recognise that a sequence of commands can have an order</p>	<p>Identify that accuracy in programming is important Program a computer by typing commands Explain the effect of changing a value of a command Create a code snippet for a given purpose</p> <p>Create a program in a text-based language Use a template to draw what I want my program to do Write an algorithm to produce a given outcome Test my algorithm in a text-based language</p> <p>Explain what ‘repeat’ means Identify repetition in everyday tasks Identify patterns in a sequence Use a count-controlled loop to produce a given outcome Modify a count-controlled loop to produce a given outcome Identify the effect of changing the number of times a task is repeated Predict the outcome of a program containing a count-controlled loop</p>	<p>Explain how selection is used in computer programs Recall how conditions are used in selection Identify conditions in a program Modify a condition in a program</p> <p>Relate that a conditional statement connects a condition to an outcome Use selection in an infinite loop to check a condition Identify the condition and outcomes in an ‘if... then... else...’ statement Create a program that uses selection to produce different outcomes</p> <p>Explain how selection directs the flow of a program Explain that program flow can branch according to a condition Design the flow of a program that contains ‘if... then... else...’ Show that a condition can direct program flow in one of two ways</p> <p>Design a program that uses selection</p>	<p>Define a ‘variable’ as something that is changeable Identify examples of information that is variable Explain the way a variable changes can be defined Identify that variables can hold numbers or letters</p> <p>Explain why a variable is used in a program Identify a program variable as a placeholder in memory for a single value Explain that a variable has a name and a value Recognise that the value of a variable can be changed</p> <p>Choose how to improve a game by using variables Decide where in a program to change a variable Make use of an event in a program to set a variable Recognise that the value of a variable can be used by a program</p> <p>Design a project that builds on a given example Choose the artwork for a project</p>

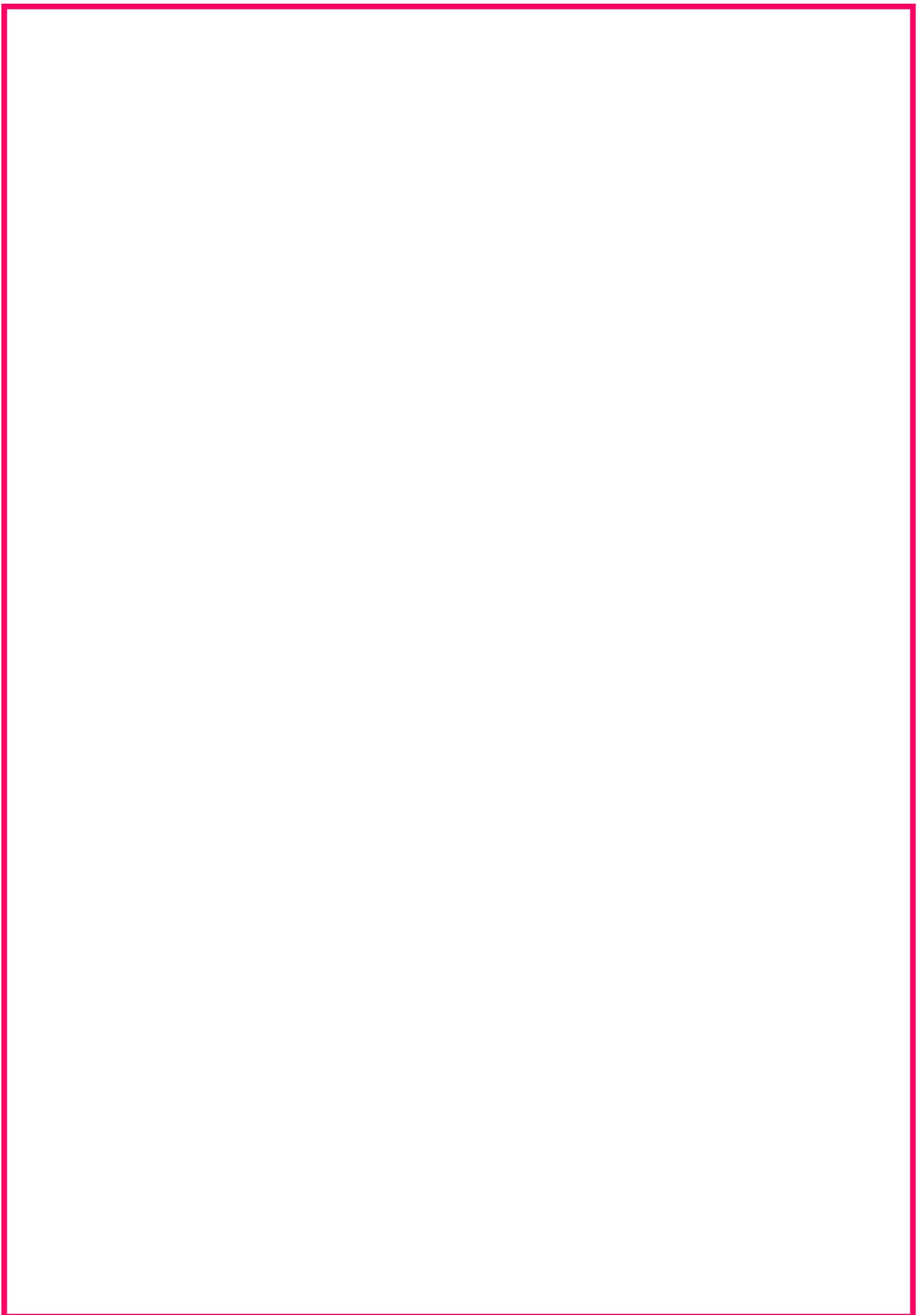
		<p>Explain what a program should do Choose the order of commands in a sequence Debug a simple program</p> <p>Find more than one solution to a problem Identify several possible solutions Plan two programs Use two different programs to get to the same place</p>	<p>Identify different routes around a mat Test a mat to make sure that it is usable</p> <p>Design an algorithm Explain what an algorithm should achieve Create an algorithm to meet a goal Use an algorithm to create a program</p> <p>Create and debug a program that has been written Test and debug each part of the program Plan algorithms for different parts of a task Put together the different parts of a program</p>	<p>Explain what a sequence is Combine sound commands Order notes into a sequence</p> <p>Change the appearance of a project Build a sequence of commands Decide the actions for each sprite in a program Make design choices for artwork</p> <p>Create a project from a task description Identify and name the objects that will be needed for a project Implement an algorithm as code</p>	<p>Choose which values to change in a loop</p> <p>Decompose a task into small steps Identify 'chunks' of actions in the real world Use a procedure in a program Explain that a computer can repeatedly call a procedure</p> <p>Create a program that uses count-controlled loops to produce a given outcome Design a program that includes count-controlled loops Make use of a design to write a program Develop a program by debugging it</p>	<p>Outline a given task Use a design format to outline the project Identify the outcome of user input in an algorithm</p> <p>Create a program that uses selection Implement the algorithm to create the first section of the program Test the program Share the program with others</p> <p>Evaluate the program Identify ways the program could be improved Identify the setup code needed in the program</p>	<p>Create algorithms for a project</p> <p>Use a design to create a project Create the artwork for a project Choose a name that identifies the role of a variable Test the code that has been written</p> <p>Evaluate a project Identify ways that a game could be improved Use variables to extend a game</p>
 <p>Programming B</p>	<p>Investigate BeeBots Explore different directions (forwards, backwards, right and left with a BeeBot)</p> <p>Barefoot Computing Boats Ahoy - Is this a good boat? Explore how things work Talk about the difference between materials and changes they notice</p>	<p>Choose a command for a given purpose Find the commands to move a sprite Use commands to move a sprite Compare different programming tools</p> <p>Show that a series of commands can be joined together Use more than one block by joining them together Use a Start block in a program Run a program</p>	<p>Explain that a sequence of commands has a start Identify the start of a sequence Identify that a program needs to be started</p> <p>Explain that a sequence of commands has an outcome Predict the outcome of a sequence of commands Match two sequences with the same outcome</p>	<p>Explain how a sprite moves in an existing project Explain the relationship between an event and an action Identify a way to improve a program</p> <p>Create a program to move a sprite in four directions Choose a character for a project Choose a suitable size for a character in a maze Program movement</p>	<p>Explain that the composition of digital images can be changed Improve an image by rotating it Explain why an image might be cropped Use photo editing software to crop an image Understand that editing images can be unethical</p> <p>Explain that colours can be changed in digital images Explain that different colour effects make</p>	<p>Define a 'variable' as something that is changeable Identify examples of information that is variable Explain the way a variable changes can be defined Identify that variables can hold numbers or letters</p> <p>Explain why a variable is used in a program Identify a program variable as a placeholder in memory for a single value</p>	<p>To create a program to run on a controllable device Apply my knowledge of programming to a new environment Test my program on an emulator Transfer my program to a controllable device</p> <p>To explain that selection can control the flow of a program Identify examples of conditions in the real world Use a variable in an if, then, else statement to</p>

		<p>Identify the effect of changing a value Find blocks that have numbers Change the value Say what happens when the value is changed</p> <p>Explain that each sprite has its own instructions Show that a project can include more than one sprite Delete a sprite Add blocks to each of the sprites Design parts of a project Choose appropriate artwork for a project Decide how each sprite will move Create an algorithm for each sprite</p> <p>Use an algorithm to create a program Use sprites that match my design Add programming blocks based on a specific algorithm Test the program</p>	<p>Change the outcome of a sequence of commands</p> <p>Create a program using a given design Work out the actions of a sprite in an algorithm Decide which blocks to use to meet the design Build a sequences of blocks</p> <p>Change a given design Choose backgrounds for the design Choose characters for the design Create a program based on the new design</p> <p>Create a program using a created design Choose the images for the design Create an algorithm Build sequences of blocks to match the design</p> <p>Decide how a project can be improved Compare the project to the design Improve the project by adding features Debug the program</p>	<p>Adapt a program to a new context Use a programming extension Consider the real world when making design choices Choose blocks to set up my program</p> <p>Develop a program by adding features Identify additional features (from a given set of blocks) Build more sequences of commands to make a design work</p> <p>Identify and fix bugs in a program Test a program against a given design Match a piece of code to an outcome Modify a program using a design</p> <p>Design and create a maze-based challenge Make design choices and justify them Implement a design Evaluate a project</p>	<p>you think and feel different things Experiment with different colour effects Explain why I chose certain colour effects</p> <p>Explain how cloning can be used in photo editing Add to the composition of an image by cloning Identify how a photo edit can be improved Remove parts of an image using cloning</p> <p>Explain that images can be combined Experiment with tools to select and copy part of an image Use a range of tools to copy between images Explain why photos might be edited</p> <p>Combine images for a purpose Describe the image that will be created Choose suitable images for a project Create a project that is a combination of other images</p> <p>Evaluate how changes can improve an image Review images against a given criteria Use feedback to guide making changes Combine text and images to complete the project</p>	<p>Explain that a variable has a name and a value Recognise that the value of a variable can be changed</p> <p>Choose how to improve a game by using variables Decide where in a program to change a variable Make use of an event in a program to set a variable Recognise that the value of a variable can be used by a program</p> <p>Design a project that builds on a given example Choose the artwork for a project Create algorithms for a project</p> <p>Use a design to create a project Create the artwork for a project Choose a name that identifies the role of a variable Test the code that has been written</p> <p>Evaluate a project Identify ways that a game could be improved Use variables to extend a game</p>	<p>select the flow of a program Determine the flow of a program using selection</p> <p>To update a variable with a user input Use a condition to change a variable Experiment with different physical inputs Explain that checking a variable doesn't change its value</p> <p>To use a conditional statement to compare a variable to a value Use an operand (e.g. <=>) in an if, then statement Explain the importance of the order of conditions in else, if statements Modify a program to achieve a different outcome</p> <p>To design a project that uses inputs and outputs on a controllable device Decide what variables to include in a project Design the algorithm for a project Design the program flow for a project</p> <p>To develop a program to use inputs and outputs on a controllable device</p>
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								Create a program based on a design Test a program against my design Use a range of approaches to find and fix bugs
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Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>People Who Help Us (Barefoot Computing) Draw information from a simple map</p>	<p>Label objects Describe objects using labels Match objects to groups Identify the label for a group of objects</p> <p>Identify that objects can be counted Count objects Group objects Count a group of objects</p> <p>Describe objects in different ways Describe an object Describe a property of an object Find objects with similar properties</p> <p>Count objects with the same properties Group similar objects Group objects in more than one way Count how many objects share a property</p> <p>Compare groups of objects Choose how to group objects Describe groups of objects Record how many objects are in a group</p>	<p>Recognise that one can count and compare objects using tally charts Record data in a tally chart Represent a tally count as a total Compare totals in a tally chart</p> <p>Recognise that objects can be represented as pictures Enter data onto a computer Use a device to view data in a different format Use pictograms to answer simple questions about objects</p> <p>Create a pictogram Organise data in a tally chart Use a tally chart to create a pictogram Explain what the pictogram shows</p> <p>Select objects by attribute and make comparisons Tally objects using a common attribute Create a pictogram to arrange objects by an attribute Answer 'more than'/'less than' and</p>	<p>Create questions with yes/no answers Investigate questions with yes/no answers Make up a yes/no question about a collection of objects Create two groups of objects separated by one attribute</p> <p>Identify the attributes needed to collect data about an object Select an attribute to separate objects into groups Create a group of objects within an existing group Arrange objects into a tree structure</p> <p>Create a branching database Select objects to arrange in a branching database Group objects using created yes/no questions Test the branching database to see if it works</p> <p>Explain why it is helpful for a database to be well structured Create yes/no questions using given attributes</p>	<p>Explain that data gathered over time can be used to answer questions Choose a data set to answer a given question Suggest questions that can be answered using a given data set Identify data that can be gathered over time</p> <p>Use a digital device to collect data automatically Explain what data can be collected using sensors Use data from a sensor to answer a given question Identify that data from sensors can be recorded</p> <p>Explain that an iPad has sensors and can collect data over time Identify the intervals used to collect data Talk about the data that I have captured</p> <p>Recognise how an iPad can help us analyse data View data at different levels of detail Sort data to find information</p>	<p>Use a form to record information Create a database using cards Explain how information can be recorded Order, sort, and group data cards</p> <p>Compare paper and computer-based databases Explain what a field and a record is in a database Navigate a flat-file database to compare different views of information Choose which field to sort data by to answer a given question</p> <p>Outline how you can answer questions by grouping and then sorting data Explain that data can be grouped using chosen values Group information using a database Combine grouping and sorting to answer specific questions</p> <p>Explain that tools can be used to select specific data Choose which field and value are required to</p>	<p>Create a data set in a spreadsheet Collect data Suggest how to structure data Enter data into a spreadsheet</p> <p>Build a data set in a spreadsheet Explain what an item of data is Choose an appropriate format for a cell Apply an appropriate format to a cell</p> <p>Explain that formulas can be used to produce calculated data Explain which data types can be used in calculations Construct a formula in a spreadsheet Identify that changing inputs changes outputs</p> <p>Apply formulas to data Calculate data using different operations Create a formula which includes a range of cells Apply a formula to multiple cells by duplicating it</p> <p>Create a spreadsheet to plan an event Use a spreadsheet to answer questions</p>

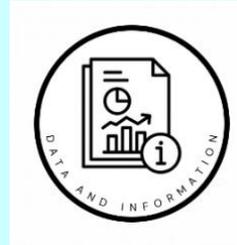
		<p>Answer questions about groups of objects Decide how to group objects to answer a question Compare groups of objects Record and share what is found</p>	<p>'most/least' questions about an attribute</p> <p>Recognise that people can be described by attributes Choose a suitable attribute to compare people Collect the data I need Create a pictogram and draw conclusions from it</p> <p>Explain that we can present information using a device Use an iPad to present information in different ways Share what I have found out using an iPad Give simple examples of why information should not be shared</p>	<p>Compare two branching database structures Understand that questions need to be ordered carefully to split objects into similarly sized groups</p> <p>Plan the structure of a branching database Independently create questions to use in a branching database Create questions that will enable objects to be uniquely identified Create a physical version of a branching database</p> <p>Independently create an identification tool Create a branching database that reflects a plan Work with a partner to test an identification tool Suggest real-world uses for branching databases</p>	<p>Explain that there are different ways to view data</p> <p>Identify the data needed to answer questions Propose a question that can be answered using logged data Plan how to collect data using an iPad Use an iPad to collect data</p> <p>Use data from sensors to answer questions Interpret data that has been collected using an iPad Draw conclusions from the data that I have collected Explain the benefits of using an iPad for collecting data</p>	<p>answer a given question Outline how 'AND' and 'OR' can be used to refine data selection Choose multiple criteria to answer a given question</p> <p>Explain that computer programs can be used to compare data visually Select an appropriate chart to visually compare data Refine a chart by selecting a particular filter Explain the benefits of using a computer to create charts</p> <p>Use a real-world database to answer questions Ask questions that will need more than one field to answer Refine a search in a real-world context Present my findings to a group</p>	<p>Explain why data should be organised Apply a formula to calculate the data needed to answer questions</p> <p>Choose suitable ways to present data Produce a chart Use a chart to show the answer to a question Suggest when to use a table or chart</p>
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Creating Media



Data and Information



Think Like an I.T. Profession

Systems and Networks



Programming





SEND Adaptations for Computing

“For learners with SEND, specific resources or approaches may be required to enable them to access the curriculum. Ensure you have considered what barriers learners have within a lesson and embed support strategies to help them overcome these. If a teacher holds lower expectations of a learner it can have a negative impact on a learner’s achievement in the subject.”

<u>Cognition and Learning</u>	<u>Communication and Interaction</u> <u>Social</u>	<u>Emotional and Mental Health</u>	<u>Sensory and/or Physical</u>
<p>Use stories and real-life experiences of computer science which will be meaningful and relatable to the children.</p> <p>Recap the vocabulary previously learnt.</p> <p>Break the content down into small steps and allow time to step by step build up conceptual understanding. Modelling processes and keep referring to the vocabulary throughout. Adults modelling skills, breaking down activities is key and supporting through over-learning and repetition will help embed skills.</p> <p>Children need to keep encountering the vocabulary as it will empower them and enable them to communicate their ideas effectively at a higher level.</p>	<p>Build relationships with the children to identify opportunities to connect learning to their personal experience or interests.</p> <p>Use children’s names in the class within written or verbal examples to engage them more.</p> <p>Clear and precise names for processes or technology will be supportive.</p> <p>During discussions, listen to answers given and rephrase key vocabulary or content to add understanding.</p> <p>Consider carefully where children are seated to maximise their focus and attention and minimise background noise/distraction.</p> <p>Visual words/cues/phrases.</p>	<p>Ensure that the learning environment is calm and organised for independent use, therefore not encouraging frustration.</p> <p>Ensure that instructions are clear and tasks are broken down to be achievable.</p> <p>Showing a video or demonstration may support children’s understanding.</p> <p>Providing fidgets to allow children to concentrate and listen despite not necessarily looking like they are listening during modelling sessions.</p> <p>Providing a safe space for children within the lesson if needed – this can be accessed through an adult directed or child-initiated time out card.</p>	<p>Consider how inclusive programmes like Scratch are – does the child need screen readers/magnifying aids or similar.</p> <p>Consider the option of the child learning touch typing (using an adapted keyboard) to support visual impairment.</p> <p>Think about whether visual or auditory stimuli needs to be altered for the child.</p> <p>Look at what visuals are included within the programmes being used – is there a diverse range of needs being shown i.e. wheelchair users to send a powerful message to the child.</p> <p>Some children may prefer group learning but for some children this may be too much.</p>

<p>Discuss examples of misconceptions and errors and explain that we learn through mistakes.</p> <p>Chunk key, precise information together and create easy to follow check-lists. This will give the children focus and a clear goal.</p> <p>Gradually reduce the amount of support given once a child becomes more confident.</p>	<p>Repetition and reinforcement – introduce new terms slowly and rehearse them – then try them out in talking partners, writing, questioning etc so that children become very familiar with the words.</p> <p>Giving a processing prompt that a question will be coming, give the question before moving onto a few other children, before coming back for the answer.</p> <p>Simple, step by step instructions verbally and then in a visual prompt sheet if needed.</p> <p>Use of appropriate modelling to support understanding.</p>	<p>Use of positive language to encourage good choice and higher self-esteem.</p> <p>Teaching with empathy and understanding of the child’s needs.</p> <p>Allow sensory/brain breaks as a break from learning.</p> <p>Think about cognitive overload and the child’s ability to cope with this.</p> <p>Ensure that children tidy away the equipment they have used as this can support transitions between the lesson and the end of the lesson.</p>	<p>Adult or IT support may be needed.</p> <p>Through pre-exposure, prior to the Computing lesson, children can gain in confidence and become the ‘expert’ before the lesson even begins.</p> <p>Modelling/demonstrating any concepts.</p>
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