



JOURNEY CURRICULUM

Computing

Our Ultimate End Goal: What will our computing students be able to do when they leave us?

'We need technology in every classroom and in every student and teacher's hand, for it is the pen and paper of our time, and it is the lens through which we experience much of our world'

Our computing curriculum recognises that pupils are living in a rapidly changing world, in which computing is playing an ever increasing role. We aim, therefore, to develop pupils who are responsible, confident and creative users of technology, who apply computational thinking beyond the Computing curriculum.

By the time our children leave Sharley Park, they will:

- Be responsible, confident and creative users of technology, who apply computational thinking beyond the computing curriculum.
- Be digitally literate and are active participants in a digital world.
- Know how to stay safe whilst using technology and on the internet, minimising risk to themselves and others.
- Understand and follow our agreed E-Safety rules, and know who to contact if they have concerns, including the use of report buttons.
- Experience repeated practical tasks writing computer programs in order to solve problems, including logic & algorithms.
- Have the ability to ask and answer questions through collecting, analysing, evaluating and presenting data and information.
- Have a clear understanding how digital networks work and the services they provide.
- Use search options effectively whilst understanding the need to evaluate the relevance of content.
- The children will be respectful, responsible and competent digital citizens; they will have the knowledge to support themselves and others online.

Curriculum Coverage
What are the most basic requirements of our Computing Curriculum?

EYFS

Despite computing not being explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, there are many opportunities for young children to use technology to solve problems, produce creative outcomes, and enable practitioners to effectively prepare children for studying the computing curriculum in their future key stages. Our curriculum aims to find purposeful ways for our children to create with video, photographs, digital images, sound recordings and control devices like floor robots. We also aim to learn social skills, rules and responsible use when using devices and the internet. All of this is done with The Characteristics of Learning in mind, making purposeful links to all areas of learning. See below to explore how our curriculum links with the Early Years Foundation Stage (EYFS) statutory framework.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<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 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 technology purposefully to create, organise, store, manipulate and retrieve digital content</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 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 technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p>Recognise common uses of information technology beyond school</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> <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 how some simple algorithms work 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>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</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>Use technology safely, respectfully and responsibly; 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EYFS Goal	How does Computing fit into this?
<p>Personal, Social and Emotional Development -Managing Self</p> <ul style="list-style-type: none"> - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge; - Explain the reasons for rules, know right from wrong and try to behave accordingly; 	<p>E-Safety;</p> <ul style="list-style-type: none"> - Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. - Play appropriate games on the Internet. - Talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private. <p>Technology in our Lives;</p> <ul style="list-style-type: none"> - Recognise purposes for using technology in school and at home. - Understand that things they create belong to them and can be shared with others using technology. - Recognise that they can use the Internet to play and learn.
<p>Expressive Art and Design – Creating with Materials</p> <ul style="list-style-type: none"> - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; 	<p>Multimedia;</p> <ul style="list-style-type: none"> - Use a mouse to rearrange objects and pictures on a screen. - Recognise text, images and sound when using ICT. - Use a camera or sound recorder to collect photos or sound - Begin to use a keyboard - Develop an interest in ICT by using age appropriate websites or programs.
<p>Communication and Language – Listening, Attention and Understanding</p> <ul style="list-style-type: none"> - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; - Make comments about what they have heard and ask questions to clarify their understanding; 	<p>Programming;</p> <ul style="list-style-type: none"> - Help adults operate equipment around the school. - Use simple software to make things happen - Press buttons on a floor robot and talk about the movements - Explore options and make choices with toys, software and websites <p>Data Collection;</p> <ul style="list-style-type: none"> - Collect information as photos or sound files. - Use a simple pictogram or set of photos to count and organise information.

What key skills and knowledge do we want our children to have?

The skills, knowledge and understanding needed in order to participate fully in an increasingly digital world.

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Information Technology	<p>Computer systems and Networks – Transition To identify technology in the classroom</p> <p>To identify technology in the wider school</p> <p>To understand some basic rules for using technology responsibly</p>	<p>Computing systems and Networks-Technology around us To identify technology</p> <p>To identify a computer and its main parts</p> <p>To use a mouse in different ways</p> <p>To use a keyboard to type on a computer</p> <p>To use the keyboard to edit text</p> <p>To create rules for using technology responsibly</p>	<p>Computing systems and Networks-IT around us To recognise the uses and features of information technology</p> <p>To identify information technology in the home</p> <p>To identify information technology beyond school</p> <p>To explain how information technology benefits us</p> <p>To show how to use information technology safely</p> <p>To recognise that choices are made when using information technology</p>	<p>Computing systems and Networks-Connecting computers To explain how digital devices function</p> <p>To identify input and output devices</p> <p>To recognise how digital devices can change the way we work</p> <p>To explain how a computer network can be used to share information</p> <p>To explore how digital devices can be connected</p> <p>To recognise the physical components of a network</p>	<p>Computing systems and Networks-The Internet To describe how networks physically connect to other networks</p> <p>To recognise how networked devices make up the internet</p> <p>To outline how websites can be shared via the World Wide Web</p> <p>To describe how content can be added and accessed on the World Wide Web</p> <p>To recognise how the content of the WWW is created by people</p> <p>To evaluate the consequences of unreliable content</p>	<p>Computing systems and Networks—systems and searching To explain that computers can be connected together to form systems</p> <p>To recognise the role of computer systems in our lives</p> <p>To recognise how information is transferred over the internet</p> <p>To explain how sharing information online lets people in different places work together</p> <p>To contribute to a shared project online</p> <p>To evaluate different ways of working together online</p> <p>Data and Information-flat-file databases To use a form to record information</p> <p>To compare paper and computer-based databases</p> <p>To apply my knowledge of a database to ask and answer real-world questions</p> <p>To explain that tools can be used to select data to answer questions</p>	<p>Computing systems and Networks-communication and collaboration To explain the importance of internet addresses</p> <p>To explain how data is transferred across the internet</p> <p>To explain how sharing information online can help people work together</p> <p>To evaluate different ways of working together online</p> <p>To recognise how we communicate using technology</p> <p>To evaluate different methods of online communication</p> <p>Data and Information-spreadsheets To create a data set in a spreadsheet</p> <p>To build a data set in a spreadsheet</p> <p>To explain that formulae should be used to produce calculated data</p> <p>To apply formulae to data</p> <p>To create a spreadsheet to plan an event</p>
	<p>Data and Information-Collecting Data To collect information as photos or sound files</p> <p>Begin to use a simple pictogram or set of photos to count information</p> <p>To organise collected information</p>	<p>Data and Information-Grouping data To label objects</p> <p>To identify that objects can be counted</p> <p>To describe objects in different ways</p> <p>To count objects with the same properties</p> <p>To compare groups of objects</p> <p>To answer questions about groups of objects</p>	<p>Data and Information-Pictograms To recognise that we can count and compare objects using tally charts</p> <p>To recognise that objects can be represented as pictures</p> <p>To create a pictogram</p> <p>To select objects by attribute and make comparisons</p> <p>To recognise that people can be described by attributes</p>	<p>Data and Information-Branching databases To create questions with yes/no answers</p> <p>To create a branching Database</p> <p>To explain why it is helpful for a database to be well structured</p> <p>To identify objects using a branching database</p> <p>To identify the object attributes needed to collect relevant data</p> <p>To compare the information shown in a</p>	<p>Data and Information-Data logging To explain that data gathered over time can be used to answer questions</p> <p>To use a digital device to collect data automatically</p> <p>To explain that a data logger collects 'data points' from sensors over time</p> <p>To use data collected over a long duration to find information</p>	<p>Data and Information-spreadsheets To explain that formulae should be used to produce calculated data</p> <p>To apply formulae to data</p> <p>To create a spreadsheet to plan an event</p>	

			To explain that we can present information using a computer	pictogram with a branching database	To identify the data needed to answer questions To use collected data to answer questions	To apply my knowledge of a database to ask and answer real-world questions To apply my knowledge of a database to ask and answer real-world questions	To choose suitable ways to present data
Programming	<p>Programming - operating equipment</p> <p>To help adults operate equipment around the school</p> <p>To use simple software to make things happen</p> <p>To explore options and make choices with toys, software and websites</p>	<p>Programming A- moving a robot</p> <p>To explain what a given command will do</p> <p>To act out a given word</p> <p>To combine forwards and backwards commands to make a sequence</p> <p>To combine four direction commands to make sequences</p> <p>To plan a simple program</p> <p>To find more than one solution to a problem</p> <p>Programming B- animations</p> <p>To choose a command for a given purpose</p> <p>To show that a series of commands can be joined together</p> <p>To identify the effect of changing a value</p> <p>To explain that each sprite has its own instructions</p> <p>To design the parts of a project</p>	<p>Programming A- robot algorithms</p> <p>To describe a series of instructions as a sequence</p> <p>To explain what happens when we change the order of instructions</p> <p>To use logical reasoning to predict the outcome of a program (series of commands)</p> <p>To explain that programming projects can have code and artwork</p> <p>To design an algorithm</p> <p>To create and debug a program that I have written</p> <p>Programming B- programming quizzes</p> <p>To explain that a sequence of commands has a start</p> <p>To explain that a sequence of commands has an outcome</p> <p>To create a program using a given design</p> <p>To change a given design</p> <p>To create a program using my own design</p>	<p>Programming A- sequencing sounds</p> <p>To explore a new programming environment</p> <p>I can identify that each sprite is controlled by the commands I choose</p> <p>To explain that a program has a start</p> <p>To recognise that a sequence of commands can have an order</p> <p>To change the appearance of my project</p> <p>To create a project from a task description</p> <p>Programming B-events and actions in programs</p> <p>To explain how a sprite moves in an existing project</p> <p>To create a program to move a sprite in four directions</p> <p>To adapt a program to a new context</p> <p>To develop my program by adding features</p>	<p>Programming A- repetition in shapes</p> <p>To identify that accuracy in programming is important</p> <p>To create a program in a text-based language</p> <p>To explain what 'repeat' means</p> <p>To modify a count-controlled loop to produce a given outcome</p> <p>To decompose a program into parts</p> <p>To create a program that uses count-controlled loops to produce a given outcome</p> <p>Programming B-repetition in games</p> <p>To develop the use of count-controlled loops in a different programming environment</p> <p>To explain that in programming there are infinite loops and count controlled loops</p> <p>To develop a design which includes two or more</p>	<p>Programming A- selection in physical computing</p> <p>To control a simple circuit connected to a computer</p> <p>To write a program that includes count-controlled loops</p> <p>To explain that a loop can stop when a condition is met, e.g. number of times</p> <p>To conclude that a loop can be used to repeatedly check whether a condition has been met</p> <p>To design a physical project which includes selection</p> <p>To create a controllable system which includes selection</p> <p>Programming B-selection in quizzes</p> <p>To explain how selection is used in computer programs</p> <p>To relate that a conditional statement connects a condition to an outcome</p>	<p>Programming A- variables in games</p> <p>To define a 'variable' as something that is changeable</p> <p>To explain why a variable is used in a program</p> <p>To choose how to improve a game by using variables</p> <p>To design a project that builds on a given example</p> <p>To use my design to create a project</p> <p>To evaluate my project</p> <p>Programming B –sensing movement</p> <p>To create a program to run on a controllable device</p> <p>To explain that selection can control the flow of a program</p> <p>To update the variable with a user input</p> <p>To use a conditional statement to compare a variable to a value</p>

		To use my algorithm to create a program		To identify and fix bugs in a program To design and create a maze based (given) challenge	loops which run at the same time To modify an infinite loop in a given program To design a project that includes repetition To create a project that includes repetition	To explain how selection directs the flow of a program To design a program which uses selection To create a program which uses selection To evaluate my program	To design a project that uses inputs and outputs on a controllable device To develop a program to use inputs and outputs on a controllable device
Digital Literacy	<p style="text-align: center;">Digital Painting</p> <p>To select different colours on a paint program</p> <p>To use basic tools on a paint program</p> <p>To create a paint project for a purpose using a paint program</p> <p style="text-align: center;">Digital Writing</p> <p>To explore digital and unplugged writing in different formats</p> <p>To recognise, identify and find some keys on a keyboard including letters, numbers and the space bar</p>	<p style="text-align: center;">Creating media-digital painting</p> <p>To describe what different freehand tools do</p> <p>To use the shape tool and line tool</p> <p>To make careful choices when painting a digital picture</p> <p>To explain why I used the tools I did</p> <p>To use a computer on my own to paint a picture</p> <p style="text-align: center;">Creating media-digital writing</p> <p>To use a computer to write</p> <p>To add and remove text on a computer</p> <p>To identify that the look of text can be changed on a computer</p> <p>To make careful choices when changing text</p> <p>To explain why I used the tools that I chose</p>	<p style="text-align: center;">Creating media-digital photography</p> <p>To know what devices can be used to take photographs</p> <p>To use a digital device to take a photograph</p> <p>To describe what makes a good photograph</p> <p>To decide how photographs can be improved</p> <p>To use tools to change an image</p> <p>To recognise that images can be changed</p> <p style="text-align: center;">Creating media-digital music</p> <p>To say how music can make us feel (not a computing related progression step)</p> <p>To identify that there are patterns in music</p> <p>To describe how music can be used in different ways</p>	<p style="text-align: center;">Creating media-stop-frame animation</p> <p>To explain that animation is a sequence of drawings or photographs</p> <p>To relate animated movement with a sequence of images</p> <p>To plan an animation</p> <p>To identify the need to work consistently and carefully</p> <p>To review and improve an animation</p> <p>To evaluate the impact of adding other media to an animation</p> <p style="text-align: center;">Creating media-desktop publishing</p> <p>To recognise how text and images convey information</p> <p>To recognise that text and layout can be edited</p> <p>To choose appropriate page settings</p> <p>To add content to a desktop publishing publication</p>	<p style="text-align: center;">Creating media-audio production</p> <p>To identify that sound can be digitally recorded</p> <p>To use a digital device to record sound</p> <p>To explain that a digital recording is stored as a file</p> <p>To explain that audio can be changed through editing</p> <p>To show that different types of audio can be combined and played together</p> <p>To evaluate editing choices made</p> <p style="text-align: center;">Creating media-photo editing</p> <p>To explain that digital images can be changed</p> <p>To change the composition of an image</p> <p>To describe how images can be changed for different uses</p>	<p style="text-align: center;">Creating media-video production</p> <p>To recognise video as moving pictures, which can include audio</p> <p>To identify digital devices that can record video</p> <p>To capture video using a digital device</p> <p>To recognise the features of an effective video</p> <p>To identify that video can be improved through reshooting and editing</p> <p>To consider the impact of the choices made when making and sharing a video</p> <p style="text-align: center;">Creating media-introduction to vector graphics</p> <p>To identify that drawing tools can be used to produce different outcomes</p> <p>To create a vector drawing by combining shapes</p>	<p style="text-align: center;">Creating media-webpage creation</p> <p>To review an existing website and consider its structure</p> <p>To plan the features of a web page</p> <p>To consider the ownership and use of images (copyright)</p> <p>To recognise the need to preview pages</p> <p>To outline the need for a navigation path</p> <p>To recognise the implications of linking to content owned by other people</p> <p style="text-align: center;">Creating media 3D modelling</p> <p>To recognise that you can work in 3D on a computer</p> <p>To identify that digital 3d objects can be modified</p> <p>To recognise that objects can be combined in a 3d model</p>

		<p>To compare writing on a computer with writing on paper</p>	<p>To show how music is made from a series of notes</p> <p>To create music for a purpose</p> <p>To review and refine our computer work</p>	<p>To consider how different layouts can suit different purposes</p> <p>To consider the benefits of desktop publishing</p>	<p>To make good choices when selecting different tools</p> <p>To recognise that not all images are real</p> <p>To evaluate how changes can improve an image</p>	<p>To use tools to achieve a desired effect</p> <p>To recognise that vector drawings consist of layers</p> <p>To group objects to make them easier to work with</p> <p>To evaluate my vector drawing</p>	<p>To create a 3d model for a given purpose</p> <p>To plan my own 3d model</p>
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How do we ensure our children use technology safely?

Our teaching and learning of E-Safety is based on UKCIS framework “Education for a Connected World” (EFACW) through the use of Project Evolve. This covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right through to eighteen.



These outcomes or competencies are mapped to age and are progressive. We cover objectives towards each strand at the start of every computing session, and our PSHE Matters scheme also reflects these strands throughout their objectives. See document ‘Education for a connected world document breakdown’ for further information.

	Autumn 1		Autumn 2	Spring 1	Spring 2		Summer 1	Summer 2
	<p>Self-Image and Identity Shaping online identities and how media impacts on gender and stereotypes</p>	<p>Online Reputation Strategies to manage personal digital content effectively and capitalise on technology’s capacity to create effective positive profiles</p>	<p>Online Relationships Relationships and behaviours that may lead to harm and how positive online interaction can empower and amplify voice. <i>Anti-bullying week this half term</i></p>	<p>Managing Online Information Strategies for effective searching, critical evaluation and ethical publishing <i>Safer Internet day this half term</i></p>	<p>Copyright and Ownership Strategies for effective reporting and intervention and how bullying and other aggressive behaviour relates to legislation</p>	<p>Health, Well-being and Lifestyle The impact that technology has on health, well-being and lifestyle including understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.</p>	<p>Privacy and Security Behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise. <i>National Password Day this half term</i></p>	<p>Online Bullying Protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution. <i>World Friendship day this half term</i></p>
EYFS	I can recognise, online or offline, that anyone can say ‘no’ - ‘please stop’ - ‘I’ll tell’ - ‘I’ll ask’ to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	I can identify ways that I can put information on the internet.	I can recognise some ways in which the internet can be used to communicate. I can give examples of how I (might) use technology to communicate with people I know.	I can talk about how to use the internet as a way of finding information online. I can identify devices I could use to access information on the internet.	I know that work I create belongs to me. I can name my work so that others know it belongs to me.	I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples of these rules.	I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). I can describe who would be trustworthy to share this information with; I can explain why they are trusted.	I can describe ways that some people can be unkind online. I can offer examples of how this can make others feel.
Year 1	I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. If something happens that makes me feel sad, worried,	I can recognise that information can stay online and could be copied. I can describe what information I should not put online without	I can give examples of when I should ask permission to do something online and explain why this is important. I can use the internet with adult support to	I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching.	I can explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. ‘I designed it’ or ‘I filmed it’).	I can explain rules to keep myself safe when using technology both in and beyond the home.	I can explain how passwords are used to protect information, accounts and devices. I can recognise more detailed examples of information that is personal to someone	I can describe how to behave online in ways that do not upset others and can give examples.

	<p>uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.</p>	<p>asking a trusted adult first.</p>	<p>communicate with people I know (e.g. video call apps or services).</p> <p>I can explain why it is important to be considerate and kind to people online and to respect their choices.</p> <p>I can explain why things one person finds funny or sad online may not always be seen in the same way by others</p>	<p>I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke.</p> <p>I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.</p>	<p>I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content).</p> <p>I understand that work created by others does not belong to me even if I save a copy.</p>		<p>(e.g where someone lives and goes to school, family names).</p> <p>I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.</p>	
Year 2	<p>I can explain how other people may look and act differently online and offline.</p> <p>I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.</p>	<p>I can explain how information put online about someone can last for a long time.</p> <p>I can describe how anyone's online information could be seen by others.</p> <p>I know who to talk to if something has been put online without consent or if it is incorrect.</p>	<p>I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country).</p> <p>I can explain who I should ask before sharing things about myself or others online.</p> <p>I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure.</p> <p>I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I</p>	<p>I can use simple keywords in search engines.</p> <p>I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).</p> <p>I can explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri).</p> <p>I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'</p>	<p>I can recognise that content on the internet may belong to other people.</p> <p>I can describe why other people's work belongs to them.</p>	<p>I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.</p> <p>I can say how those rules / guides can help anyone accessing online technologies</p>	<p>I can explain how passwords can be used to protect information, accounts and devices.</p> <p>I can explain and give examples of what is meant by 'private' and 'keeping things private'.</p> <p>I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).</p> <p>I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).</p>	<p>I can explain what bullying is, how people may bully others and how bullying can make someone feel.</p> <p>I can explain why anyone who experiences bullying is not to blame.</p> <p>I can talk about how anyone experiencing bullying can get help.</p>

			<p>am unsure about or don't want to do.</p> <p>I can identify who can help me if something happens online without my consent.</p> <p>I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online.</p> <p>I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.</p>	<p>I can explain why some information I find online may not be real or true.</p>				
Year 3	<p>I can explain what is meant by the term 'identity'.</p> <p>I can explain how people can represent themselves in different ways online.</p> <p>I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.</p>	<p>I can explain how to search for information about others online.</p> <p>I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal.</p> <p>I can explain who someone can ask if they are unsure about putting something online.</p>	<p>I can describe ways people who have similar likes and interests can get together online.</p> <p>I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.</p> <p>I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with.</p>	<p>I can demonstrate how to use key phrases in search engines to gather accurate information online.</p> <p>I can explain what autocomplete is and how to choose the best suggestion.</p> <p>I can explain how the internet can be used to sell and buy things.</p> <p>I can explain the difference between a 'belief', an 'opinion' and a 'fact'. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.</p> <p>I can explain that not all opinions shared</p>	<p>I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.</p>	<p>I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged.</p> <p>I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).</p>	<p>I can describe simple strategies for creating and keeping passwords private.</p> <p>I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult.</p> <p>I can describe how connected devices can collect and share anyone's information with others.</p>	<p>I can describe appropriate ways to behave towards other people online and why this is important.</p> <p>I can give examples of how bullying behaviour could appear online and how someone can get support.</p>

			<p>I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.</p>	<p>may be accepted as true or fair by others (e.g. monsters under the bed).</p> <p>I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.</p>				
Year 4	<p>I can explain how my online identity can be different to my offline identity.</p> <p>I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.</p> <p>I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.</p>	<p>I can describe how to find out information about others by searching online.</p> <p>I can explain ways that some of the information about anyone online could have been created, copied or shared by others.</p>	<p>I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms)</p> <p>I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.</p> <p>I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.</p>	<p>I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.</p> <p>I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites).</p> <p>I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.</p> <p>I can explain why lots of people sharing the same opinions or beliefs online do not</p>	<p>When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.</p> <p>I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.</p>	<p>I can explain how using technology can be a distraction from other things, in both a positive and negative way.</p> <p>I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.</p>	<p>I can describe strategies for keeping personal information private, depending on context.</p> <p>I can explain that internet use is never fully private and is monitored, e.g. adult supervision.</p> <p>I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.</p> <p>I know what the digital age of consent is and the impact this has on online services asking for consent.</p>	<p>I can recognise when someone is upset, hurt or angry online.</p> <p>I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).</p> <p>I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).</p>

				<p>make those opinions or beliefs true.</p> <p>I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be.</p> <p>I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</p>				
Year 5	<p>I can explain how identity online can be copied, modified or altered.</p> <p>I can demonstrate how to make responsible choices about having an online identity, depending on context.</p>	<p>I can search for information about an individual online and summarise the information found.</p> <p>I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.</p>	<p>I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs).</p> <p>I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault.</p> <p>I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups).</p>	<p>I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. I can explain how some technology can limit the information I am presented with.</p> <p>I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'.</p> <p>I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.</p>	<p>I can assess and justify when it is acceptable to use the work of others.</p> <p>I can give examples of content that is permitted to be reused and know how this content can be found online.</p>	<p>I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.</p> <p>I can describe some strategies, tips or advice to promote health and well-being with regards to technology.</p> <p>I recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.</p> <p>I can explain how and why some apps and games may request or take payment for additional content (e.g.</p>	<p>I can explain what a strong password is and demonstrate how to create one.</p> <p>I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.</p> <p>I can explain what app permissions are and can give some examples.</p>	<p>I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences.</p> <p>I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.</p> <p>I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult.</p> <p>I can identify a range of ways to report concerns and access support both in school and at home about online bullying.</p>

			<p>I can explain how someone can get help if they are having problems and identify when to tell a trusted adult.</p>	<p>I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence.</p> <p>I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads.</p> <p>I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers).</p> <p>I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.</p> <p>I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.</p> <p>I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.</p>		<p>in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.</p>		<p>I can explain how to block abusive users. I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).</p>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 6</p>	<p>I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.</p> <p>I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline.</p> <p>I can explain the importance of asking until I get the help needed.</p>	<p>I can explain the ways in which anyone can develop a positive online reputation.</p> <p>I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.</p>	<p>I can explain how sharing something online may have an impact either positively or negatively.</p> <p>I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.</p> <p>I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.</p> <p>I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.</p>	<p>I can explain how search engines work and how results are selected and ranked.</p> <p>I can explain how to use search technologies effectively.</p> <p>I can describe how some online information can be opinion and can offer examples.</p> <p>I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.</p> <p>I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news).</p> <p>I understand the concept of persuasive design and how it can be used to influence peoples' choices.</p> <p>I can demonstrate how to analyse and evaluate the validity of 'facts' and information</p>	<p>I can demonstrate the use of search tools to find and access online content which can be reused by others.</p> <p>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</p>	<p>I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.</p> <p>I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this.</p> <p>I can recognise features of persuasive design and how they are used to keep users engaged (current and future use).</p> <p>I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).</p>	<p>I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser).</p> <p>I can explain what to do if a password is shared, lost or stolen.</p> <p>I can describe how and why people should keep their software and apps up to date, e.g. auto updates.</p> <p>I can describe simple ways to increase privacy on apps and services that provide privacy settings.</p> <p>I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).</p> <p>I know that online services have terms and conditions that govern their use.</p>	<p>I can describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me.</p> <p>I can explain how someone would report online bullying in different contexts.</p>
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				<p>and I can explain why using these strategies are important.</p> <p>I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this.</p> <p>I can identify, flag and report inappropriate content.</p>				
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What key vocabulary do we want our children to use?
Vocabulary is important because it embodies and communicates concepts.

Term	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn Term 1 EYFS: TRANSITION KS1&2: COMPUTING SYSTEMS AND NETWORKS	click, internet, offline, online, username, SMART rules, safe, healthy, iPads, laptop, netbook, computer, technology	technology, computer, mouse/trackpad, keyboard, screen, click, drag, double click, input device, shift, space bar, capital letter, full stop, safely, responsibly	information technology (IT), computer, barcode, scanner/scan	digital device, input, output, process, program, connection, network, network switch, server, wireless access point (WAP)	internet, network, router, network security, network switch, server, wireless access point (WAP), router, website, web page, web address, routing, route tracing, browser, World Wide Web, content, links, files website, use, content, download, sharing, ownership, permission, information, sharing, accurate, honest, content, adverts	system, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration	search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine index, crawler, bot, ranking, search engine optimisation, links, web crawlers searching, content creator, selection, ranking communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround
Autumn Term 2 EYFS: E-SAFETY KS1&KS2: CREATING MEDIA	internet, safe use, behaviours, actions, consequences, positive, negative, strangers, healthy, rules, personal information, choices create, internet, information, share, technology, website	paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, undo tool, Henri Matisse, Wassily Kandinsky, tools, feelings, colour, brush style, Georges Seurat, Pointillism, brush size, pictures, painting, computers, like, prefer, dislike	device, camera, photograph, capture, image, digital, landscape, portrait, horizontal, vertical, field of view, narrow, wide, format, framing, focal point, subject matter, compose, natural lighting, artificial lighting, flash, focus, background, foreground, editing, tools, colour, filter, images, Pixlr, changed, real	animation, flip book, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency evaluation, delete, frame, media, import, transition	audio, record, playback, microphone, speaker, headphones, input, output, sound, start, pause, stop, podcast, save, file, edit, selection, open, save, file mixing, time shift export, MP3, editing, evaluate, feedback	video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, storage, digital, tape, AV (audiovisual), save, videographer, Video techniques: Zoom, pan, tilt, angle, lighting, setting, YouTuber, content, light, audio/sound, camera angle, colour, export, computer, Microsoft Movie Maker, split, trim/clip, edit, titles, end credits, timeline, transitions, audio, soundtrack, content, retake/reshoot (choose agreed language), special effects, constructive feedback	website, web page, browser, media, Hypertext Mark-up Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed

<p style="text-align: center;">Spring Term 3 EYFS, KS1&KS2: CREATING MEDIA</p>	<p>paint, paintbrush, erase, fill, primary colours, shape tools, line tool, fill tool, undo tool, brush size</p>	<p>word processor, keyboard, keys, letters, Microsoft Word, Google Docs, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, cursor, select, font, toolbar, undo</p>	<p>music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instrument, create, open, edit</p>	<p>text, images, advantages, disadvantages, communicate, font, font style, landscape, portrait, orientation, placeholder, template, desktop publishing, copy, paste, layout, purpose, benefits</p>	<p>image, edit, arrange, select, digital, crop, undo, save, search, copyright, composition, pixels, rotate, flip, image, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, vignette, retouch, clone, recolour, magic wand, adjust, sharpen, brighten, fake, real, composite, cut, copy, paste, alter, background, foreground, publication, elements, original, font style, shapes, border, layer</p>	<p>vector, drawing tools, shapes, object, icons, toolbar, move, resize, colour, rotate, duplicate/copy, organise, zoom, select, alignment grid, handles, consistency, modify, layers, front, back, order, copy, paste, group, ungroup, duplicate, reuse, improvement, evaluate, alternatives</p>	<p>2D, 3D, 3D object, 3D space, view, resize, colour, lift rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, design, modify, evaluate, improve</p>
<p style="text-align: center;">Spring Term 4 EYFS: CREATING MEDIA KS1&KS2: DATA & INFORMATION</p>	<p>buttons, computer, equipment, keyboard, keys, monitor, mouse, movement, letters, numbers, space bar, back space, large, small, font</p>	<p>object, label, group, search, image, property, colour, size, shape, value, data set, shape, more, less, most, fewest, least, the same</p>	<p>more than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, compare, count, explain, more common, least common, attribute, group, same, different, most popular, least popular, conclusion, block diagram, sharing</p>	<p>attribute, value, questions, table, objects, branching database, database, equal, even, separate attribute, value, structure, compare, order, organise j2data, selecting pictogram, information, decision tree</p>	<p>data, table (layout), input device, sensor, data logger, logging, data point, interval analyse, data set, import, export logged, collection, review, conclusion</p>	<p>database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation</p>	<p>spreadsheet, data, data heading, data set, cells, columns and rows, data item, object, spreadsheet application, format, common attribute, formula, calculation, spreadsheet, input, output, cell reference, calculate, operation, range, duplicate, sigma propose, question, organised, graph, chart, evaluate, results, comparison, questions, software, tools</p>

<p style="text-align: center;">Summer Term 5 EYFS: DATA & INFORMATION KS1&KS2: PROGRAMMING A</p>	<p>create, share, gather, equipment, explain, push, pulley, buttons, switch on, switch off, instructions</p>	<p>forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program, route</p>	<p>instruction, sequence, clear, unambiguous, algorithm, program, order, commands, prediction, artwork, design, route, mat, debugging</p>	<p>Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, code, run the code, order, note, chord design, algorithm, bug, debug</p>	<p>program, turtle, commands, code snippet, algorithm, design, debug, logo commands (see Glossary handout), pattern, repeat, repetition, count-controlled loop, algorithm, value, trace, decompose, procedure</p>	<p>microcontroller, crumble controller, components, LED, sparkle, crocodile clips, connect, battery box, program, repetition, infinite loop, output devices, motor, count-controlled switch, condition, true, false, input, selection, action, task, design, selection, repetition, algorithm, debug, evaluate</p>	<p>variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, test, debug, improve, evaluate, share</p>
<p style="text-align: center;">Summer Term 6 EYFS: PROGRAMMING KS1&KS2: PROGRAMMING B</p>	<p>computer, keyboard, mouse, screen, smartphone, tablet, control, digital, electronic, game, home, instruction, remote, school, technology, touch, use, on off switch, backwards, forward, instruction, sound, moving</p>	<p>ScratchJr, Bee-Bot, command, compare, programming, programming area, joining, start block, run, program, background, delete, reset, predict, effect, change, value, block, instructions, sprite, delete, program, sprite, background, appropriate</p>	<p>sequence, program, run, start, command, outcome, predict, blocks, Sprite, algorithm, actions, project, design, modify, change, build, match, compare, debug, features, evaluate</p>	<p>motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, event, action, algorithm, debugging, errors, code, setup, test</p>	<p>Scratch, programming, sprite, blocks, code, loop, repeat, value block, forever, infinite loop, count-controlled loop, costume, repetition, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate</p>	<p>selection, condition, true, false, count controlled loop, outcomes, conditional statement - the linking together of a condition and outcomes- algorithm, program, debug question, answer, algorithm, program, task, design, algorithm, input, implement, test, run, setup, share, evaluate, constructive</p>	<p>Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, if... then... else, variable, random, sensing, accelerometer compass, direction, navigation, design, task, algorithm, variable, step counter, plan, create, code, test, debug</p>

Computing Experience Days
What experiences do we want our children to have within Computing?

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Anti-bullying Week Safer Internet Day National Password Day World Friendship Day						
Parent/Carer workshops for using technology and staying safe online	Parent/Carer workshops for using technology and staying safe online	Visit from a game designer, (Sheffield/Sheffield Hallam/Derby University)	Publishing their creations (videos) online. This may be videos on the school website. Junior STEM Lego robotics workshop in school	Coding and robotics workshop in school from Lego	Take part in a STEM fair	Take part in a STEM fair

Our Curriculum Map

EARLY YEARS FOUNDATION STAGE						
	Autumn Term 1 COMPUTING SYSTEMS AND NETWORKS	Autumn Term 2 E-SAFETY	Spring Term 3 CREATING MEDIA	Spring Term 4 CREATING MEDIA	Summer Term 5 DATA AND INFORMATION	Summer Term PROGRAMMING
EYFS	<p>Transition</p> <p>Introduction to computing and e-safety rules SMART to keep us safe and healthy. Introduction to technology in classroom (iPads, SMART board etc) & wider school (ICT suite, laptops)</p> <p>Resources: Penguin Ptg, #Goldilocks, Troll Stinks!</p>	<p>E-Safety</p> <p>Understand healthy uses of technology. Recognise good choices and bad choices. Know the impact of some good choices and consequences of wrong ones.</p>	<p>Digital Painting</p> <p>Select different colours and tools on a paint program for a purpose</p> <p>Resources: Barefoot Computing: Winter Warmers</p>	<p>Digital Writing</p> <p>Explore digital and unplugged writing in different formats. Recognise, identify and find some keys on a keyboard including letters, numbers and the space bar.</p> <p>Resources: Typing Games, Keyboard Activity</p>	<p>Collecting Data</p> <p>Collect information as photos or sound files. Use a simple pictogram or set of photos to count and organise information.</p> <p>Resources: Barefoot Computing: Springtime</p>	<p>Operating Equipment</p> <p>Help adults operate equipment around the school. Use simple software to make things happen. Explore options and make choices with toys, software and websites</p> <p>Resources: Barefoot Computing: Summer Fun</p>
KEY STAGE 1 & 2						
	Autumn Term 1 COMPUTING SYSTEMS AND NETWORKS	Autumn Term 2 CREATING MEDIA	Spring Term 3 CREATING MEDIA	Spring Term 4 DATA AND INFORMATION	Summer Term 5 PROGRAMMING A	Summer Term PROGRAMMING B
Year 1	<p>Technology Around Us E-Safety</p> <p>How tech can help us, parts of computer using keyboard & mouse, using tech responsibly</p> <p>Resources: Paintz app</p>	<p>Digital Painting</p> <p>Create digital paintings based on artists' work</p> <p>Resources: MS Paint, Paintz app</p>	<p>Digital Writing E-Safety</p> <p>Using a word processor</p> <p>Resources: Word, Google Docs, 2Publish, Clicker</p>	<p>Grouping Data E-Safety</p> <p>Grouping and sorting objects, labelling groups</p> <p>Resources: Practical objects, Google slides</p>	<p>Moving a Robot</p> <p>Programming floor robots</p> <p>Resources: BeeBots</p>	<p>Introduction to Animation</p> <p>Programming space race project</p> <p>Resources: Scratch Jr</p>
Year 2	<p>Information Technology Around Us</p> <p>Information tech at school and beyond; how it improves our world and using responsibly</p> <p>Resources: Unplugged / Google Slide sorting activity</p>	<p>Digital Photography E-Safety</p> <p>Capturing, editing and improving photos. Online safety - images may not be real</p> <p>Resources: Tablet device and / or digital camera. Pixlr</p>	<p>Making Music E-Safety</p> <p>Listen to and create music, linking to patterns</p> <p>Resources: Chrome Music Lab</p>	<p>Pictograms E-Safety</p> <p>Sorting and grouping data, pictograms, tally charts and block diagrams</p> <p>When information shouldn't be shared</p> <p>Resources: J2Data 2graph</p>	<p>Robot Algorithms</p> <p>Algorithms, programs, debugging and design</p> <p>Resources: BeeBots</p>	<p>Introduction to Quizzes</p> <p>Creating a simple quiz</p> <p>Resources: Scratch Jr</p>

<p>Year 3</p>	<p>Connecting Computers</p> <p>What is digital device, compare digital and non-digital devices, intro to devices making up network infrastructure</p> <p>Resources: Mainly unplugged/ worksheets Graphics software e.g. Paint</p>	<p>Stop Frame Animation E-Safety</p> <p>Create stop frame animation, story-based animation, adding music and text to animation</p> <p>Resources: Tablets, iMotion, Stop motion studio, 2animate, animation in PPT</p>	<p>Desktop Publishing E-Safety</p> <p>Using text and images to communicate messages, how & why desktop publishing used in real world</p> <p>Resources: Adobe Spark, Canva, MS Publisher, 2Publish</p>	<p>Branching Databases</p> <p>Investigating and creating branching database</p> <p>Resources: J2EBranch, Textease Branch, 2question</p>	<p>Sequence in Music</p> <p>Sequencing and simple programs, exploring motion, sound and event blocks</p> <p>Resources: Scratch</p>	<p>Events and Actions</p> <p>Creating maze using pen blocks and movement</p> <p>Resources: Scratch</p>
<p>Year 4</p>	<p>The Internet E-Safety</p> <p>Apply knowledge of networks to appreciate internet as network or networks. Explore WWW, who owns content and what they can create. Evaluate online content and understand consequences of false information</p> <p>Resources: Internet browser, G Suite traceroute, Chrome music lab</p>	<p>Photo Editing E-Safety</p> <p>How digital images can be changed and edited, resaved and reused. Impact that editing images can have</p> <p>Resources: paint.net, pixabay, befunky, lunapic</p>	<p>Audio Editing E-Safety</p> <p>Recording and playing audio, plan and record a podcast</p> <p>Resources: Audacity on laptop, voice memo recorder on tablet</p>	<p>Data Logging</p> <p>Data collection and analysis using data loggers</p> <p>Resources: Data loggers or apps, Google Science journal</p>	<p>Repetition in Shapes</p> <p>Programming to create shapes and patterns, using repetition and loops</p> <p>Resources: Turtle academy playground, Scratch, Logo</p>	<p>Repetition in Games</p> <p>Exploring repetition in animation and games</p> <p>Resources: Scratch</p>
<p>Year 5</p>	<p>Sharing Information E-Safety</p> <p>Develop understanding of computer systems and how information is transferred between systems and devices. Take part in a collaborative online project</p> <p>Resources: Google slides, Scratch</p>	<p>Video Editing E-Safety</p> <p>Planning, capturing, editing and manipulating video</p> <p>Resources: Video devices e.g. tablets, iPads, video camera, Video Editor (Win 10 app) / iMovie</p>	<p>Vector Drawing</p> <p>Use different drawing tools and create images in layers</p> <p>Resources: Google drawings Aspx draw, drawing tools in Word and PPT</p>	<p>Flat-file Databases</p> <p>Order and answer questions about data in flat-file database. Create graphs and charts</p> <p>Resources: j2data Information Magic, Softease Database</p>	<p>Selection in Physical Computing</p> <p>Using Crumble to control simple model with input (selection) and output</p> <p>Resources: Crumble</p>	<p>Selection in Quizzes</p> <p>Planning, creating and testing a quiz</p> <p>Resources: Scratch</p>
<p>Year 6</p>	<p>Communication E-Safety</p> <p>Using WWW as communication tool. How search engines work, what influences searching; privacy & security</p> <p>Resources: Web browsers, 'unplugged'</p>	<p>Web Page Creation E-Safety</p> <p>Design, create and evaluate own website, paying attention to copyright and fair use of media</p> <p>Resources: Google sites</p>	<p>3D Modelling</p> <p>Produce 3D models, examining the differences between working digitally and 2D and 3D graphics</p> <p>Resources: TinkerCAD (need accounts)</p>	<p>Spreadsheets E-Safety</p> <p>Organising and formatting data in spreadsheets, formulae and graphs</p> <p>Resources: Google sheets or Excel</p>	<p>Variables in Games</p> <p>Variables in scoreboard simulation, design and improve game using variables</p> <p>Resources: Scratch</p>	<p>Sensing</p> <p>Sequence, repetition, selection and variables using Micro:bits</p> <p>Resources: MicroBit (or emulator)</p>

Suggestions of how computing can enhance other areas of the curriculum. These are a collection of ideas that can be added to over the years.

Writing and Reading	Maths	Science	History	Geography	PE	Art
<p>Green Screen – film the children in a setting of your choice</p> <p>Audio books – there are many websites which allow free listening of books</p> <p>Video calls to authors/people of interest via the school Sype and webcam</p> <p>Countdown</p> <p>Pobble</p> <p>Once upon a picture</p>	<p>TT Rockstars</p> <p>Maths Bot</p> <p>Countdown</p>	<p>YouTube/Vimeo video links (Watch carefully)</p> <p>Hubble space telescope</p> <p>NASA</p> <p>European Space Agency</p>	<p>Green screen – go back in time</p> <p>Horrible histories</p> <p>Video call a historian</p>	<p>Google Earth</p>	<p>Videos of sport coaching</p> <p>Analyse performance with slow-motion videos</p>	<p>Virtual gallery tours – visit the Louvre, The Vatican or Tate gallery</p>
DT	French	Music	PSHE	RE	Other	
<p>Algorithms – a set of instructions to make something work</p>		<p>Garage Band</p>	<p>Digital citizenship links</p>	<p>Google Earth – visit famous religious sites</p>	<p>Padlet</p>	

Programs and Apps

Software and hardware overview

Requirements for pupils – below

✓ Used for the unit – reflected in screenshots ● Could be used as an alternative

	Desktop or laptop	Chromebook	Tablet	Software or hardware
1.1 Technology around us	✓	✓	●	paintz.app
1.2 Digital painting	✓	✓	●	Microsoft Paint or similar
1.3 Moving a robot				Bee-Bot, Blue-Bot, or other fixed-movement floor robot
1.4 Grouping data	✓	✓		Google Slides or Microsoft PowerPoint
1.5 Digital writing	✓	✓	●	Google Docs or Microsoft Word
1.6 Programming animations	●	●	✓	ScratchJr
2.1 Information technology around us	✓	✓		Google Slides or Microsoft PowerPoint
2.2 Digital photography	✓		●	Digital camera
2.3 Robot algorithms				Bee-Bot, Blue-Bot, or other fixed-movement floor robot
2.4 Pictograms	✓	✓	●	j2data.Pictogram
2.5 Digital music	✓	✓	●	Chrome Music Lab
2.6 Programming quizzes	●	●	✓	ScratchJr

	Desktop or laptop	Chromebook	Tablet	Software or hardware
3.1 Connecting computers	✓	●	●	Painting program (any)
3.2 Stop-frame animation	●	●	✓	iMotion (app for iOS)
3.3 Sequencing sounds	✓	✓	●	Scratch
3.4 Branching databases	✓	✓	●	j2data Branch and Pictogram
3.5 Desktop publishing	✓	●	●	Canva.com
3.6 Events and actions in programs	✓	✓	●	Scratch
4.1 The internet	✓	✓	✓	Various websites
4.2 Audio production	✓			Audacity
4.3 Repetition in shapes	✓	●	●	FMSLogo
4.4 Data logging	✓	+	+	Data logger and associated software
4.5 Photo editing	✓	●		Paint.NET (for Microsoft Windows)
4.6 Repetition in games	✓	✓	●	Scratch

✓ Used for the unit – reflected in screenshots ● Could be used as an alternative + Data loggers that work with Chromebooks or tablets are available. Check with suppliers.

	Desktop or laptop	Chromebook	Tablet	Software or hardware
5.1 Systems and Searching	✓	✓		Google Slides
5.2 Video production	✓	●	●	Microsoft Photos (for Microsoft Windows 10)
5.3 Selection in physical computing	✓	✓		Crumble controller + starter kit + motor
5.4 Flat-file databases	✓	✓	●	j2data Database
5.5 Introduction to vector graphics	✓	●		Google Drawings
5.6 Selection in quizzes	✓	✓		Scratch
6.1 Communication and collaboration	✓	✓		Google Slides
6.2 Webpage creation	✓	✓		Google Sites
6.3 Variables in games	✓	✓		Scratch
6.4 Introduction to spreadsheets	✓	✓	●	Google Sheets or Microsoft Excel
6.5 3D modelling	✓	✓	●	Tinkercad
6.6 Sensing movement	✓	✓	●	micro:bit and Microsoft MakeCode

✓ Used for the unit – reflected in screenshots ● Could be used as an alternative

Glossary of Terms

algorithm – an unambiguous procedure or precise step-by-step guide to solve a problem or achieve an objective.

bugs – a mistake or problem within a set of code

computer networks – the computers and the connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data using an agreed method ('protocol').

computational thinking – the thinking before the computer does the job itself

control – using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it.

data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer.

debug – to detect and correct the errors in a computer program.

digital content – any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia). **information** – the meaning or interpretation given to a set of data by its users, or which results from data being processed.

input – data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors.

internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate.

logical reasoning – a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules.

output – the information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly through the control of motors in physical systems.

program – a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/ or stored data to generate output.

repetition – a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

search – to identify data that satisfies one or more conditions, such as web pages containing supplied keywords, or files on a computer with certain properties.

selection – a programming construct in which the instructions that are executed are determined by whether a particular condition is met.

sequence – to place programming instructions in order, with each executed one after the other.

services – programs running on computers, typically those connected to the internet, which provide functionality in response to requests; for example, to transmit a web page, deliver an email or allow a text, voice or video conversation.

simulation – using a computer to model the state and behaviour of real-world (or imaginary) systems, including physical and social systems; an integral part of most computer games.

software – computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to web-based services.

variables – a way in which computer programs can store, retrieve or change simple data, such as a score, the time left, or the user's name.

World Wide Web – a service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically.