Nourishing the fitrah of each unique child

Computing Policy

"It is He, Who has created you with hearing, sight and hearts …."
(Saheeh Bukhari: 23:78)

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Computing Policy

In an increasingly digital world, computing plays a crucial role in developing skills, improving communication, sharing information and of course, enhancing learning.

At Unique Academy, it is our aim to help prepare our children for life in a world where technology plays an ever more significant role.

Aims

We aim for children to:

- Enjoy working with computing
- Be able to express themselves and their learning using technology
- Have the opportunity to use computing to enhance and support learning
- Be able to communicate confidently using computing
- Be helped to develop practical computing skills and the ability to apply these skills
- Use computing to develop independent and collaborative skills
- Recognise the power and importance of computing in the world around them
- Understand risks and how to stay safe online
- Have opportunities to use computing resources across the curriculum.
- Learn to respect and look after the equipment available to them and how to store it safely.

We believe that as teachers and support staff, it is our responsibility to:-

- Make our children aware of the benefits and opportunities of using technology, especially to communicate and undertake research
- Enhance and develop our own computing capabilities and knowledge
- Use computing to enhance the quality of teaching and learning across the whole curriculum
- Select and use computing resources appropriately
- Use computing to release any constraints on a pupil's creativity
- Understand the role computing will play in our pupils' lives in the future
- Highlight online risks and model responsible online behaviour

Intent

At Unique Academy, our computing curriculum offers structured lessons to ensure that pupils acquire the knowledge and skills that they need to meet the aims of the national curriculum. Our curriculum content allows for a broad, deep understanding of computing and how it links to children's lives. It offers a range of opportunities for consolidation, challenge and variety. This allows children to apply the fundamental principles and concepts of computer science. They develop analytical problem-solving skills and learn to evaluate and apply information technology. It also enables them to become responsible, competent, confident and creative users of information technology.

Implementation

Our computing lessons ensure that there is opportunity for revision, analysis and problem-solving. Through our sequence of lessons, we intend for pupils to be inspired and see computing as the future. Cross-curricular links between computing and other subject disciplines are also important in supporting other areas of learning.

Our lesson plans and resources help children to build on prior knowledge at the same time as introducing new skills and challenges, which increase as they transition from EYFS, followed by Key Stage 1, Lower Key Stage 2 and then Upper Key Stage 2.

Key vocabulary is used to show progression of the specific language involved in children's learning so that teachers can also assess understanding and progress through vocabulary.

Computing aims to develop children to become digital citizens (who are safe and responsible), digital communicators (who are digitally literate) and digital creators (who are logical and creative).

Impact

We aim for computing to help our pupils develop a range of knowledge and skills. Pupils will use digital and technological vocabulary, alongside a progression in their technical skills. They will be confident using a range of hardware and software and will produce high-quality purposeful products. Children will see the digital world as part of their world, extending beyond school, and understand that they have choices to make. We aim for our pupils to understand the importance of being respectful digital citizens and leading healthy digital lives, now and in the future.

National Curriculum

UA aims to embed computing into the curriculum, and although some skills are taught separately, most will develop through the use of computing in other curricular activities. Our computing long-term objectives are mainly taken from the Computing Scheme of Work overview. These are mapped across each year-group to ensure that any skills taught are progressive. Basic skills are monitored using non-negotiables given to each class, displayed in class and incorporated into lessons.

Assessment outcomes and Record Keeping

Teachers use Target Tracker, which forms the basis for Assessment outcomes and progress tracking every half term and exemplar projects or pieces of assessed work are kept for moderation purposes.

Resources

Unique Academy has laptops in the classroom to support pupils in carrying out Computing in class.

Health and Safety issues

All hardware within the school undergoes regular PAT testing. Hardware is monitored to ensure that they are in good and safe working order.

All staff and pupils must adhere to the Unique Academy's Acceptable Use policy.

The school administrator also keeps a list of children who are not permitted to be photographed.

Security

The school administrator will be responsible for regularly updating antivirus software.
The use of ICT and computing will be in line with the school's 'acceptable use policy as well as 'Online safety policy'.

Parents will be made aware of the schools 'acceptable use policy, which outlines the schools rules for responsible ICT use, the internet as well as the consequences of misuse. This information is detailed in the school's home school agreement.

Cross curricular links

Computing should be incorporated into all subjects, where possible. Computing should be used to support learning in other core and foundation subjects as well as develop computing skills.

Parental involvement

Parents are encouraged to support the implementation of computing where possible by encouraging use of ICT and computing skills at home during home-learning tasks and through the school website. They will be made aware of e-safety and encouraged to promote this at home

Computing Curriculum Map

Class	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
EYFS	Introduction to personal information and technological devices E- Safety	Directional language Beebot	Chronological events Simple algorithms	Drawing using computer tools	Using technology to create characters	Emails Digital drawings Printing
Year 1	Communication lesson Staying safe Networks Drag and drop		Digital citizenship Real world lessons Digital searching Tourism Roaming around London Aerial perspectives		Creating lesson Data and computational thinking Digital world Contribution photographs	
Year 2	Communication lesson Digital citizenship Image search Life in space		Physical interactions Creation Data and computational thinking Networks		Networks Hardware Real world lesson Touring Buckingham Palace	
Cycle A Year 3 / 4	Communication lesson Staying safe Networks		Digital citizenship Physical interactions Hardware Databases		Creation Data and computational thinking Real world	
Cycle B Year 3 / 4	Communication lesson Staying safe Real world		Digital citizenship Physical interactions Digital world		Creation Data and computational thinking Real world Digital searching	
Cycle A Year 5 /6	Communication lesson Staying safe Hardware		Digital citizenship Physical interactions Digital world		Data and computational thinking Networks Digital searching	
Cycle B Year 5 / 6	Communication lesson Staying safe Real world Digital searching		Physical interactions Digital world		Network Hardware Real world	

Progression Map

EYFS Computing			
Three and Four-Year-Olds	Personal, Social and Emotional Development		• Remember rules without needing an adult to remind them.
	Physical Development		• Match their developing physical skills to tasks and activities in the setting.
	The World		• Explore how things work.
Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• 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.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
Pupils should be taught to: • understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions; • create and debug simple programs; • use logical reasoning to predict the behaviour of simple programs; • use technology purposefully to create, organise, store, manipulate and retrieve digital content; • recognise common uses of information technology beyond school; • 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.	Pupils should be taught to: • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; • use sequence, selection, and repetition in programs; work with variables and various forms of input and output; • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs; • understand computer networks including the internet; how they can provide multiple services, such as the world wide web, and the opportunities they offer for communication and collaboration; • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content; • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information; • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Multimedia text and images			Multimedia motion and sound		
KS1	**LKS2**	**UPKS2**	**KS 1**	**LKS 2**	**UPKS2**
Children begin to understand the particular purposes technology can be used for and that by adding text and images you can communicate with technology. Children develop their skills in typing, selecting tools and organising information. **KS1 Computing National Curriculum** Children use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children can: a add text strings, text boxes and show and hide objects and images, manipulating the features; b use various tools, such as brushes, pens, eraser, stamps and shapes, and set the size, colour and shape; c use applications and devices in order to communicate ideas, work, messages and demonstrate control; d save, retrieve and organise work; e use key vocabulary to demonstrate knowledge and understanding in this strand: paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move,	Children develop their skills of formatting using keyboard commands, organising their work to demonstrate effect. In LKS2, they will have the opportunity to express themselves more through digital technology, art, PowerPoint and posters. Children should continue to demonstrate control when operating tools as in KS1. **KS2 Computing National Curriculum** Children 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. They 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. Children can: a create different effects with different technological tools, demonstrating control; b use appropriate keyboard commands to amend text on a device; c use applications and devices in order to communicate ideas, work, and messages; d save, retrieve and evaluate	Children begin to look at new software, creating 3D models and learning how to orbit, zoom and develop their editing skills further. They become more confident in inserting links, images and formatting text to create effect. **KS2 Computing National Curriculum** Children 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. Children can: a use the skills already developed to create content using unfamiliar technology; b select, use and combine the appropriate technology tools to create effect; c review and improve their own work and support others to improve their work; d save, retrieve and evaluate their work, making amendments; e insert a picture/text/graph/h	Children begin to develop their creativity using technology through recording sound. Children will also begin to develop their editing skills and control of the tools. **KS1 Computing National Curriculum** Children use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children can: a use software to record sounds; b change sounds recorded; c save, retrieve and organise work; d use key vocabulary to demonstrate knowledge and understanding in this strand: commands, add sound.	Children develop their editing skills further by cropping, organising and arranging film clips. They are able to share work and offer feedback and ideas for improvement with animation and film, giving their opinion on which software to use. In LKS2, children also look at the history of animation and reflect upon the changes over time. **KS2 Computing National Curriculum** Children 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. Children can: a use software to record, create and edit sounds and capture still images; b change recorded sounds, volume, duration and pauses; c use software to capture video for a purpose; d crop and arrange clips to create a short film; e plan an animation and move items within each animation for playback; f use key vocabulary to demonstrate knowledge and understanding in this strand: audio, sound, video, movie, embed, link, file format, animate, animation, still	Children begin to look more into multimedia broadcasting, learning new skills including recording jingles, podcasts and narration. They become more confident in post-production with editing, trimming and refining their work based on plans they have made. **KS2 Computing National Curriculum** Children 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. Children can: a collect audio from a variety of resources including own recordings and internet clips; b use a digital device to record sounds and present audio; c trim, arrange and edit audio levels to improve quality; d publish their animation and use a movie editing package to edit/refine and add titles; e. use key vocabulary to demonstrate knowledge and understanding in this strand: audio, record,

screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present.	work, making amendments; e insert a picture/text/graph/hyperlink from the internet or a personal file; f use key vocabulary to demonstrate knowledge and understanding in this strand: draw, object, shape, line, line colour, fill colour, group, ungroup, font, size, text box, format, image, wrap text, plan, link, image, object, link, hyperlink, minimise, restore, size, move, screen, split, create, organise, file, folder, close, exit, search, print, password, screenshot, snipping tool, shift, undo, redo, menu, dictionary, highlight, cursor, toolbar, spellcheck.	yperlink from the internet or personal file; use key vocabulary to demonstrate knowledge and understanding in this strand: window, layout, text, font, colour, format, heading, hyperlink, 2D shape, 3D shape, orbit, pan, zoom, eraser, dimension, measurement, guide		image, thaumatrope, zoetrope, zoopraxiscope, stereoscope, flip book, frame, onion skinning, loop, frame rate, record, stop, play, stop motion, stop frame.	edit, play stop, skip, waveform, input, output, record, edit, play podcast, digital content, downloadable, backing track, voiceover, mute, gain, production, post-production, documentary, project, evaluation, screening, ceremony, upload.

Handling data			Technology in our lives		
KS1	**LKS2**	**UPKS2**	**KS 1**	**LKS 2**	**UPKS2**
	Children begin to explore expressing information in tables, sorting and organising information for others to be able to understand. **KS2 Computing National Curriculum** Children 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. Children can: a talk about the different ways data can be organised; b sort and organise information to use in other ways; c search a ready-made database to answer questions; d use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table.	Data Handling in UKS2 focuses on selecting the correct method to display data and using software such as spreadsheets. Children also learn how to check the accuracy of data and compare data for a specific purpose. **KS2 Computing National Curriculum** Children 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. Children can: a construct data on the most appropriate application; b know how to interpret data, including spotting inaccurate data and comparing data; c use keyboard shortcuts and functions to input data on spreadsheets and create formulas for spreadsheets; d add data to an existing database; e. use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table, spreadsheet, cell, row, column, formula/formulas, calculate, format, edit, insert, ascending, descending.	Children begin to make links to how they use technology outside of the classroom. They begin to think about the benefits of using technology in their lives, making links to learning about online safety. **KS1 Computing National Curriculum** Children recognise common uses of technology beyond school. They use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Children can: a recognise ways that technology is used in the home and community, e.g. taking photos, blogs, shopping; b use links to websites to find information; c recognise age-appropriate websites; d use safe search filters; use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, internet, subject, address, communicate, sender, safe, secure.	Children refer to online safety rules when discussing technology in their lives. They are able to navigate between websites and use safe search terms on trusted search engines. They become more confident in using email for communication, including attaching and saving files from emails. **KS2 Computing National Curriculum** Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content. Children can: a explain ways to communicate with others online; b describe the world wide web as the part of the internet that contains websites; c add websites to a favourites list; d use search tools to find and use an appropriate website and content; e use strategies to improve results when searching online; f use key vocabulary to demonstrate knowledge and understanding in this strand: filter Google, search engine, image, keyboard, email, subject, address, communicate, sender, safe, secure, internet, world wide web, social media.	Children can use safe search terms on trusted search engines, and evaluate websites based on layout and information. They become more confident in understanding Google rankings, adverts and the reliability of websites. **KS2 Computing National Curriculum** Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content. Children can: a search for information using appropriate websites and advanced search functions within Google; b use strategies to check the reliability of information (cross-check with another source such as books); c talk about the way search results are selected and ranked; d check the reliability of a website, including the photos on site; e tell you about copyright and acknowledge the sources of information; f. use key vocabulary to demonstrate knowledge and understanding in this strand: world wide web, search, search engine, advanced search, results, Google, browser, terms of use, bias, authority, citation, plagiarism, source, website, secure, https, site, domain, website, browser, address bar.

Coding and Programming

KS1

Children begin to understand their influence on technology by developing their programming skills to determine output. They begin to understand that an algorithm is a series of steps for solving problems and a code is a series of steps that machines can execute. They begin to explore debugging, predicting when codes may not work and changing them.

KS1 Computing National Curriculum

Children understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. They create, debug and use logical reasoning to predict the behaviour of simple programs.

Children can:

- a give commands one at a time to control direction and movement, including straight, forwards, backwards, turn;
- b control the nature of events: repeat, loops, single events and add and delete features;
- c give a set of instructions to follow and predict what will happen;
- d improve/change their sequence of commands by debugging;
- e use key vocabulary to demonstrate knowledge and understanding in this strand: algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink.

LKS2

Children build on their programming skills by solving problems and programming commands to achieve a specific outcome. They begin to write programs, explain algorithms and identify errors in their work.

KS2 Computing National Curriculum

Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children can:

- a use logical thinking to solve an open-ended problem by breaking it up into smaller parts;
- b write a program, putting commands into a sequence to achieve a specific outcome;
- c give a set of instructions to follow and predict what will happen;
- d keep testing a program and recognise when it needs to be debugged;
- e use variables to create an effect, e.g. repetition, if, when, loop;
- f use key vocabulary to demonstrate knowledge and understanding in this strand: decompose, decomposing, logical sequence, flowchart, sprite, block, command, algorithm, answer, correct, errors, program, algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable.

UPKS2

Children build on their programming skills by using new systems such as a flowchart. They continue to break down problems and create algorithms to solve them. They are able to explain the outcome of an algorithm with confidence and accuracy.

KS2 Computing National Curriculum

Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children can:

- a use external triggers and infinite loops to demonstrate control;
- b follow a sequence of instructions, e.g. in a flowchart and modify a flowchart using symbols;
- c use conditional statements and edit variables;
- d decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program;
- e keep testing a program and recognise when it needs to be debugged;
- f use key vocabulary to demonstrate knowledge and understanding in this strand: flowchart, algorithm, control, output, symbol, start, stop, delay, process, decision, loop, backdrop, script, block, repeat, commentary, sequence, consequence, debug, program, Kodu, world, object, tool palette, program environment, smooth, flatten, raise.

Online Safety

KS 1

Children begin to consider their activity on the internet and learn about ways to keep themselves safe and why it is important to do so. They also compare appropriate and inappropriate activity on the internet and decide what to do next.

KS1 Computing National Curriculum

Children can use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Children can:

- a identify what things count as personal information;
- b identify what is appropriate and inappropriate behaviour on the internet;
- c agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords;
- d seek help from an adult when they see something that is unexpected or worrying;
- e demonstrate how to safely open and close applications and log on and log off from websites;
- f use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet.

LKS 2

Children become more aware of their digital footprint by reflecting on their experience on the internet. They are able to understand more about age-appropriate websites and adverts and how adverts are used by companies. Children are also introduced to the concept of plagiarism and citation.

KS2 Computing National Curriculum

Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

Children can:

- a reflect on their own digital footprint and behaviour online;
- b identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying;
- c agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords;
- d seek help from an adult when they see something that is unexpected or worrying;
- e demonstrate understanding of age-appropriate websites and adverts;
- f use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, internet, world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public.

UPKS2

Children are encouraged to identify online risks and share their knowledge of the risks and consequences for people online. They begin to think more critically about what they see online and look at the concept of fake news and false photographs.

KS2 Computing National Curriculum

Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concern about content and contact.

Children can:

- a protect their password and other personal information;
- b be a good online citizen and friend;
- c judge what sort of privacy settings might be relevant to reducing different risks;
- d seek help from an adult when they see something that is unexpected or worrying;
- e discuss scenarios involving online risk;
- g. use key vocabulary to demonstrate knowledge and understanding in this strand: spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal.

EYFS Autumn Term 1				
Weeks (1 hour lesson)	**Lesson Objective (s)**	**Suggested activities and differentiation**	**Resources**	**Assessment outcomes**
Video and Class Discussion	Make children aware of some of the risks to using the internet Teach the children about personal information and the we must keep it safe **Lesson outcomes** Understand what personal information is. To be able to understand the importance of asking for help from an adult when on the internet	Digital citizenship technology - Discuss with the class what they do on the internet. Discuss what some of the dangers are when they are doing these things online – for example who are they talking to when playing online games? Identify what personal information is and relate this discussion to stranger danger. Use the CEOP Thinkuknow resources, based on Hector's World: http://www.thinkuknow.co.uk/5_7/hectorsworld/ Lesson 1 – personal information is special. Discuss this video with the children and include the following questions: ● Why did Ranjeet want to share all of his information? ● Why did Hector & Tama stop him from sharing all of his information? ● What can the children do to protect themselves? Alternative to Hectors World: Professor Garfield: http://www.schooltube.com/video/b8eece2262604671b347/		What do we mean by personal information? Why is personal information special? Who is a trusted adult? Who would you speak to if you needed help on the computer?
Weeks (1 hour lesson)	**Lesson Objective(s)**	**Suggested activities**	**Resources**	**Assessment outcomes**
1	Become familiar with what a computer is and what they can be used for. Understand that devices respond to commands.	Class discussion: What are computers? What can you do with them? What different types are there? 1. Open the resource presentation (ref 1.1) and run through this with the whole class as a carpet time discussion. The presentation will outline the basic workings of a computer. Stress the use of computers as a tool and not just to run content based, or games, software. e.g. Use a word processor to make labels or write a shared note home, use the tools in an art program to create something original, use an art program to design something and make it elsewhere e.g. out of junk. 2. Place a computer or laptop on the carpet with the children and begin to label the computer with post-it notes. Ask the children what they think the different parts do. Sometimes it helps children to teach them skills directly e.g. ask what the buttons on the computer do and then press them to show them.	What is a computer presentation - ref 1.1 Access to laptop Post it notes	What computers do you use at home? What does a computer do? What do you use a computer for? What is a mouse? What is a keyboard? What is the monitor?

2	Talk about their use of ICT and other ways of finding information.	Prior to this task, ask the children to bring in any reclaimed materials such as yogurt pots, cereal and other food boxes, plastic cartons, plastic bottles and milk top lids to create your junk area. 1. Introduce the children to the 'Junk Modelling' area. This area is where the children use various pieces of 'junk' to create something exciting and original. 2. Tell the children they are going to build their own computer. See example pictures (ref 1.2) using cardboard, pots, pens etc. 3. Record the children giving an oral account of their creations and how they use computers/ICT to do things (this could be video or a photo story with pictures and audio). When recording encourage critical thinking and creativity by asking e.g. I wonder how I….What happens if….Do you have any ideas how I can….I saw and it gave me an idea….Do you remember how you found out this worked, I liked the way you…	Photograph examples of junk modelling – ref 1.2 Cardboard, pots, pens etc	What would you use this for? What does this do? Why would we use a computer?
3		Continue and complete work from week 2.		
4	Understand that in addition to touch screens, a keyboard and mouse are tools for navigating a computer and entering text. Play a variety of games that teach mouse control and techniques.	Exploring Inputs! What are inputs? These are simply the means of talking to a computer, the keyboard and mouse are the first that need to be mastered. On the projector use a website modelling using a keyboard, identify and match numbers with the class. Explain that keyboards have all the letters of the alphabet. However they are capital letters. Show the children how to play the typing games. Set the children the task of playing a variety of games that help them to learn keyboard skills and mouse control and techniques. See Ref 1.3 for a list of games.	Keyboard and mouse control game list ref 1.3	What do we mean by input? Can you give me an example of an input?
5	Use a simple paint program to produce a digital drawing.	Exploring Inputs! Open using 'paint packages' presentation (ref 1.4) Using a paint package on a computer/laptop or Tablet, ask the children to draw a picture of how computers are used. Encourage them to show what they think makes the computer work. Show children how to save their pictures as these will be used in the next session. You could also create a classroom display that explains the different parts of a computer and some of the terminology.	Access to laptop Tablet with paint package Paint packages presentation Ref 1.4	How did you do that? How do you change the colour? What do you press to change the brush stroke?
6	Retrieve and open digital files. Use print function to print work.	Exploring Outputs! Ask the children to open their saved work from the previous session and print these out. This session will encourage children to link experiences from one area with another and use computers to produce work. You could ask the children to print off patterns from the computer to use as wrapping paper or print photographs to put in their records or homemade books.	Access to laptop Tablet with paint package and printer	How did you print your work? Why would you print your work?

EYFS Autumn Term 2				
Weeks (1 hour lesson)	**Lesson Objective**	**Suggested activities and differentiation**	**Resources**	**Assessment outcomes**
1	What is directional language? Children to become familiar with the terms 'forwards, backwards, left and right'.	Explain to the class that they are going to learn about directions and will explore the words we use to describe them. Play a game with the children to establish their understanding of directions (forwards, backwards, left and right). Show flash cards (Ref 2.1) or point in different directions and ask children to shout out the correct terminology. Explain how forwards and backwards is different to up and down. Discuss with children when we would use instructions, ask them as well as instructions they follow what else do we give instructions for?	Flashcards Ref. 2.1	What do we mean by direction? What is an instruction?
2	Encourage children to recognise, use and understand directional language. Ensure children can recognise and match the words with the symbol.	Recap on previous lesson. What way is □ What way is □ What way is □ What way is □ Set children a task to match the words to the images. In pairs using the flash cards (Ref 2.1), the child will match the direction their partner is standing in with the arrow and images on the cards.	Flashcards Ref. 2.1	Children able to recognise, use and understand directional language Children able to match correct words with symbols
3	Reinforce prior learning of directional language and encourage the use of the terminology. Introduce the concept of sequencing.	Recap on prior knowledge of directional language. Play a quick game to reinforce the use of directional language. Explain that the process of giving directions is similar to providing instructions and that instructions need to be in a certain order (sequencing). In pairs, ask the children to direct each other using only the terms forwards, backwards, left and right. Prompts can be placed on walls (with the word and symbol). *It must be emphasised when giving instructions that children must turn left or right then move forwards again i.e. rotate their whole body first.*	Bee bots	Children able to recognise, use and understand directional language and begin to sequence instructions. Why do we need instructions? Why is it important to follow instructions? Why is it important to follow instructions in a particular order? Can you think of an example of when you have given instructions?
4	To program a floor robot.	Introduce children to the Bee Bots (floor turtle). Explain how the Bee-Bot will not move unless we give it certain instructions or commands. Children will learn to complete a programme of single instructions.	Bee bots	Children able to perform a simple program on the floor robot.

		Children will also master clearing previous programs before starting a new program. *New terminology – 'clear and go'* Extension - Children could make their own pictures to be placed together to create a map. Then direct each other to different areas on their own maps.		Why does the floor robot do that? What other devices do we use that need programming?
5	Ensure that children recognise that a set of 'step by step' instructions creates a program.	Recap on prior knowledge of directional language. Play a quick game to reinforce the use of directional language, encourage terminology and highlight the need for sequential order. In pairs, mirror the Bee-Bots sequence using the prompt cards to show a visual simple program.	Bee bots	Children able to recognise that a string of instructions or commands placed together can create a simple program. Without this programme then the robot would not move. What happens when we don't follow the instructions?
6	Program a Bee-Bot unaided and annotate a simple program using symbols.	Extend learning of sequencing by giving multiple instructional demands as opposed to single, using the Bee-Bots. Ask children to write down their programs using the symbols as they direct their Bee-Bot	Bee bots	Children able to program a floor robot without the help of an adult and record (in symbols) the program used. What is an instruction? What do we mean by a sequence? Why is it important to follow instructions?

EYFS Spring Term 1				
Weeks (1 hour lesson)	**Lesson Objective(s)**	**Suggested activities and differentiation**	**Resources**	**Assessment outcomes**
1	Introduce children to a story e.g. 'The Very Hungry Caterpillar" By Eric Carle. Identify important components of a book. Children to retell story in their own words.	Begin lesson by introducing a story that you would like the children to retell. Look at the cover of the book – ask the children what they think it is about and what type of story it could be. Ask children to label the different parts of a narrative book – author, illustrator, text, picture and blurb. Read the story of The Very Hungry Caterpillar. Ask children what the story was about in their own words to see if they can remember and identify the main events that happen.	• Chosen story e.g. The Hungry Caterpillar	Children are able to identify the main events in the story and understand the different components that make a book What is an author? What is an illustration?
2	Recap story. Identify and describe days of the week, numbers and food.	Watch YouTube clip to recap story or use Ref 3.1. http://www.youtube.com/watch?v=_4HI7q38VmQ Discuss story in more detail. Ask children to count the fruit as it appears on screen. Ask children to say aloud, the days of the week together. Ask the children to tell you which foods that appear are healthy and unhealthy. Ask the children to group all of the red food for example, Apple and strawberries. What happens to the caterpillar after he has eaten all of the food?	Internet access if using link below. The Very Hungry Caterpillar by Eric Carlle	Children can identify the main events in a story, sequencing them in chronological order. Children can count to 10 with confidence, recite the days of the week and recognise different fruit. Children can categorise and group together.
3	Children will retell the story and sequence events in chronological order with week day and fruit in order of appearance, using flashcards as visual aids.	Discuss with children the basics elements of making a story. It has to have a beginning, middle and an end. Ask children to retell the story, step-by-step in chronological order. In what order does the caterpillar eat the food? Give children parts and arrange them in a line. This line will visually represent the sequence of events. Mix the children up and then tell the story to highlight the fact that it doesn't make any sense, which is why stories are structured in a certain order. For example, the caterpillar has to eat the food to grow and then sleep in the cocoon so it will transform into a butterfly.		As a group, children can identify the main events in The Very Hungry Caterpillar, sequencing them in chronological order, saying what happens in the beginning, middle and end. Why is it important that the story is told in order? What happens if we mix the story up?
4	Children will retell story and sequence events in chronological order and put week days and fruit in order of appearance, using flashcards as visual aids.	Using flash cards (Resource – Ref 3.2) and working in pairs, ask children to plan out the story in the correct chronological order. Leave cards out for kids to do themselves	Flashcards – Ref.3.2	Children can individually identify the main events in The Very Hungry Caterpillar, sequencing them in chronological order, saying what happens in the beginning, middle and end.

5	What is an algorithm? To get children familiar with the meaning of algorithms and the need for them to be precise and accurate	Start the lesson by explaining to the children that an algorithm is simply a sequence of instructions and that humans and computers follow algorithms to complete tasks. Or in other words, follow a list of instructions in order to do something, with orders and decisions. Highlight the fact that these algorithms needs to be precise, accurate and in a step by step order, like a story, or they won't make sense. Give examples of algorithms in relation to the story of The Very Hungry Caterpillar: Starts as a hungry caterpillar, decides he needs food, still hungry so eats more food, and again, and again, in this process he is growing, sleeps in the cocoon and then turns into a beautiful butterfly.		Children able to understand and explain the meaning of an algorithm and the importance of order and accuracy. Children able to identify algorithms in everyday life. What does the term algorithm mean? Why is it important that we follow instructions in a sequence?

EYFS Spring Term 2				
Weeks (1 hour lesson)	**Lesson Objective**	**Suggested activities and differentiation**	**Resources**	**Assessment outcomes**
1	Understand that there are different styles of art and that pictures can be produced on a computer.	**Class discussion:** Using the Art & Artist presentation (search online), explain to the class what an artist is and that artists take their inspiration for their art from what is around them and the things that they are passionate about. Ask the class what they know about artists and do they know any works of art? You could link this to places that the children have visited.	• Art & Artist presentation (search online)	What is an artist? Can you use a computer to produce art?
2	Click, draw and drag objects with more control to create a scene.	**My Favourite Things Part 1** Open the 'My Favourite Thing presentation' (ref 4.2). Demonstrate a PC art application with the class. Tell them to draw their favourite food and the place where they would eat it. When they have done this, make them play a game together by guessing what or whom they have drawn. This helps their drawing and colouring skills develop.	My favourite thing presentation (search online)– Ref.4.2 Tablet app/Mac - Drawing with Carl Tablet app - Hello Colour Pencil PC software - 2paint & 2paint a picture PC software - Revelation Natural Art (Simple) PC software – Splosh PC software – Dazzle	Children can draw on a computer. How did you do that?
3	Use a wider range of tools such as flood fill, spray can.	**My Favourite Things Part 2** Open the 'My Favourite Thing presentation' (ref 4.2). Demonstrate an Tablet art application with the class. Tell them to draw their favourite toy and themselves playing with it. When they have done this, make them play a game together by guessing what or whom they have drawn. This helps their drawing and colouring skills develop.		What app have you used to do that? How did you do that?

4	Click and drag to draw a recognisable picture/portrait.	**My Favourite Things Part 3** Open the 'My Favourite Thing presentation' (ref 4.2). Demonstrate an Tablet art application with the class. Tell them to draw their favourite friend, explain this is called a portrait. When they have done this, make them play a game together by guessing what or whom they have drawn. This helps their drawing and colouring skills develop.		How did you do that? How did you change the colour? How did you change the thickness of the brush?
5	Use a graphics tablet with greater accuracy to draw with abstract shapes. or Use a paint program on a PC with greater control.	**My Favourite Things Part 4** Open the 'My Favourite Thing presentation' (ref 4.2). Demonstrate a PC art application with the class. Tell them to draw their favourite colour. They must use 4 different shapes and 4 different shades of their favourite colour. When they have done this, make them play a game together by guessing what or whom they have drawn. This helps their drawing and colouring skills develop.		How did you draw that? How did you change the colour?
6	Talk with confidence about media use and techniques used to create digital art.	**My Favourite Things Videos & Exhibition** Using the class video camera or Tablet record short videos of the class working on their digital art. Then also record a little video of the children talking about what they created. Ask the children to write a short script of what they would like to say beforehand. This can be used to support Assessment outcomes, uploaded to the school website or used as part of an art exhibition using QR Codes (see extension activity below). Print off and laminate the children's artwork, then these can be hung outside around the playground as an exhibition.	Video camera or Tablet	Children are able to explain how they have produced art using the different programs. How did you do that? What app did you do that in?

EYFS Summer Term 1				
Weeks (1 hour lesson)	**Lesson Objective**	**Suggested activities and differentiation**	**Resources**	**Assessment outcomes**
1	Introduce children to a fantastic tale. Identify important components of a book. Children to retell a story in their own words.	Begin the lesson by introducing the story or fantastic tale that you would like the children to retell. Look at the cover of the book – ask the children what they think it is about and what type of story it could be. Ask children to label the different parts of a narrative book – author, illustrator, text, picture and blurb. Next read the chosen story, for example The 3 Little Pigs. Ask children what the story was about in their own words to see if they can remember and identify the main events that happen.	Chosen book	Children can identify the main events in the story and understand the different components that make a book. What is an author? What is an illustration? What do all stories have? (Beginning, middle and an end)
2	Recap story. Identify and describe characters.	Recap main points that the children identified in the story. Ask children to list the characters that appear in the story. For example: 3 pigs, wolf, mummy pig, man with straw, man with sticks or man with bricks. Use puppets or photos and ask children to describe these characters. Write down all describing words that are used. Talk about different materials, colours, shapes – e.g. bricks are strong. Children can act out different characters and use different voices when pretending to be them.	Puppets or photos	Children can identify the main characters and use describing words to explain their role in the story. What is a character? How would you describe....?
3	Children will retell the story and sequence the events in chronological order and characters in order of appearance.	Discuss with the children the basic elements of making a story. It has to have a beginning, middle and an end. Ask children to retell the story, step-by-step in chronological order. Where do the characters appear in the story? Give children parts and arrange them in a line. This line will visually represent the sequence of events. Mix the children up and then tell the story to highlight the fact that the story now does not make any sense, which is why stories are structured in a particular order. Props can be used and masks can be made.		Children can identify the main events in fantastic tales, sequencing them in chronological order, saying what happens in the beginning, middle and end. Why is the order of the story important? What happens if we change the order of the story?
4	Children to use the camera app on Tablets, puppets or previous art work to create story settings and any characters needed.	Before children can start to begin to record their story they need to design any settings or characters. This can simply be a photograph taken on the Tablets. Children can draw or paint different backgrounds as part of an Art and Design activity prior to this lesson then use the Tablet to photograph their work. In the	Tablet – camera app	Children are able to use the camera to take a photograph using an Tablet.

		same way, they could draw or paint characters. Another option could be to make masks. Then children could wear masks while others take a photograph. This way the children will be part of their own stories. Similarly, puppets or stuffed toys could be used.		
5	Children will use Tablets to cut out and prepare characters and backgrounds to record the retelling of a story in the specific sequence of events.	Demonstrate Puppet Pals on the whiteboard. Explain to the children that any components they need to include in the story must be saved in the camera roll so they have access to them. Select the character they need and cut around it to remove the background. This will test the child's fine motor skills and needs to be done in one continuous motion without their finger leaving the Tablet until the cut is complete. Repeat this process with any other characters that are needed. Import the background they have designed for the setting of the story. Select any backgrounds and characters that are needed for the specific points in the story and experiment with resizing of different characters. For example: Mummy pig will appear bigger than the 3 little pigs. Begin to plan and practice the retelling of the story.	Tablet – Puppet pals app	Children will master skills such as removing a background from their desired character. What app did you use? What did you like about the app?
6	Children will use Tablets to resize, animate and record audio to retell their own fantastic tale.	Once planning is complete, children are then able to begin recording the retelling of their fantastic tale. Encourage children to move their characters as they are recording audio to make it seem more lifelike. Encourage the use of clear, animated voices for the different characters and use sounds effects. For example: knocking on the table when the wolf is trying to enter the little pig's house will imitate knocking on the door. When recording is complete, save their project and export from Puppet Pals into the camera role to then be viewed and used elsewhere, such as on the school website.		Children are able to record their own voice on an Tablet application and play it back. Children are able to manoeuvre and manipulate characters on screen.

EYFS Summer Term 2				
Weeks (1 hour lesson)	**Lesson Objective**	**Suggested activities and differentiation**	**Resources**	**Assessment outcomes**
1	Become familiar with what email means.	**What are emails and email addresses? How are they used?** 1. Open the resource presentation (ref 6.1) and run through this with whole class as a carpet time discussion. The presentation will outline the basic concepts of email. 2. Discussions: What is an email? Ask the children: who has heard of an email? Who has seen somebody at home send an email? (They might say which devices their adults / siblings are using to do so e.g. Smartphone, laptop, tablet), has anyone *here* sent an email? Explain in the simplest terms, to those who are not sure, exactly what an email is i.e. "A message that you write on your computer (or laptop or phone etc.) and send to someone else, so that they can read it on their computer (or laptop or phone etc.)" **Send a letter home to parents:** As children will be given an email address for this activity it is probably best to inform parents. Also request a parent email address so they can be added to the children's contacts.	• What is an email presentation (search online) – Ref 6.1	What is an email? Why do we use email?
2	Talk about their use of ICT and develop rules for the use of emails. Understand there is a set way of communicating via email.	1. Open the resource presentation 'how to set up class emails' (search online) (Ref 6.2). Use (https://tocomail.com) to set up class emails with parent contact email addresses. You may also wish to add contacts for fictitious characters from books the children are reading. This is so children can send questions and have conversations with these fictitious characters. 2. Open the resource presentation and run through this with whole class as a carpet time discussion. 3. Class discussion: What are contacts and who would you talk to? How should you behave when sending emails? Develop 5 classroom rules for sending emails.	• How to set up class emails presentation (search online) – Ref 6.2 • PC/Laptops or Tablets with internet access. • Website - https://tocomail.com	What is an email? Who would you send an email to? What is a contact? Who would you have as a contact?
3	Compose a rough draft of email in set format.	1. Create first email in rough on paper using provided work sheet. (see provided email worksheet (search online)- ref 6.3) 2. Create email display board with the children's rules on. Also include key terms with explanations and example of good work from the hand written rough draft emails.	• Pens, Pencils and Paper • Email worksheet (search online)– Ref 6.3	What are the rules we need to remember before sending an email? Who would you send an email to?
4	Open a website/app and log in after instruction. Compose and send first email.	**Log on and let's get emailing!** Model on the projector the task of sending an email with Toco Mail. The presentation let's get mailing will help (ref 6.4). 1. Give out to the children a slip of paper with their email address and password on. 2. Ask them to open this website https://tocomail.com in the browser or open the Toco Mail app on the Tablet. 3. Then enter their details. 4. Once logged in the children can compose their first emails with drawings added. 5. Send these to the relevant contact. This can be accessed via the web or as an Tablet app.	• Let's get mailing presentation (search online) - Ref 6.4 • PC/Laptops or Tablets with internet access. • Website - https://tocomail.com • Tablet app: TocoMail	What is an email? How did you do that? What happens when we press 'send'? What is an address?
5	Use a simple paint program to produce a digital drawing.	**You've got mail!**	• PC/Laptops or Tablet with internet access.	Who is the email from? What does it ask you to do?

		1. You or parent will have to reply to the child's email. In the reply email you must include a question to answer, the children will have to explore the web to find the answer. 2. Get Children to open their emails, via the app or website. 3. The children must find the answer to the question posed and then reply with suitable email. 4. These can be printed for Assessment outcomes purposes.	• Website - https://tocomail.com • Tablet app: TocoMail	What would you do if it was from a stranger?
6	Retrieve and open digital files. Use print function to print work.	**Take a picture and send!** Get the children to take pictures of the classroom or their work and send these via Toco Mail.	• Digital Cameras or Tablets • PC/Laptops or Tablets with internet access. Website (https://tocomail.com) Tablets app: TocoMail	What have you learnt about emails? Why do we use emails?

Year 1 Computing Scheme of Work
Autumn - Childhood
Basic skills and controlling Beebots

Overview:
The children will learn and recognise common uses of information technology beyond school. They will learn the importance of using 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.

Vocabulary:
device, digital, technology, information, privacy, safety online, server, drag, drop, scan, save, auto-save, webcam

Assessment outcomes:
To assess drag and drop skills, provide them with the Funny Faces drag and drop template and Stages of life drag and drop template on a computer or tablet for the children to access independently.

Lesson objective(s)	Suggested activities and differentiation	Resources
Communication lesson P. of Study Computing 5 Year 1 Recognise common uses of information technology beyond school. P. of Study RHE - Health education 5 Year 1 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 1 Digital technology is used in all parts of everyday life, such as using a tablet to play a game or a microwave to heat food. Some of this digital technology can be used to connect with others locally, such as sharing digital work in the classroom, or globally, such as using Skype on a computer to speak to a friend overseas. Skill(s) Year 1 Explain simply that digital technology can be used to connect with others locally and globally.	**Lesson to teach:** Explain simply that digital technology can be used to connect with others locally and globally. Show various types of digital technology found inside the school and at home.	• Varies types of digital technology • Skype application
Staying safe lesson P. of Study Computing 1 Year 1 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. of Study RHE - Relationships education 3 Year 1 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. 1 Year 1 Being Know about the concept of privacy and the implications of it for both children and adults; including that it is not always right to keep secrets if they relate to being safe. P. of Study RHE - Health education 1 Year 1 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. 1 Year 1 Internet Know where and how to report concerns and get support with issues online. Knowledge Year 1 Private information includes names, addresses, dates of birth or schools and this information should not be shared online. Any concerns or worries should be reported to a trusted adult. Skill(s) Year 1 Recognise that some websites ask for private information and discuss how to handle these requests and where to go for help and support.	**Lesson to teach:** Recognise that some websites ask for private information and discuss how to handle these requests and where to go for help and support.	• Internet access • E-Safety rules
Networks lesson P. of Study Breadth Computing Aims 1 Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. Knowledge Year 1 When work is saved electronically, it can be stored on a hard drive, a shared drive called a server or online so that it can be opened on the same device or another device at a later time. Skill Year 1 Show awareness that work they create and save on a computer or tablet can be shown to others using another device.	**Lesson to teach:** Show awareness that work they create and save on a computer or tablet can be shown to others using another device.	• Microsoft applications • Paint

Enhanced Provision – Technology P. of Study Computing 5 Year 1 Recognise common uses of information technology beyond school. P. of Study RHE - Health education 5 Year 1 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 1 Technology is used in many ways to do different jobs, such as using an interactive whiteboard in the classroom, using a tablet to do online shopping at home or using scanners in a shop in the community. Skill(s) Year 1 Recognise the ways digital technology can be used in the classroom, home and community.	Provide the Funny Faces drag and drop template and Stages of life drag and drop template on a computer or tablet for the children to access independently.	• Computers or tablets

Year 1 Computing Schemes of Work
Spring – Bright Lights, Big City

Overview:
This project teaches children about using appropriate software to complete given tasks using text, images, audio and video clips. They will see that when work is saved electronically, it can be stored on a hard drive, a shared drive called a server or online so that it can be opened on the same device or another device at a later time.

Vocabulary:
virtual tour, search, file, website, copy, paste, images, software, presentation, logic, debug, beebot, roamer, sequence, learning platform

Assessment outcomes:
Children show awareness that work they create and save on a computer or tablet, can be shown to others using another device.

Lesson objective(s)	Suggested activities and differentiation	Resources
Engage - Great Britain A virtual tour of Buckingham Palace P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 To search for digital content, the user needs to know the file name, file type and folder name or keywords and search terms to find the correct information. Skill Year 1 Search for or retrieve digital content, including images and information, in digital folders and online, with supervision.	Visit the official website of The Royal Family and take a virtual tour around rooms at Buckingham Palace. Use the cursor to look up, down and all around. Zoom in and out to look closely at key features and describe what they can see. With supervision, search the web for images of Buckingham Palace and the surrounding area, including The Mall and Hyde Park. Save the images to a digital folder where they can access them later in the project. **Note:** The website also has virtual tours of other royal residences. Show children the family picture from the royal wedding of Prince William and Kate Middleton. Can they remember their virtual tour and identify where the picture was taken? Help the children to select, copy and paste images from the web before saving to a digital folder. At the end of the project, children can insert their digital images collected throughout the project to create a 'visual story' using presentation software.	• Computers or tablets • Software, such as Photo Story
Public transport P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. It can be used to create and combine digital content for different audiences and purposes. Skill Year 1 Select appropriate software to complete given tasks using text, images, audio and video clips.	Use drawing software to draw a vehicle that they would find in London, such as a double decker bus, underground train, black cab, emergency vehicle or bicycle. Save their images and print them on card. Use a sliding mechanism to create a 2-D moving picture of their vehicle travelling on a road or train track. Evaluate their moving pictures and say what they would improve next time. **Note:** Provide a variety of images and videos of typical London transport. Children could also use junk modelling or construction materials to make a 3-D moving model of their vehicle. **Useful links:** • History of London vehicles - London Transport Museum • Museum guide - London Transport Museum	• Scissors and glue sticks
Being part of the action P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. Skill Year 1 Begin to use a range of software for different purposes.	Insert themselves into a royal photograph. Search the web for pictures of the Royal Family at events, such as a royal wedding, the Queen's Diamond Jubilee or the State Opening of Parliament. Open the image in suitable image editing software, such as Paint. Copy and paste a cropped photograph of themselves into the royal picture and become part of the action. **Note:** Use a digital camera or tablet to take photographs of the children. There are two ways they can insert themselves into the royal photograph. 1. Print their photograph, cut around themselves, stick the cut out to the royal photograph and use a scanner to transfer the merged image to the computer. 2. Open the photograph in Paint, Photoshop or a similar program, tick the 'transparent free-form select' tool and use it to 'cut around' their body, then copy and paste the cut out into the royal photograph.	• Printed photographs of the children and the Royal Family

Develop - On the way to the London Eye **Programming language** P. of Study Computing 2 Year 1 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 2 Year 1 Create and debug simple programs. 1 Year 1 Use logical reasoning to predict the behaviour of simple programs. Knowledge Year 1 An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Skill(s) Year 1 Follow a sequence of steps to solve a problem and create instructions that others can follow (for floor robots or onscreen sprites).	Follow a provided program that outlines a route from Buckingham Palace to the London Eye via Big Ben. Practise writing their own programs using clear directional language, swapping with a partner to see how successful they are. Find a way to record the instructions that make up their program. **Note:** An algorithm is a precisely defined sequence of instructions for completing a predefined task. Programs are the steps taken to solve a problem defined by an algorithm. In this case, the algorithm is 'travel from Buckingham Palace to the London Eye via Big Ben'. There is more than one way to do this and each route is a program. Provide children with a program to complete the algorithm such as 'Start at Buckingham Palace, Face east, Forward one, Face south, Forward one, Face east, Forward two.' You could give the children an image of a red London bus to move along the map. Once they have practised following the provided program, ask them to write an alternative program that will complete the same algorithm. You could also recreate the map on the floor or a table and challenge the children to program a toy, such as a Bee-Bot or Roamer, to make it travel the correct route.	• Bee-bot or roamer • Floor map
London landmarks P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. It can be used to create and combine digital content for different audiences and purposes. Skill Year 1 Select appropriate software to complete given tasks using text, images, audio and video clips.	With supervision, search the web for images of landmarks and places they pass on their route from Buckingham Palace to the London Eye. Copy, paste and save the images in their digital folders. **Note:** For example, the children could pass Big Ben, Westminster Abbey and Westminster Bridge. Encourage them to add images to their folder in the order in which they would pass them. • London	
Develop - The Great Fire of London **Travelling to Pudding Lane** P. of Study Computing 2 Year 1 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 2 Year 1 Create and debug simple programs. Knowledge Year 1 An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Mistakes are called bugs and finding and fixing them is called debugging. Skill(s) Year 1 Observe and explore outcomes when buttons are pressed in sequences on a robot and identify and debug a simple algorithm.	Write a program using clear, directional language to complete a new journey from the London Eye to St Paul's Cathedral via the Monument near Pudding Lane, which was built to commemorate the Great Fire of London. Compare programs across the group, predicting where the programs will take them. Use role play to program each other using their instructions. **Note:** Once the children have practised programming on paper, you could provide a prepared onscreen program using software available in school, such as ScratchJr. Ask the children to compare this with their instructions and predict the outcome. Make sure children use logical reasoning when writing their programs. Roamers or Bee-Bots cannot 'jump' in programs the same way cars and other vehicles cannot jump between roads. • London	• Computers or tablets • Floor robots, such as Bee-Bots or Roamers
What can you see? P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. It can be used to create and combine digital content for different audiences and purposes. Skill Year 1 Select appropriate software to complete given tasks using text, images, audio and video clips.	Search the web to collect images of landmarks they will pass on the way to St Paul's Cathedral from the London Eye. Add the images to their digital folder. Use an online map to locate the Monument to the Great Fire of London, which is near Pudding Lane. Zoom in to identify the range of nearby human features. Write a list of the features they spot, then share and compare what they find with the group. **Note:** Encourage the children to zoom in on a high definition photograph of the Monument and read the plaque on its side, which translates the Latin inscription. What does it say about how people remember the fire?	• Computers or tablets

Develop - Living in the city **Travelling to London Zoo** P. of Study Computing 2 Year 1 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 2 Year 1 Create and debug simple programs. 1 Year 1 Use logical reasoning to predict the behaviour of simple programs. Knowledge Year 1 An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Skill(s) Year 1 Follow a sequence of steps to solve a problem and create instructions that others can follow (for floor robots or onscreen sprites).	Write a precise program for the next stage in their journey, which will see them travel from St Paul's Cathedral to London Zoo. Compare their program with alternative programs and work out if all the routes lead to the right destination. Correct any errors in their own and the provided programs to make sure they arrive at London Zoo. **Note:** You will need to give the children programs that take them on different routes to the zoo, including some with errors. There are at least 10 different routes that lead to the zoo. Challenge children to find out which route will take them on the longest and most scenic routes, and the route with the fewest changes in direction. • London	• Computers or tablets • Software, such as Textease Turtle or Scratch
Planning a trip P. of Study Computing 5 Year 1 Recognise common uses of information technology beyond school. P. of Study RHE - Relationships education 3 Year 1 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. P. of Study RHE - Health education 5 Year 1 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 1 Software available online, such as email, social media platforms or blogs, can be made by individuals to communicate their ideas. Skill(s) Year 1 Understand that there are online tools that can help people to create content and communicate.	Visit the London Zoo website to find out what it has to offer its visitors. Go to the 'Plan your day' tab and find the zoo map in the submenu. Move around the map or use 'Search' to select places to visit. Decide which animals or facilities they would like to visit and in which order. Share their tours with others. **Note:** Children can keep track of what's happening at London Zoo by reading its Twitter feed (@zsllondonzoo).	• Images of landmarks • Computers or tablets • Online map software
Connecting with others P. of Study Computing 5 Year 1 Recognise common uses of information technology beyond school. P. of Study RHE - Health education 5 Year 1 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 1 Digital technology is used in all parts of everyday life, such as using a tablet to play a game or a microwave to heat food. Some of this digital technology can be used to connect with others locally, such as sharing digital work in the classroom, or globally, such as using Skype on a computer to speak to a friend overseas. Skill(s) Year 1 Explain simply that digital technology can be used to connect with others locally and globally.	Use Skype or FaceTime to connect and chat with another Year 1 class in a different UK or foreign city. Think about questions that they would like to ask other children about where they live and what life is like for them living in a big city. **Note:** Skype's education website, Skype in the classroom, includes a list of schools and educators from all over the world who are looking to connect with other schools and swap information and stories about their lives and cultural practices. **Before contacting schools, talk to the children about information that should be kept private and who to tell if someone or something upsets them online.** **Alternatively, Cornerstones can put you in touch with other schools in a different part of the UK.**	• Computers or tablets • Webcam • Skype, or similar software application • Skype's education website
Express – Day trip **The story of our project** P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. It can be used to create and combine digital content for different audiences and purposes. Skill Year 1 Select appropriate software to complete given tasks using text, images, audio and video clips.	Use all the photographs and images collected in their digital folder to create a 'visual story' using Photo Story or Movie Maker. Add text and transitions and make sure the story is in chronological order. Show their movie on the school website, learning platform or a school digital display. **Note:** The children will have collected a lot of images during the project so you may need to limit how many they use in their movie. You might put them into groups and get each one to focus on a specific part of the journey. When finished, help the children export their project as a movie file, such as a WMV. Always save your project before exporting as a movie.	• Computers or tablets • Image or video editing software, such as Photo Story or Movie Maker

Year 1 Computing Schemes of Work
Summer – School Days

Overview:
This project teaches children about using technology purposefully to create, organise, store, manipulate and retrieve digital content. They will use logical reasoning to predict the behaviour of simple programs and will recognise the ways digital technology can be used in the classroom, home and community.

Vocabulary:
manipulate, retrieve, digital content, software, logic, scanner, audio, interactive whiteboard

Assessment outcomes:
Assess children by allowing them to devise a sequence of a few steps to solve a problem and create instructions that others can follow (for floor robots or onscreen sprites). Assess knowledge of the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them.

Lesson objective(s)	Suggested activities and differentiation	Resources
Creation lesson P. of Study Computing 6 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 1 Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. It can be used to create and combine digital content for different audiences and purposes. Skill Year 1 Select appropriate software to complete given tasks using text, images, audio and video clips.	**Lesson to teach:** Select appropriate software to complete given tasks using text, images, audio and video clips.	• Microsoft Office
Data and computational thinking lesson P. of Study Computing 2 Year 1 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 2 Year 1 Create and debug simple programs. 1 Year 1 Use logical reasoning to predict the behaviour of simple programs. Knowledge Year 1 An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Skill(s) Year 1 Follow a sequence of steps to solve a problem and create instructions that others can follow (for floor robots or onscreen sprites).	**Lesson to teach:** Follow a sequence of steps to solve a problem and create instructions that others can follow (for floor robots or onscreen sprites).	
Digital world lesson P. of Study Computing 5 Year 1 Recognise common uses of information technology beyond school. P. of Study RHE - Relationships education 3 Year 1 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. P. of Study RHE - Health education 5 Year 1 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 1 Software available online, such as email, social media platforms or blogs, can be made by individuals to communicate their ideas. Skill(s) Year 1 Understand that there are online tools that can help people to create content and communicate.	**Lesson to teach:** Understand that there are online tools that can help people to create content and communicate.	

Technology **Contribution photographs** P. of Study Computing 5 Year 1 Recognise common uses of information technology beyond school. P. of Study RHE - Health education 5 Year 1 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 1 Technology is used in many ways to do different jobs, such as using an interactive whiteboard in the classroom, using a tablet to do online shopping at home or using scanners in a shop in the community. Skill(s) Year 1 Recognise the ways digital technology can be used in the classroom, home and community.	Provide tablets or cameras for the children to take photographs of each other performing their contribution to school life. Assist the children to upload the photographs and add their name and contribution to school life underneath the picture.	• Tablets or cameras • Computers

Year 2 Computing Scheme of Work
Autumn – Movers and Shakers

Overview:
The children will learn to 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. They will use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Vocabulary:
device, digital, digital footprint, technology, information, privacy, safety online, server, drag, drop, scan, save, auto-save

Assessment outcomes:
Give opportunities to children to demonstrate that some information can be found online and some offline.

Lesson objective(s)	Suggested activities and differentiation	Resources
Communication lesson P. of Study Computing 2 Year 2 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. of Study RHE - Relationships education • 1 Year 2 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 2 Year 2 Online Know how to critically consider their online friendships and sources of information including awareness of the risks associated with people they have never met. • 1 Year 2 Being Know what sorts of boundaries are appropriate in friendships with peers and others (including in a digital context). • 2 Year 2 Being Know how to respond safely and appropriately to adults they may encounter (in all contexts, including online) whom they do not know. P. of Study RHE - Health education o 3 Year 2 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 2 Digital technology, such as email, social media platforms or blogs, can be used by individuals to communicate and connect with others but should be used appropriately, including using language that is not hurtful or disrespectful to others, having adult supervision or following the school's acceptable use policy. Skill(s) Year 2 Use digital technology appropriately to communicate and connect with others locally and globally.	**Lesson to teach:** Use digital technology appropriately to communicate and connect with others locally and globally.	• Varies types of digital technology
Digital Citizenship lesson P. of Study Breadth Computing 1 Year 2 Aims Be responsible, competent, confident and creative users of information and communication technology. P. of Study RHE - Relationships education 2 Year 2 Online Know how information and data is shared and used online. P. of Study RHE - Health education 1 Year 2 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. Knowledge Year 2 A digital footprint is the information that exists on the internet, following a user's online activity. Skill(s) Year 2 Recognise that information put online leaves a digital footprint.	**Lesson to teach:** Recognise that information put online leaves a digital footprint.	• Internet access • E-Safety rules

Enhanced Provision – Technology **Image search** P. of Study Computing 7 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 2 A device is online if it is connected to the internet or a network and can communicate with other devices. A device is offline if it is not connected to the internet or network and cannot connect to other devices. Skill Year 2 Recognise and demonstrate that some information can be found online and some offline.	Provide computers or tablets and ask children to find images of transport used by great explorers, such as the *Santa Maria*, the *Fram* and *Saturn V*. Ask them to copy and print the images before putting them in chronological order.	• Computers or tablets
Enhanced Provision – Investigation **Life in space** P. of Study Computing 7 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 2 A device is online if it is connected to the internet or a network and can communicate with other devices. A device is offline if it is not connected to the internet or network and cannot connect to other devices. Skill Year 2 Recognise and demonstrate that some information can be found online and some offline.	Ask the children to investigate what it is like to live in space using the NASA website.	

Year 2 Computing Schemes of Work
Spring – Coastline

Overview:
This project teaches children about using appropriate software to complete given tasks using text, images, audio and video clips. They will see that when work is saved electronically, it can be stored on a hard drive, a shared drive called a server or online so that it can be opened on the same device or another device at a later time. They will understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions.

Vocabulary:
virtual tour, search, file, website, copy, paste, images, software, presentation, logic, debug, beebot, roamer, sequence, learning platform

Assessment outcomes:
Assess their knowledge of planning and entering a sequence of instructions using a robot, specifying distance and angle of turn. They show awareness that the school network links computers to allow the sharing of resources.

Lesson objective(s)	Suggested activities and differentiation	Resources
Physical interactions lesson P. of Study Computing 2 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Knowledge Year 2 Robots can be programmed to follow a series of instructions using algorithms. Skill Year 2 Plan and enter a sequence of instructions using a robot, specifying distance and angle of turn.	**Lesson to teach:** Plan and enter a sequence of instructions using a robot, specifying distance and angle of turn.	• Computers or tablets • Robot
Creation lesson P. of Study Computing 7 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 2 Multimedia components, such as text, images, audio and video clips, can be created, edited and combined to create content for a range of tasks. Skill Year 2 Create and edit multimedia components for a range of tasks.	**Lesson to teach:** Create and edit multimedia components for a range of tasks.	• Digital devices
Data and computational thinking lesson P. of Study Computing • 2 Year 2 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • 1 Year 2 Create and debug simple programs. • 1 Year 2 Use logical reasoning to predict the behaviour of simple programs. Knowledge Year 2 Computers' behaviour can be predicted and the outcome tested by following the steps of an algorithm and recognising that the computer will follow instructions precisely. Skill(s) Year 2 Create a simple solution that tests an idea, predict the outcome and test and debug the solution to ensure that it works.	**Lesson to teach:** Create a simple solution that tests an idea, predict the outcome and test and debug the solution to ensure that it works.	
Networks lesson P. of Study Computing 2 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. Knowledge Year 4 A school network has computers that are connected together so they can share hardware, software and data. Skill Year 4 Recognise that the school network links computers to allow the sharing of resources.	**Lesson to teach:** Recognise that the school network links computers to allow the sharing of resources.	• School network with network devices

Year 2 Computing Schemes of Work
Summer – Magnificent Monarchs

Overview:
This project teaches children about

Vocabulary:
Bluetooth, retrieval, digital content, mental well-being, hardware, virtual tour

Assessment outcomes:
Children show awareness that they can select appropriate software to complete given tasks using text, images, audio and video clips.

Lesson objective(s)	Suggested activities and differentiation	Resources
Networks lesson P. of Study Computing 7 Year 2 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. P. of Study RHE - Relationships education 2 Year 2 Online Know how information and data is shared and used online. Knowledge Year 2 Computers and devices can be linked in different ways, such as through a network, the internet and Bluetooth. This allows for the sharing of resources. Skill(s) Year 2 Recognise that computers can be linked to share resources and digital content can be stored, organised and retrieved.	**Lesson to teach:** Recognise that computers can be linked to share resources and digital content can be stored, organised and retrieved.	• Digital Devices
Hardware lesson P. of Study Computing 7 Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowledge Year 2 Hardware, such as cameras, scanners and data loggers, can be used to collect data. Skill Year 2 Use computing hardware in different ways to collect data.	**Lesson to teach:** Use computing hardware in different ways to collect data.	• Digital devices
Real world lesson P. of Study Computing 2 Year 2 Recognise common uses of information technology beyond school. P. of Study RHE - Health education 3 Year 2 Internet Know that for most people the internet is an integral part of life and has many benefits. Knowledge Year 2 Digital technology is used in everyday life and can be used to support learning and connect with others. Skill(s) Year 2 Recognise why digital technology is used in the classroom, home and community.	**Lesson to teach:** Recognise why digital technology is used in the classroom, home and community.	
Technology **Touring Buckingham Palace** P. of Study Computing 2 Year 2 Recognise common uses of information technology beyond school. P. of Study RHE - Health education • 3 Year 2 Internet Know that for most people the internet is an integral part of life and has many benefits. • 1 Year 2 Internet Know about the benefits of rationing time spent online, the risks of excessive time spent on electronic devices and the impact of positive and negative content online on their own and others' mental and physical wellbeing. Knowledge Year 2 The internet is used to connect computers or devices around the world. The internet is an important part of life for many people. However some people spend too much time on devices, which can have a negative impact on people's mental and physical health. Skill(s) Year 2 Recognise some uses of the internet, in simple terms and some of its benefits and drawbacks.	Provide computers or tablets for children to explore areas and rooms of Buckingham Palace using the Royal Collection Trust and The Royal Family websites.	• Tablets • Computers

Cycle A: Year 3 / 4 - Computing Scheme of Work
Autumn - Through the ages

Overview:
Children will learn to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. They will understand that personal information, such as full name, age, school and address, should not be shared online.

Vocabulary:
Online content, personal data, USB, shared drive, server, storage device, hard drive

Assessment outcomes:
Allow children to retrieve saved work from another device on the same network. Quiz the children on the importance of keeping safe online.

Lesson objective(s)	Suggested activities and differentiation	Resources
Communication lesson P. of Study Computing 2 Year 3 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 1 Year 3 Online Know that people sometimes behave differently online, including by pretending to be someone they are not. • 2 Year 3 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 1 Year 3 Online Know how to critically consider their online friendships and sources of information including awareness of the risks associated with people they have never met. P. of Study RHE - Health education • 1 Year 3 Internet Know that for most people the internet is an integral part of life and has many benefits. • 1 Year 3 Internet Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. Knowledge Year 3 Advantages of communicating electronically are that it is available at any time, instant and global. Disadvantages include easier misunderstandings, people pretending to be someone they are not, lack of privacy (once something is published online, it cannot be removed) and a threat to personal safety (access to personal information). Concerns should be reported to a trusted adult. Skill(s) Year 3 Explain the advantages and disadvantages of communicating electronically and strategies for preventing issues.	**Lesson to teach:** Explain the advantages and disadvantages of communicating electronically and strategies for preventing issues.	• Computers or tablets • Internet access
Staying safe lesson P. of Study Computing • 2 Year 3 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 2 Year 3 Online Know how information and data is shared and used online. • 1 Year 3 Being Know what sorts of boundaries are appropriate in friendships with peers and others (including in a digital context). • 1 Year 3 Being Know about the concept of privacy and the implications of it for both children and adults; including that it is not always right to keep secrets if they relate to being safe. P. of Study RHE - Health education • 2 Year 3 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. Knowledge Year 3 Images and data should not be shared online without the permission of the owner. Personal information, such as full name, age, school and address, should not be shared online. Skill(s) Year 3 Describe simple rules for sharing images and data safely.	**Lesson to teach:** Describe simple rules for sharing images and data safely.	

Networks lesson P. of Study Computing • 1 Year 3 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. of Study RHE - Relationships education • 2 Year 3 Online Know how information and data is shared and used online. Knowledge Year 3 When work is saved, it is stored on a storage device, such as the computer's hard drive, a USB flash drive, a shared server or online. This work can then be retrieved from another device (except if it is saved on the computer's hard drive). Skill(s) Year 3 Recognise that saved work can be retrieved from another device on the same network.	**Lesson to teach:** Recognise that saved work can be retrieved from another device on the same network.	• Access to school intranet • Shared drives

Cycle A: Year 3 / 4 - Computing Scheme of Work
Spring - Rocks, Relics and Rumbles

Overview:
Children will learn to be responsible, competent, confident and creative users of information and communication technology. They will design, write and enter a sequence of instructions using a robot or other device to achieve specific outcomes. They will use a range of different software to successfully complete a project.

Vocabulary:
Online relationships, anonymous, online communication, variables, input, output, robot, algorithm

Assessment outcomes:
Assess children's familiarity with using a particular type of computer hardware to successfully complete a task. Quiz children about the advantages of using a database and assess how they use the filtering and search functions to allow users to query and sort information quickly and easily.

Lesson objective(s)	Suggested activities and differentiation	Resources
Digital citizenship lesson P. of Study Breadth Computing 1 Year 3 Aims Be responsible, competent, confident and creative users of information and communication technology. P. of Study RHE - Relationships education • 1 Year 3 Relationships Know that in school and in wider society they can expect to be treated with respect by others, and that in turn they should show due respect to others, including those in positions of authority. • 2 Year 3 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 1 Year 3 Being Know how to respond safely and appropriately to adults they may encounter (in all contexts, including online) whom they do not know. P. of Study RHE - Health education 2 Year 3 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. Knowledge Year 3 As with face to face communication, online communication should be done respectfully and responsibly, considering the impact on others. Skill(s) Year 3 Compose clear and appropriate messages in online communities.	**Lesson to teach:** Compose clear and appropriate messages in online communities.	• Computers or tablets • Access to internet
Physical interactions lesson P. of Study Computing • 1 Year 3 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 2 Year 3 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Knowledge Year 3 Sequencing instructions is the step-by-step process that robots or other devices follow to achieve specific outcomes. This can be a single algorithm or series of algorithms called a program. Skill(s) Year 3 Design, write and enter a sequence of instructions using a robot or other device to achieve specific outcomes, debugging if necessary.	**Lesson to teach:** Design, write and enter a sequence of instructions using a robot or other device to achieve specific outcomes, debugging if necessary.	• Robots • Control software

Hardware lesson P. of Study Computing 2 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Knowledge Year 3 Several pieces of hardware can be used together to complete one task, such as using a camera to take a photograph, uploading it to a computer and then printing it using a printer. Skill Year 3 Use familiar computer hardware to successfully complete a task.	**Lesson to teach:** Use familiar computer hardware to successfully complete a task.	
Develop - Volcanoes **Lesson 6: Databases** P. of Study Computing 3 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. Knowledge Year 3 Several pieces of software can be used together to complete one task, such as adding a video to a word processed document. Specific knowledge Year 3 A database is a collection of electronic data that can be searched, selected and stored. Skill Year 3 Use a range of different software to successfully complete a project.	Explain to the children that they will be using their volcano facts to create a collaborative database about volcanoes. Show the children how to open a piece of suitable database-creating software, such as i2data, and create database fields using the information they have gathered. Encourage them to input the data carefully and then challenge them to find specific information from the database. At the end of the session, talk about the advantages of using a database and how the filtering and search functions allow users to query and sort information quickly and easily.	• Computer or tablet • Web access

Cycle A: Year 3 / 4 – Computing Scheme of Work
Summer - Emperors and Empires

Overview:
Children will learn to combine a range of text, images, animation and audio and video clips for given purposes. They will develop an understanding to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Vocabulary:
computational thinking, animation, microphone, sensor

Assessment outcomes:
Assess the children by instructing them to devise, plan and implement a project to exhibit their computational skills. Assess their knowledge of using 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.

Lesson objective(s)	Suggested activities and differentiation	Resources
Creation lesson P. of Study Computing 3 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. Knowledge Year 3 Text, images, animation, audio and video clips can be combined using tools within a piece of software or by using a range of software. For example, an image could be inserted into a word processing document or a video could be inserted into a presentation. Skill Year 3 Combine a range of text, images, animation and audio and video clips for given purposes.	**Lesson to teach:** Combine a range of text, images, animation and audio and video clips for given purposes.	• Computers or tablets • Internet access
Data and computational thinking lesson P. of Study Computing 1 Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Knowledge Year 3 Repetitions or loops can be used in programming where a computer will continue to run part of a program a number of times or until a condition is met, using the term 'repeat... until'. The given feedback can be used to identify and correct any mistakes in the program. Skill Year 3 Identify and use repetitions or loops in a program sequence, predicting outcomes and noticing and correcting any mistakes.	**Lesson to teach:** Identify and use repetitions or loops in a program sequence, predicting outcomes and noticing and correcting any mistakes.	
Real world lesson P. of Study Computing 3 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. Knowledge Year 3 Some programs or apps have special types of technology, such as a built in camera or microphone, or sensors that measure light level, temperature or sound level. Skill Year 3 Log light level, temperature or sound level using a program or app.	**Lesson to teach:** Log light level, temperature or sound level using a program or app.	• digital devices • built in camera or microphone, or sensors

Cycle A: Year 5 / 6 – Computing Scheme of Work
Autumn - Dynamic Dynasties

Overview:
Children will be able to **d**iscuss the impact that digital content can have and why it is important to discuss their use of technology with an adult. They will apply computing skills using unfamiliar hardware to solve a problem successfully. They will also apply their computing skills using unfamiliar hardware to solve a problem successfully.

Vocabulary:
online abuse, trolling, bullying, harassment, mental wellbeing, physical wellbeing

Assessment outcomes:
Quiz the children on appropriate online behaviour and apply a range of strategies to protect themselves and others from potential online dangers, inappropriate behaviour and bullying. Assess their computing skills using unfamiliar hardware to solve a problem successfully.

Lesson objective(s)	Suggested activities and differentiation	Resources
Communication lesson P. of Study Computing2 Year 5 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 1 Year 5 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 2 Year 5 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. • 1 Year 5 Being Know how to report concerns or abuse, and the vocabulary and confidence needed to do so. P. of Study RHE - Health education • 1 Year 5 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. • 2 Year 5 Internet Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. • 1 Year 5 Internet Know where and how to report concerns and get support with issues online. Knowledge Year 5 Working online requires a level of responsibility and strategies to stay safe, including protecting private information and accounts. This enables people to protect themselves and others from potential online dangers, inappropriate behaviour and bullying. Any concerns should be reported to a trusted adult, the police or child protection organisations. Skill(s) Year 5 Demonstrate appropriate online behaviour and apply a range of strategies to protect themselves and others from potential online dangers, inappropriate behaviour and bullying.	**Lesson to teach:** Demonstrate appropriate online behaviour and apply a range of strategies to protect themselves and others from potential online dangers, inappropriate behaviour and bullying.	• Computers or tablets • Internet access
Staying safe lesson P. of Study Computing2 Year 5 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 2 Year 5 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. • 1 Year 5 Online Know how to critically consider their online friendships and sources of information including awareness of the risks associated with people they have never met. P. of Study RHE - Health education • 1 Year 5 Internet Know about the benefits of rationing time spent online, the risks of excessive time spent on electronic devices and the impact of positive and negative content online on their own and others' mental and physical wellbeing. • 2 Year 5 Internet Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. Knowledge Year 5 Digital content can affect others and be available to anyone. Digital content is traceable, which means it can be tracked to the person who created it. To stay safe, it is important to discuss technology use with a trusted adult. Skill(s) Year 5 Discuss the impact that digital content can have and why it is important to discuss their use of technology with an adult.	**Lesson to teach:** Discuss the impact that digital content can have and why it is important to discuss their use of technology with an adult.	

Hardware lesson **P. of Study Computing** • 3 Year 5 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 3 Year 5 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. **Knowledge Year 5** Using prior knowledge and experience of computing skills can be applied to unfamiliar hardware to solve a problem successfully. **Skill(s) Year 5** Apply computing skills using unfamiliar hardware to solve a problem successfully.	**Lesson to teach:** Apply computing skills using unfamiliar hardware to solve a problem successfully.	

Cycle A: Year 5 / 6 Computing Schemes of Work
Spring - Sow, Grow and Farm

Overview:
The children will understand the importance of citations when referring online content in their pieces of work. They will use a range of sensors to control a physical system and will create an online collaborative project for a specific purpose, sharing documents and appropriately setting permissions for other children in their class.

Vocabulary:
Website design, plagiarism, citation, physical system, simulation, settings

Assessment outcomes:
Assess their computational knowledge by analysisng their online collaborative projects to see if they can be shared with different permission settings, and if privacy settings have been accordingly to the different share members.

Lesson objective(s)	Suggested activities and differentiation	Resources
Digital citizenship lesson P. of Study Breadth Computing Aims 1 Be responsible, competent, confident and creative users of information and communication technology. Knowledge Year 5 Citing sources is giving credit to the person or website that created the information. Using someone else's work without citing it is called plagiarism and is a form of cheating. Skill Year 5 Cite all sources when researching and explain why sources should be provided.	**Lesson to teach:** Cite all sources when researching and explain why sources should be provided.	• Computers or tablet • Internet access • Various websites
Physical interactions lesson P. of Study Computing • 3 Year 5 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 3 Year 5 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Knowledge Year 5 Sensors can be combined to control a physical system, such as using motion, light and sound sensors to control a road network of traffic lights and level crossings. Skill(s) Year 5 Use a range of sensors to control a physical system.	**Lesson to teach:** Use a range of sensors to control a physical system.	• sensors
Digital world lesson P. of Study Computing 2 Year 5 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. of Study RHE - Relationships education 2 Year 5 Online Know how information and data is shared and used online. Knowledge Year 5 Online collaborative projects can be shared with different permission settings, such as who can view, edit or comment on the documents. Privacy settings can be restricted to those who are invited, those who have access to the link or can be made open to the public. Skill(s) Year 5 Create an online collaborative project for a specific purpose, sharing documents and appropriately setting permissions for other group members.	**Lesson to teach:** Create an online collaborative project for a specific purpose, sharing documents and appropriately setting permissions for other group members.	

Cycle A: Year 5 / 6 Computing Schemes of Work
Summer - Ground-breaking Greeks

Overview:
Children will develop their knowledge of designing, writing and debugging simple algorithms. They will compare the uses of the internet and the school's intranet. They will use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Vocabulary:
Logical reasoning, operation, commands, cable fibre, wireless link, authenticity, reliability, security, independence

Assessment outcomes:
Assess the children's knowledge of discerning various websites looking for their authenticity, reliability and security. They will further develop their knowledge in writing simple algorithms.

Lesson objective(s)	Suggested activities and differentiation	Resources
Data and computational thinking lesson P. of Study Computing • 3 Year 5 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 3 Year 5 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • 1 Year 5 Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Knowledge Year 5 Sequences of instructions (algorithms) that contain IF, THEN and OTHERWISE statements are called selections. The computer will complete operations based on whether the conditions of these selections are met or not. Skill(s) Year 5 Design, write and debug simple sequences of instructions (algorithms), including IF, THEN and OTHERWISE commands, to decide if something is true or false.	**Lesson to teach:** Design, write and debug simple sequences of instructions (algorithms), including IF, THEN and OTHERWISE commands, to decide if something is true or false.	• Computers or tablets • Internet access
Networks lesson P. of Study Computing 2 Year 5 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. of Study RHE - Relationships education 2 Year 5 Online Know how information and data is shared and used online. Knowledge Year 5 Computer networks are made up of computers that are connected by cables, fibres or wireless links. Each network can only be accessed by computers within their network, such as in school or at home. The internet network can be accessed by anyone. Skill(s) Year 5 Compare the ways in which work can be shared on a school network with the ways work is shared at home or in the wider world.	**Lesson to teach:** Compare the ways in which work can be shared on a school network with the ways work is shared at home or in the wider world.	
Digital searching lesson P. of Study Computing 1 Year 5 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. P. of Study RHE - Health education 1 Year 5 Internet Know how to be a discerning consumer of information online including understanding that information, including that from search engines, is ranked, selected and targeted. Knowledge Year 5 Some websites have more reliable content than others and content should be verified with another independent source. Skill(s) Year 5 Discern where web content might originate from and recognise that this gives clues to its authenticity, reliability and security.	**Lesson to teach:** Discern where web content might originate from and recognise that this gives clues to its authenticity, reliability and security.	

Cycle B: Year 3 / 4 - Computing Scheme of Work
Autumn - Through the Ages

Overview:
Children will learn to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. They will understand that personal information, such as full name, age, school and address, should not be shared online.

Vocabulary:
Online content, personal data, USB, shared drive, server, storage device, hard drive

Assessment outcomes:
Allow children to retrieve saved work from another device on the same network. Quiz the children on the importance of keeping safe online.

Lesson objective(s)	Suggested activities and differentiation	Resources
Communication lesson **P. of Study Computing** • 2 Year 3 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **P. of Study RHE - Relationships education** • 1 Year 3 Online Know that people sometimes behave differently online, including by pretending to be someone they are not. • 2 Year 3 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 1 Year 3 Online Know how to critically consider their online friendships and sources of information including awareness of the risks associated with people they have never met. **P. of Study RHE - Health education** • 1 Year 3 Internet Know that for most people the internet is an integral part of life and has many benefits. • 1 Year 3 Internet Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. **Knowledge** • Year 3 Advantages of communicating electronically are that it is available at any time, instant and global. Disadvantages include easier misunderstandings, people pretending to be someone they are not, lack of privacy (once something is published online, it cannot be removed) and a threat to personal safety (access to personal information). Concerns should be reported to a trusted adult. **Skill(s)** • Year 3 Explain the advantages and disadvantages of communicating electronically and strategies for preventing issues. View progression	**Lesson to teach:** Explain the advantages and disadvantages of communicating electronically and strategies for preventing issues.	• Computers or tablets • Internet access
Staying safe lesson **P. of Study Computing** • 2 Year 3 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **P. of Study RHE - Relationships education** • 2 Year 3 Online Know how information and data is shared and used online. • 1 Year 3 Being Know what sorts of boundaries are appropriate in friendships with peers and others (including in a digital context). • 1 Year 3 Being Know about the concept of privacy and the implications of it for both children and adults; including that it is not always right to keep secrets if they relate to being safe. **P. of Study RHE - Health education** • 2 Year 3 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. **Knowledge** • Year 3 Images and data should not be shared online without the permission of the owner. Personal information, such as full name, age, school and address, should not be shared online. **Skill(s)** • Year 3 Describe simple rules for sharing images and data safely.	**Lesson to teach:** Describe simple rules for sharing images and data safely.	

Networks lesson	Lesson to teach: Recognise that saved work can be retrieved from another device on the same network.	• Access to school intranet • Shared drives

P. of Study Computing

- 1 Year 3 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. of Study RHE - Relationships education

- 2 Year 3 Online Know how information and data is shared and used online.

Knowledge

- Year 3 When work is saved, it is stored on a storage device, such as the computer's hard drive, a USB flash drive, a shared server or online. This work can then be retrieved from another device (except if it is saved on the computer's hard drive).

Skill(s)

- Year 3 Recognise that saved work can be retrieved from another device on the same network.

Cycle B: Year 3 / 4 - Computing Scheme of Work
Summer – Ancient Civilisations

Overview:
Children will learn to combine a range of text, images, animation and audio and video clips for given purposes. They will develop an understanding to use logical reasoning to explain how some simple algorithms work and repeat. They will log light level, temperature or sound level using a program or app, over a period of time.

Vocabulary:
computational thinking, animation, microphone, sensor

Assessment outcomes:
Assess the children by instructing them to devise, plan and implement a project to exhibit their computational skills. Assess their knowledge as they demonstrate a simple program that contains a looping element and how part of a program may need repetition.

Lesson objective(s)	Suggested activities and differentiation	Resources
Creation lesson P. of Study Computing 3 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. Knowledge Year 4 Manipulating a range of text, images, sound or video clips and animation may include changing their style, size, colour, effect, shape, location or format. Skill Year 4 Manipulate a range of text, images, sound or video clips and animation for given purposes.	**Lesson to teach:** Manipulate a range of text, images, sound or video clips and animation for given purposes.	• Computers or tablets • Internet access
Data and computational thinking lesson P. of Study Computing • 2 Year 4 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 3 Year 4 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • 1 Year 4 Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. KnowledgeYear 4 A loop is a sequence of instructions that repeats continually until a certain condition is met. A program that contains a looping element is useful for a wide range of scenarios, such as controlling traffic lights. Skill(s) Year 4 Describe and demonstrate a simple program that contains a looping element and how part of a program may need repetition.	**Lesson to teach:** Describe and demonstrate a simple program that contains a looping element and how part of a program may need repetition.	
Real world lesson P. of Study Computing 3 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. Knowledge Year 4 An input device receives information about the outside world, such as light level, temperature or sound level, and sends it to a computer. This information can be tracked over time using a program or app. Skill Year 4 Log light level, temperature or sound level using a program or app, over a period of time.	**Lesson to teach:** Log light level, temperature or sound level using a program or app, over a period of time.	• digital devices • built in camera or microphone, or sensors
Digital searching lesson P. of Study Computing • 1 Year 4 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • 4 Year 4 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 2 Year 4 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. P. of Study RHE - Health education • 1 Year 4 Internet Know how to be a discerning consumer of information online including understanding that information, including that from search engines, is ranked, selected and targeted. Knowledge Year 4 Pop-ups or adverts are a form of online advertising that companies use to encourage users to buy something or go to another website. Some pop-ups can be malicious and lead to a virus, whereas some are helpful and give information. Pop-ups can be blocked by computer software. Concerns should be reported to a trusted adult before clicking on anything.	**Lesson to teach:** Explain that when searching online, some web pages may contain adverts or pop-ups that encourage people to click on them.	

Skill(s) Year 4 Explain that when searching online, some web pages may contain adverts or pop-ups that encourage people to click on them.		

Cycle B: Year 5 / 6 – Computing Scheme of Work
Autumn - Dynamic Dynasties

Overview:
Children will be able to discuss the impact that digital content can have and why it is important to discuss their use of technology with an adult. They will apply computing skills using unfamiliar hardware to solve a problem successfully. They will also apply their computing skills using unfamiliar hardware to solve a problem successfully.

Vocabulary:
online abuse, trolling, bullying, harassment, mental wellbeing, physical wellbeing

Assessment outcomes:
Quiz the children on appropriate online behaviour and apply a range of strategies to protect themselves and others from potential online dangers, inappropriate behaviour and bullying. Assess their computing skills using unfamiliar hardware to solve a problem successfully.

Lesson objective(s)	Suggested activities and differentiation	Resources
Communication lesson P. of Study Computing 3 Year 6 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 2 Year 6 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 4 Year 6 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. • 1 Year 6 Being Know what sorts of boundaries are appropriate in friendships with peers and others (including in a digital context). P. of Study RHE - Health education • 2 Year 6 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. • 3 Year 6 Internet Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. Knowledge Year 6 Knowing someone online is not the same as knowing them face to face. People online are not always who they say they are and may use intimate images or content inappropriately. Once something is online, it is not under the user's control and can be made public. Using offensive language can affect others negatively and is a form of bullying called 'trolling'. Privacy and personal boundaries are important when communicating with others online. Skill(s) Year 6 Recognise that sending intimate images and content and using offensive language online is a risk, has a permanent online trail (digital footprint) and is not appropriate behaviour.	**Lesson to teach:** Recognise that sending intimate images and content and using offensive language online is a risk, has a permanent online trail (digital footprint) and is not appropriate behaviour.	• Computers or tablets • Internet access

Staying safe lesson P. of Study Computing 3 Year 6 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 4 Year 6 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. • 1 Year 6 Online Know how information and data is shared and used online. Knowledge Year 6 The benefits of devices broadcasting the user's location and passing on personal information include improved customer service, allowing organisations to analyse data and improving the quality of applications. Risks include identity theft, cyberstalking, victimisation and threat to privacy. Skill(s) Year 6 Identify the benefits and risks of devices broadcasting the user's location and of giving personal information to different organisations.	**Lesson to teach:** Identify the benefits and risks of devices broadcasting the user's location and of giving personal information to different organisations.	
Hardware lesson P. of Study Computing 4 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. Knowledge Year 6 Data handling includes databases, graphs, charts and tables. These can be used to present the findings of investigations. Skill Year 6 Plan data handling investigations and use the outcomes from data collection to show the findings.	**Lesson to teach:** Plan data handling investigations and use the outcomes from data collection to show the findings.	
Digital searching lesson P. of Study Computing 1 Year 6 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. P. of Study RHE - Health education 1 Year 6 Internet Know how to be a discerning consumer of information online including understanding that information, including that from search engines, is ranked, selected and targeted. Knowledge Year 6 Search engines take many factors into account, such as the quality of the site, number of updates or number of matches to keywords. However, search engines do not consider whether the content is true, age-appropriate or relevant, and so users need to be aware of these things when searching. Skill(s) Year 6 Critically evaluate search engine results and identify factors that may affect ranking, such as how long the site has existed, the number of links to the site and whether the organisation has paid to have their site promoted.	**Lesson to teach:** Critically evaluate search engine results and identify factors that may affect ranking, such as how long the site has existed, the number of links to the site and whether the organisation has paid to have their site promoted.	

Cycle B: Year 5 / 6 Computing Schemes of Work
Spring - Frozen Kingdoms

Overview:
The children will design, write and debug a program to control a physical system, which may include output devices, such as motors, lights and buzzers. They will 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.

Vocabulary:
variables, physical system, simulation, settings, communication platform

Assessment outcomes:
Assess their computational knowledge of controlling a physical system, which may include output devices, such as motors, lights and buzzers.

Lesson objective(s)	Suggested activities and differentiation	Resources
Physical interactions lesson P. of Study Computing • 2 Year 6 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 3 Year 6 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. • 2 Year 6 Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Knowledge Year 6 Input and output devices can be combined with programming software to control a physical system, such as using sensors to create a sensory station that incorporates motors, lights and buzzers. Skill(s) Year 6 Design, write and debug a program to control a physical system, which may include output devices, such as motors, lights and buzzers.	**Lesson to teach:** Design, write and debug a program to control a physical system, which may include output devices, such as motors, lights and buzzers.	• Sensors • output devices, such as motors, lights and buzzers
Digital world lesson P. of Study Computing 2 Year 6 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. of Study RHE - Relationships education • 2 Year 6 Online Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. • 4 Year 6 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. P. of Study RHE - Health education • 2 Year 6 Internet Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. • 1 Year 6 Internet Know why social media, some computer games and online gaming, for example, are age restricted. Knowledge Year 6 There are a wide variety of online communication platforms, such as social media, blogs, vlogs, email or messaging, which have different available features, including the option to comment. It is important to be aware of security settings, such as age restrictions or property rights. Skill(s) Year 6 Exchange online communications, making use of a growing range of available features and being aware of security settings.	**Lesson to teach:** Exchange online communications, making use of a growing range of available features and being aware of security settings.	• variety of online communication platforms

Cycle B: Year 5 / 6 Computing Schemes of Work
Summer – Britain at War

Overview:
Children will develop their knowledge of 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. They will 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.

Vocabulary:
Logical reasoning, operation, commands, cable fibre, wireless link, authenticity, reliability, security, independence

Assessment outcomes:
Assess the children's knowledge of discerning various websites looking for their authenticity, reliability and security. They will further develop their knowledge in writing simple algorithms.

Lesson objective(s)	Suggested activities and differentiation	Resources
Network lesson P. of Study Computing • 2 Year 6 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. • 3 Year 6 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. P. of Study RHE - Relationships education • 1 Year 6 Online Know that people sometimes behave differently online, including by pretending to be someone they are not. • 4 Year 6 Online Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. P. of Study RHE - Health education • 2 Year 6 Mental Know that bullying (including cyberbullying) has a negative and often lasting impact on mental wellbeing. • 1 Year 6 Internet Know that for most people the internet is an integral part of life and has many benefits. • 3 Year 6 Internet Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. Knowledge Year 6 The positives of communicating online include the speed, low cost and ability to communicate globally. The negatives of communicating online include the threat to privacy, influencing of others, access to technology and anonymity. Skill(s) Year 6 Name some of the positives and negatives of communicating with others online.	**Lesson to teach:** Name some of the positives and negatives of communicating with others online.	• Computers or tablets • Internet access
Hardware lesson P. of Study Computing 3 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Knowledge Year 6 Some hardware is more effective than others in particular contexts, such as using virtual reality or a touchscreen rather than a mouse to meet a specific need. Choosing the right hardware can increase creativity and productivity. Skill Year 6 Identify how using different hardware can increase creativity and productivity.	**Lesson to teach:** Identify how using different hardware can increase creativity and productivity.	
Real world lesson P. of Study Computing 4 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. Knowledge Year 6 A range of technologies can be combined to achieve a particular outcome. For example, sensors (input), a computing device (hardware) and lights (hardware) can be used together to create a set of traffic lights. Skill Year 6 Combine a range of technology to achieve a particular outcome.	**Lesson to teach:** Combine a range of technology to achieve a particular outcome.	• Digital devices