Computing Policy

Policy Creation and Review	
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1 Introduction

1.1 At Cleves we provide an exciting and innovative Computing curriculum that thoroughly meets the new 2014 National curriculum and enables us to build a firm foundation for 'Budding Computer Scientists of the 21st Century!'

1.2 Technology is changing the lives of everyone. Through teaching Computing we equip children to participate in a rapidly-changing world where work and leisure activities are increasingly transformed by technology. Our programme offers 6 creative units (one for each half term) using the latest software in real life situations. Each year group from year 1 to year 6 covers the areas of: Programming; Computational thinking; Creativity; Computer networks; Communication & collaboration as well as Productivity. There is clear progression of skills from EYFS to Year 6. E-Safety is embedded throughout the curriculum to ensure safe and responsible use of technology.

2. Aims and objectives

2.1 Computing skills are a major factor in enabling children to be confident, creative and independent learners.

The aims of Computing are to ensure that all children can:

- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- responsible, competent, confident and creative users of information and communication technology.

2.2 By the end of Key Stage 1 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.

2.3 By the end of Key Stage 1 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.

3 Teaching and learning style

3.1 As the aims of Computing are to equip children with the skills necessary to use technology to become independent learners, the teaching style that we adopt is as active and practical as possible. While at times we do give children direct instruction on how to use hardware or software many aspects of the curriculum enables children to have child lead activities/projects based on certain criteria.

3.2 We recognise that all classes have children with widely differing computing abilities. This is especially true when some children have access to technological equipment at home, while others do not. We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways, by:

- setting common tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (variation) but all accessing the same learning objective;
- providing resources of different complexity that are matched to the ability of the child;
- using classroom assistants to support the work of individual children or groups of children.

3 Computing curriculum planning

4.1 The school uses the 'Switched on Computing' scheme of work for Computing as the basis for its curriculum planning. We have adapted the scheme to the local circumstances of the school.

4.2 We carry out the curriculum planning in Computing in three phases (long-term, medium-term and short-term). The long-term plan maps the Computing topics that the children study in each term during each key stage. The Computing subject leader works this out in conjunction with teaching colleagues in each year group, and the children often study Computing as part of their work in other subject areas. Our long-term Computing plan shows how teaching units are distributed across the year groups, and how these fit together to ensure progression within the curriculum plan.

4.3 Our medium-term plans, which we have adopted from 'Switched on Computing' scheme of work, give details of each unit of work for each term. They identify the key learning objectives for each unit of work and stipulate the curriculum time that we devote to it. The Computing subject leader is responsible for keeping and reviewing these plans.

4.4 The class teacher is responsible for writing the short-term plans with the Computing component of each lesson. These daily plans list the specific learning objectives of each lesson. The class teacher keeps these individual plans and s/he and the Computing subject leader often discuss them on an informal basis.

4.5 The topics studied in Computing are planned to build upon prior learning. While we offer opportunities for children of all abilities to develop their skills and knowledge in each unit, we also build planned progression into the scheme of work, so that the children are increasingly challenged as they move up through the school.

5 Foundation Stage

5.1 We teach Computing in Nursery and Reception classes as an integral part of the topic work covered during the year. As these classes are a part of the Foundation Stage of the National Curriculum, we relate the Computing aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five. The children have the opportunity to use the computers, SMART tables, ipads, digital cameras etc.. Then during the year they gain confidence and start using the computer to find information and use it to communicate in a variety of ways.

6 Teaching Computing to children with special educational needs

6.1 At our school we teach Computing to all children, whatever their ability. Computing forms part of the school curriculum policy. It helps to provide a broad and balanced education to all children. Through our Computing teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable

learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

6.2 When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, variation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

6.3 Intervention through SEN Supoort or EHC plans will lead to the creation of an Individual Education Plan (IEP) for children with special educational needs. The IEP may include, as appropriate, specific targets relating to Computing. In some instances the use of technology such as switches or laptops has a considerable impact on the quality of work that children produce; it increases their confidence and motivation.

6.4 We enable pupils to have access to the full range of activities involved in learning Computing. Where children are to participate in activities outside the classroom, for example, a visit to a computing exhibition, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

7 Assessment and recording

7.1 Teachers assess children's work in computing by making informal judgements as they observe them during lessons. On completion of a piece of work, the teacher marks it and comments as necessary. At the end of a unit of work s/he makes a summary judgement about the work of each pupil in relation to the National Curriculum expected standards, and records these attainment grades on Pupil Tracker. We use this as the basis for assessing the progress of the children and to pass information on to the next teacher at the end of the year.

7.2 The Computing subject leader keeps samples of the children's work in a portfolio. This demonstrates the expected level of achievement in ICT for each age group in the school.

8 Resources

8.1 A minimum of 15 Laptops are available to each year group. We have a variety of devices such as: iPads, cameras, bebots etc. available to be booked out. We keep these resources for Computing, including software, in a central storage area. The school has Internet access for wired and wireless devices.

9 Monitoring and review

9.1 The monitoring of the standards of the children's work and of the quality of teaching in Computing is the responsibility of the Computing subject leader. The **Computing** subject leader is also responsible for supporting colleagues in the teaching of computing, for keeping informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The computing subject leader gives the headteacher an termly reports in which s/he evaluates the strengths and weaknesses in the subject and indicates areas for further improvement.

		Computing Curriculum Map					
		Autumn		Spring		Summer	
		1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term
Year 1	**Units** Level 1b-2c	1.1 – We are treasure Hunters. Using programmable toys	1.2 – We are TV chefs. Filming the steps of a recipe	1.3 – We are painters. Illustrating an eBook	1.4 – We are collectors. Finding images using the web.	1.5 – We are storytellers. Producing a talking book	1.6 – We are celebrating Creating a card electronically
		Programming	Computational thinking	Creativity	Computer networks	Communication/ Collaboration	Productivity
	Programme of Study Pupil Tracker (W/AM)	**Links to** **POS: 1 and 2** **POS 3 for those who are exceeding.**	**Links to** **POS: 3 and 4**	**Links to** **POS: 4 and 6** **POS 5 for those who are exceeding.**	**Links to** **POS: 1, 4, 5 and 6**	**Links to** **POS: 4, 5 and 6**	**Links to** **POS: 4, 5 and 6**
	Progression	Unit 2.1 – We are astronauts Unit 2.2 – We are game testers	Unit 1.1 – We are treasure hunters Unit 2.1 – We are astronauts Unit 3.1 – We are programmers	Unit 1.5 – We are storytellers Unit 1.6 – We are celebrating	Unit 2.4 – We are researchers Unit 2.6 – We are zoologists	Unit 1.6 – We are celebrating Unit 2.3 – We are photographers	Unit 2.3 – We are photographers Unit 3.1 – We are programmers

		Computing Curriculum Map					
		Autumn		Spring		Summer	
		1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term
Year 2	**Units** Level 2b-3c	2.1 – We are astronauts. Programming on screen	2.2 – We are game testers. Exploring how computer games work.	2.3 – We are Photographers. Taking, selecting and editing digital images.	2.4 – We are Researchers. Researching a Topic	2.5 – We are detectives. Communicating clues	2.6 – We are zoologists. Recording bug hunt data
		Programming	Computational thinking	Creativity	Computer networks	Communication/ Collaboration	Productivity
	Programme of Study Pupil Tracker (M/A)	**Links to** **POS: 1 and 2**	**Links to** **POS: 3 and 6**	**Links to** **POS: 4, 5 and 6**	**Links to** **POS: 4, 5 and 6**	**Links to** **POS: 4, 5 and 6**	**Links to** **POS: 4 and 5**
	Progression	Unit 2.2 – We are games testers Unit 3.1 – We are programmers	Unit 4.1 – We are software developers Unit 5.1 – We are game developers	Unit 2.6 – We are zoologists Unit 4.6 – We are meteorologists	Unit 3.3 – We are presenters Unit 3.6 – We are opinion pollsters	Unit 3.4 – We are network engineers Unit 3.5 – We are communicators	Unit 3.6 – We are opinion pollsters Unit 4.6 – We are meteorologists

		Computing Curriculum Map					
		Autumn		Spring		Summer	
		1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term
Year 3	**Units** Level 2a-3b	(AF1, AF3)	3.2 – We are bug fixers. Finding and correcting bugs in programs.	3.3 – We are presenters. Videoing Performance (AF1, AF3)	3.4 – We are Network engineers. Exploring computer networks including the internet (AF1, AF2)	3.5 – We are Communicators. Communicating safety on the internet. (AF1, AF3)	3.6 – We are opinion pollsters. Collecting and analysing data (AF1, AF2)
		Programming	**Computational thinking**	**Creativity**	**Computer networks**	**Communication/ Collaboration**	**Productivity**
	Programme of Study Pupil Tracker (W)	**Links to** **POS:** **Mainly POS 1**	**Links to** **POS:** **Mainly POS 2 and 3**	**Links to** **POS:** **Mainly POS 6**	**Links to** **POS:** **Mainly POS 4**	**Links to** **POS:** **Mainly POS 4 and 7**	**Links to** **POS:** **Mainly POS 5 and 6**
	Progression	Unit 3.2 – We are bug fixers Unit 4.1 – We are software developers	Unit 4.1 – We are software developers Unit 5.1 – We are games developers	Unit 4.6 – We are meteorologists Unit 6.6 – We are marketers	Unit 3.5 – We are communicators Unit 5.2 – We are cryptographers Unit 5.4 – We are web developers	Unit 4.5 – We are co-authors Unit 5.5 – We are bloggers	Unit 4.6 – We are meteorologists Unit 6.6 – We are marketers

		Computing Curriculum Map					
		Autumn		Spring		Summer	
		1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term
Year 4	Units Level 3a/4b	4.1 – We are software designers. Developing a simple educational game. (AF1, AF3)	4.2 – We are toy designers. Prototyping an interactive toy. (AF1, AF2)	4.3 – We are musicians Producing digital music (AF1, AF3)	4.4 – We are HTML editors Editing and writing HTML. (AF1, AF2)	4.5 – We are co-authors Producing a wiki (AF1, AF3)	4.6 – We are meteorologists Presenting the weather (AF1, AF2)
		Programming	**Computational thinking**	**Creativity**	**Computer networks**	**Communication/ Collaboration**	**Productivity**
	Programme of Study Pupil Tracker (W/M)	**Links to** **POS:** **Mainly POS 2** **POS 3 for those who are exceeding.**	**Links to** **POS:** **Mainly POS 1** **POS 3 for those who are exceeding.**	**Link to** **POS:** **Mainly POS 6**	**Links to** **POS:** **Mainly POS 4 and 7**	**Links to** **POS:** **Mainly POS 5**	**Links to** **POS:** **Mainly POS 6**
	Progression	Unit 5.1 – We are game developers Unit 6.1 – We are app planners	Unit 5.1 – We are game developers Unit 6.5 – We are app developers	Unit 5.1 – We are game developers Unit 6.6 – We are marketers	Unit 4.5 – We are co-authors Unit 5.4 – We are web developers	Unit 5.4 – We are web developers Unit 6.2 – We are project managers	Unit 5.2 – We are cryptographers Unit 6.3 – We are market researchers

		Computing Curriculum Map					
		Autumn		Spring		Summer	
		1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term
Year 5	Units Level 4b/5c	5.1 We are game Developers. Developing an interactive game	5.2 – We are cryptographers. Cracking codes (AF1, AF2)	5.3 – We are artists Fusing geometry with art (AF1, AF2)	5.4 We are web Developers. Creating a web page about cyber safety.	5.5 – We are bloggers Sharing experiences and opinions. (AF1, AF3)	5.6 – We are architects Creating a virtual space (AF1, AF2)
		Programming	**Computational thinking**	**Creativity**	**Computer networks**	**Communication/ Collaboration**	**Productivity**
	Programme of Study Pupil Tracker (M/A)	**Links to POS: Mainly POS 1, 2 and 3**	**Links to POS: Mainly POS 4 and 7**	**Link to POS: Mainly POS 6**	**Links to POS: Mainly POS 5**	**Links to POS: Mainly POS 4 and 7**	**Links to POS: Mainly POS 6**
	Progression	Unit 6.4 – We are interface designers Unit 6.5 – We are mobile app developers	Unit 5.4 – We are web developers Unit 6.1 – We are app planners	Unit 5.6 – We are architects Unit 6.4 – We are interface designers	Unit 5.5 – We are bloggers Unit 6.2 – We are project managers	Unit 6.6 – We are marketers	Unit 6.4 – We are interface designers Unit 6.6 – We are marketers

		Computing Curriculum Map					
		Autumn		Spring		Summer	
		1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term	1ST Half Term	2nd Half Term
Year 6	Units Level 4a/5b	6.1 - We are app planners. Planning the creation of a mobile app	6.2 - We are project managers. Developing project management skills.	6.3 – We are market researchers. Researching the app market	6.4 We are interface designers. Designing the interface for an app.	6.5 - We are app developers. Developing a simple mobile app.	6.6 We are marketers. Creating video and web copy for a mobile app.
		Computer networks	**Computational thinking**	**Productivity**	**Communication/ Collaboration**	**Programming**	**Creativity**
	Programme of Study Pupil Tracker (M/A/+)	**Links to** **POS:** **Mainly POS 4 and 5**	**Links to** **POS:** **Mainly POS 2**	**Link to** **POS:** **Mainly POS 6 and 7**	**Links to** **POS:** **Mainly POS 1**	**Links to** **POS:** **Mainly POS 3, 2 and 1**	**Links to** **POS:** **Mainly POS 6, 7**
	Progression	Unit 6.2 – We are project managers Unit 6.5 – We are app developers	Unit 6.3 – We are market researchers Unit 6.4 – We are interface designers	Unit 6.4 – We are interface designers Unit 6.5 – We are app developers	Unit 6.5 – We are app developers Unit 6.6 – We are marketers	Unit 6.6 – We are marketers	

E-Safety Unit trail	
Year 1 Coverage	
Unit 1.1 **We are treasure hunters**	• Pupils learn to use simple programmable toys safely and sensibly, as well as showing respect for the work of their peers. • Web access is supervised and safe practices are encouraged. • Filming is done with appropriate consent and assent.
Unit 1.2 **We are TV chefs**	• Pupils learn to use digital video cameras safely and to show respect to those they are filming (including recognising the need for consent and assent). The importance of not sharing videos more widely than is appropriate. • Pupils are taught the need to exclude information that might identify individuals from video recording. • Pupils learn to turn the screen off and tell their teacher if they encounter material that concerns them. • They start to learn about copyright, recognising that they own the copyright in their original work and that this cannot be published or copied without their permission.
Unit 1.3 **We are painters**	• In searching for images on the web, pupils work initially from a set of carefully chosen sites. It is reinforce that they should turn the screen off and tell their teacher if they encounter material that concerns them. • If work is uploaded to a public area, the importance of protecting the children's identities is recognised, as is their intellectual property rights over their original work. • Pupils learn some aspects of using email safely.
Unit 1.4 **We are collectors**	• Pupils will be working with the web and searching for images, they'll need to make sure they use this technology safely, as well as showing respect for others' intellectual property through observing copyright conditions. • It is reinforce that they should turn the screen off and tell their teacher if they encounter material that concerns them. • The pupils are introduced to the school's Acceptable Use Policy, if they haven't already had this explained to them.

E-Safety Unit trail	
Unit 1.5 **We are storytellers**	• Pupils learn to use audio recorders or microphones and audio recording software safely and sensibly. • Pupils learn to be aware of copyright material, and show appropriate respect for the owners of intellectual property when using technology. • Pupils are taught to show regard for appropriate consent and assent, school policies and third party terms and conditions if the pupils' stories are uploaded to external websites.
Unit 1.6 **We are celebrating**	• Pupils learn to search for images on the web, and again learn to use technology safely, switching off the screen if they have concerns, and reporting these to their teacher. • Pupils learn to respect the copyright conditions associated with any third party images they use. • Pupils learn to use photos of themselves if appropriate permission is in place. • If children share their work, then attention is paid to protecting their identity and copyright. • Pupils learn to send cards by email using a class address and consider some aspects of using email safely.

E-Safety Unit trail	
Year 2 Coverage	
Unit 2.1 **We are astronauts**	• The pupils must let their teacher know if they encounter inappropriate material when they search the web. • If the pupils use third-party images in their projects, they should use images with public domain or Creative Commons licences. • The pupils may upload their projects to the Scratch website, if they have registered for accounts using a parent's e-mail address. • They learn to observe MIT's terms and condition.
Unit 2.2 **We are games testers**	• There are concerns about the violent nature of some games. Choosing games wisely, including observing PEGI age restrictions and playing in moderation, are aspects of the safe and respectful use of technology that pupils learn about in this unit. • As in Unit 2.1, the pupils may upload their projects to the Scratch website, if they have registered for accounts using a parent's e-mail address. • Comments on the Scratch website are not moderated before they appear, although the pupils can report any which are inappropriate. This provides an opportunity to learn about where to go for help and support when they have concerns about content or contact.
Unit 2.3 **We are photographers**	• The children learn that once images are posted online, it's impossible to control what happens to them. Facial recognition software and geotagging mean that those posting images might inadvertently fail to keep some personal information private. The children learn how to minimise these risks, and learn what they should do if they have concerns about images they encounter on the web. • The children also learn about what is acceptable and unacceptable to photograph, for example, that it is usually not a good idea to take or share photographs in which children can be identified, or that might reflect badly on the school.
Unit 2.4 **We are researchers**	• The pupils consider how to stay safe while researching online • They show respect for others' ideas and intellectual property by citing their sources, and using licensed images. • Safe search filters are in place for using Google or Bing and school internet access is filtered.

E-Safety Unit trail	
Unit 2.5 **We are detectives**	• The pupils learn about some of the risks associated with email. They learn that attached files can contain viruses or other harmful programs, that email addresses and embedded links can be 'spoofed', and that 'spam' is a common problem. • It is recommended that all emails are sent and received via a single class email address. The password for this account is not shared with children. If the children do use individual accounts, they'll need to keep their account details private and share their email address only with people they know and trust
Unit 2.6 **We are zoologists**	• The pupils again learn that when sharing photographs and geo-location information online they need to consider the importance of keeping personal information private; they achieve this by not including names or photographs of people. • The pupils are taught to respect rules for using digital equipment when out of the classroom, to ensure the equipment is kept safe and that they are not so focused on using it that they become unaware of risks around them.

E-Safety Unit trail	
Year 3 Coverage	
Unit 3.1 **We are programmers**	• The pupils need to consider copyright when sourcing images for their programs and/or uploading their own work to the Scratch community site. • Searching for content for programs or viewing others' cartoons also offers an opportunity to develop safe search habits. • If the pupils participate in the Scratch community, they need to think about what information they can share and how to participate positively in an online community, as well as obtaining parental permission.
Unit 3.2 **We are bug fixers**	• The pupils could consider the implications of bugs in software. • Participating in the Scratch community would enable the pupils to help others with their projects as well as allowing them to receive help on their own. Participation requires parental permission, and the pupils should consider what behaviour is acceptable online.
Unit 3.3 **We are presenters**	• In filming one another, the pupils need to ensure that the appropriate permission has been obtained, and that they act respectfully and responsibly when filming, editing and presenting their work. • The pupils should think through the implications of videos being made available on the school network or more widely via the internet. They should discuss why schools and other organisations have strict policies over filming.
Unit 3.4 **We are network engineers**	• The pupils learn about how networks, including the internet, operate. They learn that data transmitted via the internet is not always encrypted. They consider some of the implications for privacy, e.g. their 'digital footprint' associated with using the internet. • They become aware of the importance of DNS for safe use of the internet. • They learn to use command line diagnostic tools safely and responsibly.

E-Safety Unit trail	
Unit 3.5 **We are communicators**	• The pupils should think about the safe use of email. They learn how email can be used positively. They become aware of some of its risks, including malware attachments, hacked accounts, spam and spoofed links, but also learn how their exposure to such risks can be reduced. • They consider the importance of introductions in extending circles of trust. • They learn how video conferencing can be used positively, to support learning with a known partner.
Unit 3.6 **We are opinion pollsters**	• The pupils learn some of the legal and ethical requirements for designing online surveys and processing data. • They also consider what information it would be appropriate for them to give in an online survey, and some implications of data processing. • The pupils can use online tools for collaborating on survey design and analysis, considering how to use these appropriately. The survey itself could address issues of the pupils' attitudes to online safety.

E-Safety Unit trail	
Year 4 Coverage	
Unit 4.1 **We are software developers**	• The pupils need to consider copyright when sourcing images or media for their programs and/or uploading their own work to the Scratch community site. • Searching for content for their programs or viewing others' games also offers an opportunity to develop safe search habits. • If the pupils participate in the Scratch community, they need to think about what information they can share and how to participate positively in an online community, as well as obtaining parental permission.
Unit 4.2 **We are toy designers**	• The pupils again need to think carefully about copyright in sourcing images and other media for their toy prototypes and presentations, or if uploading their own work to the Scratch community. • If the pupils do participate in the online Scratch community, they should think through how to do so in a safe and responsible manner, and should obtain their parents' consent. • If the pupils link their programs to hardware, they need to take care to work safely with a range of tools and electronic equipment.
Unit 4.3 **We are musicians**	• The pupils need to think about copyright when sourcing audio or publishing their own compositions. They are encouraged to use Creative Commons licensed content if working with others' audio files. • There's an opportunity to discuss how copyright relates to music performed in school as well as illegal downloading and sharing of copyrighted music.
Unit 4.4 **We are HTML editors**	• The pupils learn how easy it is to create content for the web. The unit provides an opportunity to address some of the risks of using the web, and how pupils could best keep themselves safe while doing so. • They learn how easily web pages can be modified, which provides an opportunity to consider the reliability of web-based content.

E-Safety Unit trail	
Unit 4.5 **We are co-authors**	• The pupils learn about Wikipedia, considering some strategies for evaluating the reliability of online content as well as the rules and processes that the Wikipedia community has evolved. • The pupils develop a shared wiki, thinking carefully about how to do so safely and responsibly, and considering what conduct is appropriate when collaborating on a shared resource.
Unit 4.6 **We are meteorologists**	• The pupils consider the importance of obtaining and using accurate data for any information-processing work. • If the pupils film one another, they need to ensure appropriate permission is obtained and that recordings are made, edited and shown in safe, respectful and responsible ways. • The pupils should think carefully about the implications of uploading their films to the school network or to the internet.

E-Safety Unit trail	
Year 5 Coverage	
Unit 5.1 **We are game developers**	• The pupils need to consider copyright when sourcing images or media for their games and/or uploading their own work to the Scratch community site. • Searching for content for their games or viewing others' games also offers an opportunity to develop safe search habits. • If the pupils participate in the Scratch community, they need to think about what information they can share and how to participate positively in an online community, as well as obtaining parental permission. • The pupils might also consider some personal implications of playing games, perhaps including violent computer games.
Unit 5.2 **We are cryptographers**	• The pupils learn how information can be communicated in secret over open channels, including the internet, using cryptography. • They learn about the public key system used to sign and encrypt content on the web, and how they can check the security certificates of encrypted websites. • They learn about the importance of password security for online identity and consider what makes a secure password.
Unit 5.3 **We are artists**	• The unit provides an opportunity to reinforce messages around safe searching and evaluating the quality of online content. • If the pupils upload their work for others to see, they should consider the importance of protecting personal information as well as recognising that they are sharing their own copyrighted work with an audience.
Unit 5.4 **We are web developers**	• E-safety forms the focus of this unit, with the pupils working collaboratively to develop a website in which they present their own authoritative content on a broad range of issues around the safe and responsible use of technology. • In doing so, they consider the reliability and bias of online content, how to contribute positively to a shared resource, and how to use search engines safely and effectively.

E-Safety Unit trail	
Unit 5.5 **We are bloggers**	• The pupils write content for their own or a shared blog, thinking carefully about what can be appropriately shared online. • They consider issues of copyright and digital footprint as well as what constitutes acceptable behaviour when commenting on others' blog posts. • The pupils also think about the importance of creating high-quality online content and become more discerning in evaluating content as they review others' blogs. • If the pupils' blogs are publicly accessible, it is important that any comments are moderated by their teacher; it is worth discussing with the pupils why the comments should be moderated.
Unit 5.6 **We are architects**	• The pupils should observe good practice when searching for and selecting digital content. • If the pupils choose to locate their 3D models geographically, they should avoid sharing private information. • The pupils should think about copyright when adding content to their model or publishing images or videos of their model.

E-Safety Unit trail	
Year 6 Coverage	
Unit 6.1 **We are app planners**	• The pupils consider the capabilities of smartphones and tablet computers, and how these can be used purposefully. • They become aware of some of the capabilities of these devices, including how they can be used to record and share location information; they consider some of the implications of this. • They use search engines safely and effectively. • The pupils could make use of their own tablets or smartphones in school, considering how they can do this safely and to good effect.
Unit 6.2 **We are project managers**	• The pupils use online tools safely and effectively, considering how they can contribute positively to a shared project. • They use search engines safely and effectively. • They may also make use of online content, respecting any copyright conditions.
Unit 6.3 **We are market researchers**	• The pupils show regard for the ethical and legal frameworks around conducting interviews and online surveys, such as the need to preserve anonymity and/or confidentiality. • In conducting their research, the pupils need to act safely and responsibly, as well as showing respect for those participating in the research.
Unit 6.4 **We are interface designers**	• The pupils need to think carefully about copyright in relation to both sourcing and creating their own digital content and user interface components for their apps.

E-Safety Unit trail	
Unit 6.5 **We are app developers**	• Pupils using their own or the school's tablets or smartphones for this unit need to consider how to do so safely and purposefully. • Children participating in online communities for either of the development platforms here need to do so in a safe, responsible and respectful manner. • The pupils should also think carefully about any safety implications of the apps they develop.
Unit 6.6 **We are marketers**	• In marketing their app, the pupils should consider the legal and ethical frameworks around advertising across different media. They should also think about the need to protect personal information about themselves and other members of their group when marketing their app. • In creating websites for their apps, the pupils need to consider the e-safety implications for the site's users as well as themselves.