

# SUBJECT CURRICULUM LONG TERM PLAN

Subject: Computing

Subject Lead/Team: Nick Huxley

2021-22

## REVISED CURRICULUM, Following Spring 1 2021 REMOTE-LEARNING

\*Green highlighted shows Unit was provided on Google Classrooms in Spring 1 2021 (either the K&S were completely or partially covered).

\*Green also highlighted for Units delivered in school in Autumn 1 and Autumn 2 2021.

\*Orange/Yellow highlighted shows Unit not delivered in Google Classrooms in Spring 1.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Yr R</b>	Unit 8 We are healthy	Unit 4 We have feelings	Unit 13 We are digital readers	Unit 24 We are film producers	Unit 20 We can observe	Unit 5 We can drive
<b>Strand:</b>	Programming	Computational Thinking	Creativity	Computer networks	Communication and collaboration	Productivity
<b>Yr I</b>	1.1 We are treasure hunters (lack of Beebot resources)	1.2 We are TV chefs (lack of iPads or cameras)	1.3 We are painters	1.4 We are collectors	1.5 We are storytellers	1.6 We are celebrating
<b>Yr2</b>	2.1 We are astronauts	2.2 We are games testers	2.3 We are photographers	2.4 We are researchers	2.5 We are detectives	2.6 We are zoologists
<b>Yr3</b>	3.1 We are programmers	3.2 We are bug fixers	3.3 We are presenters	3.4 We are vloggers	3.5 We are communicators	3.6 We are opinion pollsters
<b>Yr4</b>	4.1 We are software developers	4.2 We are toy designers	4.3 We are musicians	4.4 We are HTML editors	4.5 We are co-authors	4.6 We are meteorologists

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<b>Yr5</b>	5.6 We are architects	5.2 We are cryptographers	5.1 We are game developers	5.4 We are web developers	5.5 We are bloggers	5.3 We are artists
<b>Yr6</b>	6.1 We are adventure gamers	6.5 We are travel writers	6.3 We are advertisers	6.4 We are network technicians	6.2 We are computational thinkers	6.6 We are publishers

	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Yr R</b>	Unit 8 We are healthy	Unit 4 We have feelings	Unit 13 We are digital readers	Unit 24 We are film producers	Unit 20 We can observe	Unit 5 We can drive
<b>Strand:</b>	<b>Programming</b>	<b>Computational Thinking</b>	<b>Creativity</b>	<b>Computer networks</b>	<b>Communication and collaboration</b>	<b>Productivity</b>
<b>Yr 1</b>	1.1 We are treasure hunters	1.2 We are TV chefs	1.3 We are painters	1.4 We are collectors	1.5 We are storytellers	1.6 We are celebrating
<b>Yr2</b>	2.1 We are astronauts	2.2 We are games testers	2.3 We are photographers	2.4 We are researchers	2.5 We are detectives	2.6 We are zoologists
<b>Yr3</b>	3.1 We are programmers	3.2 We are bug fixers	3.3 We are presenters	3.4 We are vloggers	3.5 We are communicators	3.6 We are opinion pollsters
<b>Yr4</b>	4.1 We are software developers	4.2 We are toy designers	4.3 We are musicians	4.4 We are HTML editors	4.5 We are co-authors	4.6 We are meteorologists
<b>Yr5</b>	5.6 We are architects	5.2 We are cryptographers	5.1 We are game developers	5.4 We are web developers	5.5 We are bloggers	5.3 We are artists

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<b>Yr6</b>	6.1 We are adventure gamers	6.5 We are travel writers	6.3 We are advertisers	6.4 We are network technicians	6.2 We are computational thinkers	6.6 We are publishers
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# Computing subject aims

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

**Subject rationale:** *(Consider how your subject rationale connects with the Curriculum rationale)*

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The computing curriculum at Balfour delivers a clear progression of skills from Year 1 to Year 6 through a range of projects and tasks that build on the learning from previous years. The aim is to provide children with a broad range of experiences that teach them how to use different types of technology competently and safely, that can be applied across the curriculum.

**Threshold Concepts and Skills:** *(What are the fundamental concepts and ideas that pupils must have grasped by the end of the academic year in your subject)*

There are six main strands that are covered throughout the year to provide complete coverage of the computing programme of study (**Programming, Computational thinking, Creativity, Computer networks, Communication and collaboration and Productivity**). Each topic also has an online safety aspect that is relevant to the subject and is built upon through other activities throughout the year.

### Year Group: EYFS

Autumn Term 1 – Unit 8 We are healthy				Autumn Term 2 – Unit 4 We have feelings			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
healthy diet internet encyclopaedia search image	N/A	See section 5 within unit document	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Enjoy learning about oneself, others and the surrounding world. Investigate moral and ethical issues.	feelings happy sad angry emotions photograph presentation	N/A	See section 5 within unit document	<b>Spiritual</b> Explore beliefs and experience, feelings and values. Enjoy learning about oneself and others. <b>Social</b> Use a range of social skills. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
Physical development: health and self-care		Playing and exploring (engagement) - showing curiosity about objects, events and people		Personal social and emotional development:		Playing and exploring (engagement) - showing curiosity about objects, events and people	

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Children will know the importance of good health and physical exercise and a healthy diet, and talk about ways to keep healthy and safe.		Active learning (motivation) <ul style="list-style-type: none"><li>- maintaining focus on their activity for a period of time</li><li>- persisting with an activity when challenges occur</li></ul>		Children will understand how to manage feelings and behaviour: They will talk about how they and others show feelings, talk about their own and others' behaviour.		Active learning <ul style="list-style-type: none"><li>- paying attention to details</li></ul> Creating and thinking critically <ul style="list-style-type: none"><li>- reviewing how well the approach worked</li></ul>	
Spring Term 1 – Unit 13 We are digital readers				Spring Term 2 – Unit 24 We are film producers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
book pop up moving parts text navigate character plot	N/A	See section 5 within unit document	<b>Spiritual</b> Explore beliefs and experience. Use imagination and creativity <b>Moral</b> Investigate moral and ethical issues. Offer reasoned views. <b>Social</b> Use a range of social skills. <b>Cultural</b> Appreciate cultural influences.	video playback record audience dialogue scene	N/A	See section 5 within unit document	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Use a range of social skills. <b>Cultural</b> Appreciate cultural influences.
Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	
Literacy: reading The children will read and understand simple sentences, common irregular words. They know how to demonstrate understanding when talking with others about what they have read.		Playing and exploring (engagement) <ul style="list-style-type: none"><li>- engaging in open ended activity</li></ul> Active learning (motivation) <ul style="list-style-type: none"><li>- maintaining focus on their activity for a period of time</li></ul> Creating and thinking critically (thinking) <ul style="list-style-type: none"><li>- making predictions</li></ul>		Expressive arts and design: being imaginative They will know how to represent their own ideas, thoughts and feelings through role-play and stories. They will understand personal, social and emotional development: <ul style="list-style-type: none"><li>- making relationships</li></ul>		Active learning <ul style="list-style-type: none"><li>- showing a belief that more effort or a different approach will pay off</li></ul> Creating and thinking critically <ul style="list-style-type: none"><li>- checking how well their activities are going</li><li>- reviewing how well the approach worked</li></ul>	

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				- self-confidence and self-awareness			
Summer Term 1 – Unit 20 We can observe				Summer Term 2 – Unit 5 We can drive			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
microscope photograph close up compare similar different shape texture	N/A	See section 5 within unit document	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Use a range of social skills. Participate, volunteer and cooperate.	local area traffic features photograph design create print	N/A	See section 5 within unit document	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Recognise right and wrong. <b>Social</b> Use a range of social skills. Participate in the local community
Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	
Understanding the world - the world: The children will know about similarities and differences in relation to objects, materials and living things.		Finding out and exploring <ul style="list-style-type: none"><li>- using senses to explore the world around them</li><li>- engaging in open-ended activity</li></ul> Active learning <ul style="list-style-type: none"><li>- paying attention to details</li></ul>		Physical development: moving and handling They know how to negotiate space successfully when playing games with other children, adjusting speed or changing direction to avoid obstacles. The children know how to handle tools, objects, construction and malleable materials safely and with increasing control.		Playing and exploring <ul style="list-style-type: none"><li>- engaging in open-ended activity</li><li>- acting out experiences with other people</li></ul> Creating and thinking critically <ul style="list-style-type: none"><li>- planning, making decisions about how to approach a task, solve a problem and reach a goal</li></ul>	

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Year Group: 1

Autumn Term 1 – 1.1 We are treasure hunters				Autumn Term 2 – 1.2 We are TV chefs			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
algorithm debug instructions predict programming robot treasure	Refer to EYFS activities – TBC.	Fairytales – Little Red Riding Hood	<b>Spiritual</b> Use imagination and creativity <b>Moral</b> Understand consequences	algorithm clip edit film instructions recipe robot video camera	Refer to EYFS activities – TBC.	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Participate in the local community <b>Cultural</b> Participate in culture opportunities
Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	
Children will understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.		In creating their instructions, pupils are creating algorithms – step-by-step instructions to achieve a particular goal. Programming involves converting these instructions into a formal language understood by the computer – on this		Children understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.		Recipes and algorithms have much in common, as both are sequences of steps to achieve a particular goal. Creating a recipe is a great introduction to the idea of an algorithm. The instructions need to be clear and	

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<p>They know how to create and debug simple programs.</p> <p>They can use logical reasoning to predict the behaviour of simple programs.</p> <p>They can recognise common uses of information technology beyond school.</p>				<p>occasion, this is a series of button presses on a toy robot. The robot simply follows the instructions it's given.</p> <p>Sometimes, pupils' programs won't work as planned. In these cases, they need to correct (debug) their programs to fix their mistakes. When looking at others' algorithms or programs, pupils should have a clear idea of what the program will do by using logical reasoning to predict what will happen from the instructions.</p>				<p>They can use logical reasoning to predict the behaviour of simple programs.</p> <p>They can use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>They can recognise common uses of information technology beyond school.</p>				<p>unambiguous, the order has to be right, and a certain level of detail doesn't (usually) need to be specified – we can say 'spread butter on the bread' without saying exactly how to do this. It's possible to extend this idea further by thinking about the most efficient way to prepare a dish, just as computer scientists are interested in finding the most efficient algorithm for any process.</p> <p>Television is now almost invariably a digital process, and therefore provides a good example of common uses of information technology beyond school.</p> <p>The unit also provides an excellent opportunity for pupils to work on creating, organising, storing and retrieving digital content, in this case, video</p>			
Spring Term 1 – 1.3 We are painters								Spring Term 2 – 1.4 We are collectors							
Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC		Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC	
character eBook edit illustration traditional tale		Refer to EYFS activities – TBC.		N/A		<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity <b>Moral</b> Offer reasoned views. <b>Social</b>		algorithm copyright online safety mammal permission personal private		Refer to EYFS activities – TBC.		N/A		<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Use a range of social skills. <b>Cultural</b>	



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		Use a range of social skills. <b>Cultural</b> Understand, accept, respect and celebrate diversity.				Appreciate cultural influences
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood
<p>Children understand how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>They can recognise common uses of information technology beyond school.</p> <p>Children know how 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.</p>		<p>The children will be involved in creating digital content. A well-designed interface makes this as easy as working in traditional media but brings other benefits, such as the ability to try ideas out and undo changes, or to work with a far wider range of colours and effects. Pupils learn about some of this as they manipulate their digital images. They will need to store their work digitally, and will learn the basics of keeping things organised, so that they can easily retrieve earlier work.</p> <p>eBooks are one of many common technologies inside and outside school, as is artwork created using digital technologies. This unit gives pupils insight into the processes that are involved in creating content in these media.</p> <p>Pupils will search for images and ideas on the web, learning about some of the steps they can take to use the web safely, as well as recognising what they can do to report concerns.</p>		<p>Children understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>They know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>They can recognise common uses of information technology beyond school.</p> <p>Children know how 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.</p>		<p>Computers are powerful tools for storing, organising and retrieving large quantities of information. Information on a computer can be organised according to a number of different criteria or rules, and the exercises in this unit provide an opportunity for pupils to explore some of these ideas working with digital images.</p> <p>As 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. Pupils should know to let you know if they have any concerns over content they encounter.</p> <p>While not directly linked to programming, as pupils use clear and unambiguous rules to organise their pictures, they're developing their understanding of what algorithms are.</p>
Summer Term 1 – 1.5 We are storytellers				Summer Term 2 – 1.6 We are celebrating		

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Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
audio book copyright microphone recording sound effects talking book	Refer to EYFS activities – TBC.	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Moral</b> Investigate moral and ethical issues. <b>Social</b> Use a range of social skills. Volunteer and cooperate. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	celebrate copyright edit greeting keyboard save type	Refer to EYFS activities – TBC.	N/A	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Appreciate diverse viewpoints. <b>Social</b> Respect and tolerance. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
Children know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.  They can recognise common uses of information technology beyond school.  They understand how to use technology safely and respectfully.		The pupils' talking books are one form of digital content. Creating them involves organising a number of different audio components. The pupils will need to store and retrieve the digital files for their books using the school computers or network. This unit helps them to learn more about how this works and how to use this effectively.		Children know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.  They can recognise common uses of information technology beyond school.  They know how to use technology safely and respectfully, keeping personal information private; identify where to		In this unit, the children will be creating their own digital content, organising and manipulating both text and images for the purpose of making a greetings card. As they work on their card, they will need to store and retrieve their files from the computer drive or the network.	

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	<p>Talking books, and digital audio more generally, are an important use of information technology, both within and beyond school, with particular relevance to visually impaired users, young children who are learning to read, and for people who are travelling.</p> <p>Pupils need to be aware of copyright material, and show appropriate respect for the owners of intellectual property when using technology</p>	<p>go for help and support when they have concerns about content or contact on the internet or other online technologies.</p>	<p>E-cards are an increasingly popular alternative to printed greetings cards, although these too will involve computer systems at many stages of the process – the unit draws the pupils' attention to these uses of information technology beyond school.</p> <p>Pupils have an opportunity to search for images on the web, and thus need to use this technology safely, reporting any concerns they have.</p>
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Year Group: 2

Autumn Term 1 – 2.1 We are astronauts				Autumn Term 2 – 2.2 We are games testers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
algorithm instructions predict problem program robot Scratch sprite	1.1 We are treasure hunters	N/A	<b>Spiritual</b> Use imagination and creativity <b>Moral</b> Understand consequences	algorithm predict rules Scratch test	1.2 We are TV chefs	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Participate in the local community <b>Cultural</b> Participate in culture opportunities
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
Children understand what algorithms are; how they are implemented as programs on digital devices; and that		In this unit, the pupils will have a number of problems to solve. They tackle these in two stages – firstly thinking carefully about the steps to		Children understand what algorithms are; how they are implemented as programs on digital devices; and that		Computer gaming is an example of information technology being used beyond school, and something that many pupils will be familiar with.	

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<p>programs execute by following precise and unambiguous instructions.</p> <p>They know how to create and debug simple programs.</p> <p>They can use logical reasoning to predict the behaviour of simple programs.</p>				<p>follow (i.e. the algorithm), and then programming the spaceship to follow the steps as precise and unambiguous instructions, i.e. implementing their algorithm as a program. The spaceship then follows these instructions exactly.</p> <p>The programs the pupils create are unlikely to work first time, and so they'll need to debug (fix) these.</p> <p>One important technique, used repeatedly here, is to make a prediction, using logical reasoning, about where the spaceship will end up.</p>				<p>programs execute by following precise and unambiguous instructions.</p> <p>They know how to use logical reasoning to predict the behaviour of simple programs.</p> <p>They recognise common uses of information technology beyond school.</p> <p>Children know how to use technology safely and respectfully, keeping personal information private.</p>				<p>Games, on digital devices, are simply computer programs, and thus follow precise and unambiguous instructions, implementing algorithms. Some algorithms are shared by many games, from simple games in Scratch to complex 'triple A' titles.</p> <p>Part of playing a game successfully involves a process of experimenting so that the player can use logical reasoning to predict the behaviour of these programs.</p> <p>There are concerns associated with playing computer games – notably the violent nature of some games – so the computer gaming industry has implemented an age-based classification system (PEGI) to help players and parents choose appropriate games. Choosing games wisely and playing in moderation are aspects of the safe use of technology</p>			
Spring Term 1 – 2.3 We are photographers								Spring Term 2 – 2.4 We are researchers							
Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC		Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC	
camera image Picasa pixel portfolio theme		I.3 We are painters		We are explorers - Topic		Spiritual Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity Moral		Google mind map presentation research search search engine		I.4 We are collectors		We are explorers - Topic		Spiritual Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. Social	

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		<p>Offer reasoned views.</p> <p><b>Social</b></p> <p>Use a range of social skills.</p> <p><b>Cultural</b></p> <p>Understand, accept, respect and celebrate diversity.</p>				<p>Use a range of social skills.</p> <p><b>Cultural</b></p> <p>Appreciate cultural influences</p>	
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
<p>Children know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>They can recognise common uses of information technology beyond school.</p> <p>They know how 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.</p>		<p>Digital cameras are a common use of information technology beyond school, and an accessible way for children to create digital content.</p> <p>Organising large collections of photos is made easier using software designed for this purpose, which typically also includes tools to manipulate and enhance the quality of photos.</p> <p>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 fail to keep personal information private. The children learn how to minimise these risks, and what to do if they have concerns about images they encounter on the web</p>		<p>Children know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>They can recognise common uses of information technology beyond school.</p> <p>They know how 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.</p>		<p>In this unit the children retrieve digital content from the web with a particular purpose in mind. They use mind-mapping software to organise ideas and presentation software to manipulate content.</p> <p>The web has had a massive impact on the skills of researching a topic and learning about something new. Similarly, PowerPoint presentations are commonplace in and beyond education. Both webbased research and computer-based presentations are examples of common uses of information technology beyond school.</p> <p>The children consider how to stay safe while researching online, and show respect for others' ideas and intellectual property by citing sources. If the children encounter content they are concerned about, they should report their concerns to you.</p>	
Summer Term 1 – 2.5 We are detectives				Summer Term 2 – 2.6 We are zoologists			

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Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
address attachment database evidence email fact file header safety	1.5 We are storytellers	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Moral</b> Investigate moral and ethical issues. <b>Social</b> Use a range of social skills. Volunteer and cooperate. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	chart classification key data database photograph tally chart tick chart	1.6 We are celebrating	N/A	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Appreciate diverse viewpoints. <b>Social</b> Respect and tolerance. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
Children understand how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.  They can recognise common uses of information technology beyond school.  They know how to use technology safely and respectfully, keeping personal		In this unit, the children retrieve digital content from email messages. They organise this content by making audio notes and by creating an information table. They also create their own content as they respond to and compose email messages.  Email is a common use of IT within and beyond school, providing an almost		Children know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.  They can recognise common uses of information technology beyond school.  They understand how to use technology safely and respectfully, keeping personal information private; identify where to		In this unit, the children work with technology to collect and analyse a range of data and information about invertebrates living in the school grounds. They begin by creating content relating to the animals they find, and they go on to organise and manipulate this content using a number of tools, storing their results as they go.	

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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>instant method of sending and receiving written messages and other digital content in the form of attachments.</p> <p>There are risks associated with email. Attached files can contain viruses or other harmful programs, email addresses and embedded links can be 'spoofed', and unsolicited advertising (spam) is a common problem. Children need to learn to use this technology safely and respectfully, and to understand that some personal information is best kept private.</p>	<p>go for help and support when they have concerns about content or contact on the internet or other online technologies.</p>	<p>The digital technologies the children use in this unit – statistical charts, digital photographs and geolocation data (including GPS) – are used by real zoologists, and are examples of common uses of information technology beyond school.</p> <p>The children use technology safely. When sharing photographs and geolocation information online, they consider the importance of keeping personal information private, and achieve this by not including names or photographs of people</p>
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# SUBJECT CURRICULUM LONG TERM PLAN

Year Group: 3

Autumn Term 1 – 3.1 We are programmers				Autumn Term 2 – 3.2 We are bug fixers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
algorithm animation input output program script storyboard	1.1 We are treasure hunters 2.1 We are astronauts	Creating and following sets of instructions (algorithms) and recipes – Science/DT	<b>Spiritual</b> Use imagination and creativity <b>Moral</b> Understand consequences	algorithm bugs debug instruction program script	1.2 We are TV chefs 2.2 We are games testers	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Participate in the local community <b>Cultural</b> Participate in culture opportunities
Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	
Children understand how to design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.		The animations the children write are simple programs with specific goals. The process of breaking a scene down into individual lines of dialogue and actions is solving a problem by decomposing it into smaller parts.		Children know how to debug programs that accomplish specific goals.  They can use sequence, selection, and repetition in programs; work with		Much of the work, and fun, in programming lies in spotting and correcting mistakes, known as 'bugs'. The process of finding and fixing bugs is called 'debugging'. In this unit, the	

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<p>They know how to use sequence ... in programs; work with variables and various forms of input and output.</p> <p>They know how to use logical reasoning to detect and correct errors in algorithms and programs.</p> <p>Children understand how to select, use and combine a variety of software ... to design and create ... content that accomplish(es) given goals, including ... presenting ... information.</p>				<p>As the children write ordered instructions in their scripts, they're making use of sequence in programs. Their projects combine graphics, text and sound, which are various forms of output.</p> <p>Encourage the children to think through the steps of their animation carefully, so that they start to use logical reasoning to explain how some simple algorithms work.</p> <p>As the children work to debug their scripts, encourage them to use logical reasoning to detect and correct errors in algorithms and programs, rather than taking a trial and error approach.</p>				<p>variables and various forms of input and output.</p> <p>They can use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>				<p>children will debug programs that accomplish specific goals.</p> <p>The more complex a program is, the more likely bugs are to occur. Debugging and developing others' projects is a great way for pupils to use logical reasoning to explain how simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>The example scripts provided for this unit make use of sequence, selection and repetition, variables and forms of input and output.</p>			
Spring Term 1 – 3.3 We are presenters								Spring Term 2 – 3.4 We are vloggers							
Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC		Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC	
audio close-up editing footage panning shooting video camera zooming		1.3 We are painters 2.3 We are photographers		English – biographies, presenting information about Georgian Brighton.		<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity <b>Moral</b> Offer reasoned views. <b>Social</b> Use a range of social skills. <b>Cultural</b>		vlogging search engine internet presentation narration Creative Commons copyright images audio screencast		1.4 We are collectors 2.4 We are researchers		N/A		<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Use a range of social skills. <b>Cultural</b> Appreciate cultural influences	

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			Understand, accept, respect and celebrate diversity.				
<b>Threshold Concepts Knowledge</b> <i>without which later concepts will not be fully understood /</i> <b>Core Knowledge</b> <i>The minimum all pupils should know</i>		<b>Key skills</b> <i>Which can be applied once the knowledge is understood</i>		<b>Threshold Concepts Knowledge</b> <i>without which later concepts will not be fully understood /</i> <b>Core Knowledge</b> <i>The minimum all pupils should know</i>		<b>Key skills</b> <i>Which can be applied once the knowledge is understood</i>	
Children understand how to 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.  They know how to work with various forms of input and output.  Children can use technology safely, respectfully and responsibly.		The children will be using a range of software, in particular, video editors, to create content in the form of an edited video, which accomplishes a specific goal.  In shooting their videos, the children collect information. Their commentaries will include analysis and evaluation. Some pupils will also draw on data in their work, perhaps including times or measurements in their commentary.  The unit also develops pupils' understanding of working with different forms of input and output – as pupils record video and commentary, and source images and effects, they are working with digitised forms of images and sound (input); the Movie Maker project file is a sequence of instructions to assemble this media into a final set of output audio and images shown as video.  As pupils will be filming one another, it's worth emphasising that they should behave respectfully and responsibly.		Children understand computer networks including the internet; how they can provide multiple services, such as the world wide web.  They know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.  They understand how to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of content that accomplish given goals, including collecting, analysing, evaluating and presenting information.  Children know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		The core IT skills of being able to research a topic using web-based sources and make a multimedia presentation for a known audience are important parts of the computing curriculum. This unit provides an opportunity for you to explain to pupils how the internet works and how it is used to access the world wide web. It also enables you to give pupils an understanding of how search results are selected and ranked. The unit offers an opportunity for pupils to become more discerning in evaluating content – of both search results and content created by their classmates. There are key online safety messages to get across here too: what to do if the pupils have concerns about online content; respect for intellectual property online; and responsible online behaviour	
<b>Summer Term 1 – 3.5 We are communicators</b>				<b>Summer Term 2 – 3.6 We are opinion pollsters</b>			
<b>Key Vocabulary</b>	<b>Interleaving Opportunities</b> <i>(e.g. when past</i>	<b>Links to wider curriculum</b> (e.g.	<b>SMSC</b>	<b>Key Vocabulary</b>	<b>Interleaving Opportunities</b> <i>(e.g. when past</i>	<b>Links to wider curriculum</b> (e.g.	<b>SMSC</b>

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	topics can be revisited)	different subjects or key stages)			topics can be revisited)	different subjects or key stages)	
attachment email online-safety spam spoofed link video conference virus	1.5 We are storytellers 2.5 We are detectives	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Moral</b> Investigate moral and ethical issues. <b>Social</b> Use a range of social skills. Volunteer and cooperate. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	chart data graph opinion questions rating scale research survey	1.6 We are celebrating 2.6 We are zoologists	N/A	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Appreciate diverse viewpoints. <b>Social</b> Respect and tolerance. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
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 know how to 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		There's more to the internet than the web, and in this unit the children learn about other services that use the internet to transfer data, such as email and video conferencing. They make use of these to communicate with one another and to collaborate on a joint research project.  The children combine a variety of application software, including both desktop-based programs and internet-based services, in order to collect,		Children understand how to 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.  They understand computer networks, including the internet; how they can provide multiple services, such as the world wide web; and the opportunities		When using Google Forms, Google Sheets and Google Slides for their opinion poll, the children are using and combining a variety of internet services to accomplish given goals.  The main focus of the unit is on collecting, analysing and presenting data, and there's also scope for some evaluation of the data.  Because they're working online, the unit also helps to develop the children's	

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<p>collecting, analysing, evaluating and presenting data and information.</p> <p>Children know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>analyse, evaluate and present information.</p> <p>The children will learn how to use internet services safely, respectfully and responsibly, about the risks of opening links and attachments in emails, and of communicating personal information, including via video link or email, to unknown people.</p> <p>The children might learn about what the school does to mitigate these risks, e.g. virus scanning software.</p>	<p>they offer for communication and collaboration.</p>	<p>understanding of the internet and the world wide web.</p> <p>The children will also learn more about using the internet safely, responsibly and respectfully as they design surveys that comply with legislation (by not storing data that can identify individuals) and meet ethical standards (by providing anonymity and ensuring some degree of informed assent).</p>
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# SUBJECT CURRICULUM LONG TERM PLAN

Year Group: 4

Autumn Term 1 – 4.1 We are software developers				Autumn Term 2 – 4.2 We are toy designers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
debug input interface output program prototype repetition variable	1.1 We are treasure hunters 2.1 We are astronauts 3.1 We are programmers	Science - making circuits and night lights.	<b>Spiritual</b> Use imagination and creativity <b>Moral</b> Understand consequences	algorithm debug input interactive output pitch prototype simulation	1.2 We are TV chefs 2.2 We are games testers 3.2 We are bug fixers	History – Anglo Saxons	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Participate in the local community <b>Cultural</b> Participate in culture opportunities
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
Children understand how to design, write and debug programs that accomplish specific goals.		The instructions in a Scratch program are executed in sequence.		Children know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.		Computers are machines that accept input, process this according to a stored program and produce an output. Usually input means a keyboard and a mouse, and the output is what appears on the	

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<p>They know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Children know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>				<p>The program will respond differently if the user gets a question right or wrong, so some use of selection is necessary.</p> <p>Typically, the program will ask several questions, allowing children to use repetition.</p> <p>It is likely that the children’s scripts will keep track of a score, and the number of attempts, and possibly the questions asked, so variables will be used.</p> <p>Pupils will probably use the keyboard and screen as input and output, but other forms can be used, e.g. the mouse or even a replacement keyboard such as MaKey MaKey (input), or speakers/ headphones (output).</p>				<p>They understand how to use sequence, selection, and repetition in programs; work with various forms of input and output.</p> <p>They know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>				<p>screen. However, the children should be aware that other possibilities exist, such as using pressure pads, proximity or tilt sensors for input, and motors or speakers for output. This makes it possible for the programmer to design, write and debug programs that control physical systems.</p> <p>As with other code, the programmer will make use of sequences of instructions, including if/then/ else (selection) and repeat ... until (repetition), and perhaps use constants or variables to determine the behaviour of the system over time. Pupils may encounter mistakes in their algorithms and programs, but logical reasoning should allow them to detect and correct these.</p>			
Spring Term 1 – 4.3 We are musicians								Spring Term 2 - 4.4 We are HTML editors							
Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC		Key Vocabulary		Interleaving Opportunities (e.g. when past topics can be revisited)		Links to wider curriculum (e.g. different subjects or key stages)		SMSC	
audio composition copyright digital instruments pitch sample sequencing software		1.3 We are painters 2.3 We are photographers 3.3 We are presenters		Links with music lessons (JR)		<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity <b>Moral</b> Offer reasoned views. <b>Social</b> Use a range of social skills.		code HTML HTTP (hyper text transfer protocol) hyperlink tag URL web page		1.4 We are collectors 2.4 We are researchers 3.4 We are vloggers		N/A		<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Use a range of social skills. <b>Cultural</b> Appreciate cultural influences	

## SUBJECT CURRICULUM LONG TERM PLAN

			<b>Cultural</b> Understand, accept, respect and celebrate diversity.				
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
<p>Children understand how to use sequence, selection and repetition in programs; work with variables and various forms of input and output.</p> <p>They understand computer networks, including the internet; ... and the opportunities they offer for communication and collaboration.</p> <p>Children understand how to be discerning in evaluating digital content.</p> <p>They can select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <p>Children know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour.</p>		<p>This unit has a strong creative focus, with pupils developing digital content, in this case a musical composition. The pupils combine a variety of software to achieve this, most obviously Audacity® and LMMS. The pupils might also use other digital devices such as tablets or audio recorders.</p> <p>The audio files the pupils record, process and export are just one form of information that can be collected and presented using a computer.</p> <p>The pupils work with a range of input devices, including sequencing software and midi instruments and/or tablets, if available, to create their own original composition. They use an audio editor to create their final mix, which is exported in a standard compressed format</p>		<p>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.</p> <p>They know how to use technology safely, respectfully and responsibly; know a range of ways to report concerns and unacceptable behaviour.</p> <p>Children understand how to use and combine a variety of software (including internet services) to accomplish goals.</p>		<p>The internet is a global network of computers, connected together by copper wires, optical fibres, wireless networks and satellites.</p> <p>Among other things, the internet allows a web browser on one computer to access, display and interact with documents (web pages) stored on other computers connected to it (web servers).</p> <p>Web pages are written in HTML, which defines the structure of a document (i.e. headings and paragraphs) and uses 'tags' to show the function of media on the page, e.g. a link or the address of a picture. The HTML is transmitted using a standard protocol (HTTP). The packets of HTTP data that move between web servers contain the information that allows us to read, view, communicate and collaborate via the web.</p> <p>Not everything on the web is good, healthy or helpful, and so care is needed to ensure it's used safely, respectfully and responsibly. Children need to know how to report any concerns they have</p>	



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						or unacceptable behaviour they encounter.	
Summer Term 1 – 4.5 We are co-authors				Summer Term 2 – 4.6 We are meteorologists			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
edit information mind map reliable style wiki Wikipedia’s Five pillars	1.5 We are storytellers 2.5 We are detectives 3.5 We are communicators	Geography – creating pages about the Amazon/ rainforests.	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Moral</b> Investigate moral and ethical issues. <b>Social</b> Use a range of social skills. Volunteer and cooperate. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	chart data-logging forecast graph measurement prediction spreadsheet temperature	1.6 We are celebrating 2.6 We are zoologists 3.6 We are opinion pollsters	N/A	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Appreciate diverse viewpoints. <b>Social</b> Respect and tolerance. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	
Children understand how to solve problems by decomposing them into smaller parts.  They understand computer networks, including the internet; how they can provide multiple services, such as the		By connecting computers together, networks, including the internet, make it easy for their users to communicate and, therefore, collaborate on shared projects. This potential for collaboration can be seen in Wikipedia, a global project to produce a free online		Children know how to work with variables and various forms of input and output.  They can use logical reasoning to explain how some simple algorithms work.		Modern meteorology relies on computers. Weather stations collect data, sophisticated computer models create forecasts from this data, and TV weather programmes use computer graphics to present the forecasts. In this unit, the pupils will be using and	

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<p>world wide web; and the opportunities they offer for communication and collaboration.</p> <p>They know how to use search technologies effectively.</p> <p>They know how to be discerning in evaluating digital content.</p> <p>Children know how to use ... a variety of software (including internet services) ... to ... create ... content ... including ... presenting information.</p> <p>Children know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways</p>	<p>encyclopaedia that everyone can use and edit.</p> <p>Because of Wikipedia's open nature, it is important that users learn to evaluate its content, as well as recognise the difference between acceptable and unacceptable behaviour.</p> <p>The Wikipedia project is based on a shared set of principles, including encouraging mutual respect for different points of view. This relates to using technology respectfully and responsibly.</p>	<p>Children know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p> <p>They understand how to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>combining a variety of software, which may include apps and internet services, to collect weather data, perform some analysis and evaluation, and then present the data in an appropriate way for their target audience.</p> <p>If sensors are available, weather measurements can be input directly to the computer as digital data, with charts, maps and photos providing a variety of output.</p>
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# SUBJECT CURRICULUM LONG TERM PLAN

Year Group: 5

Autumn Term 1 – 5.6 We are architects				Autumn Term 2 – 5.2 We are cryptographers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
3d animation gallery navigation screencast sculpture virtual	1.6 We are celebrating 2.6 We are zoologists 3.6 We are opinion pollsters 4.6 We are meteorologists	History – Norman Castles	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Appreciate diverse viewpoints. <b>Social</b> Respect and tolerance. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	Binary code cipher decrypt encrypt Morse code password security semaphore	1.2 We are TV chefs 2.2 We are games testers 3.2 We are bug fixers 4.2 We are toy designers	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Participate in the local community <b>Cultural</b> Participate in culture opportunities
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
Children know how to use search technologies effectively, appreciate how		In using SketchUp, the pupils are creating content for a particular goal – in fact, they're creating a complex		Children understand how to use logical reasoning to explain how some simple algorithms work and to detect and		Computer networks, including the internet, are not secure. To reduce the risks of this when using the internet for	

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<p>results are selected and ranked, and be discerning in evaluating digital content.</p> <p>They understand how to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>system with a number of parts, including content created in SketchUp, their own digitised or digital work and other users' content. They have a particular goal in mind, which includes collecting, evaluating and presenting information, on this occasion in the form of virtual spaces and models. The 3D Warehouse in SketchUp is an internet-based service.</p> <p>In selecting content from the 3D Warehouse, the pupils refine their skills in using a search engine, as well as demonstrating discernment in evaluating digital content. The unit provides another opportunity to consider how a search engine selects and ranks results.</p>	<p>correct errors in algorithms and programs.</p> <p>They understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.</p> <p>They know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>communication and collaboration, data is often encrypted – stored in a secret code. While these systems are complex, the pupils can gain some understanding by looking at earlier systems. These will enable the pupils to develop an understanding of how some algorithms work.</p> <p>The security of personal information online is often based on the use of passwords. Many web-based services now demand that passwords meet minimum complexity standards (although this provides no protection when users choose to tell others their passwords!). Keeping passwords secure is an essential aspect of using technology safely and responsibly.</p>
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Spring Term 1 – 5.1 We are game developers				Spring Term 2 – 5.4 We are web developers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
algorithm debugging code programming sprites storyboard	1.1 We are treasure hunters 2.1 We are astronauts 3.1 We are programmers 4.1 We are software developers	N/A	<b>Spiritual</b> Use imagination and creativity <b>Moral</b> Understand consequences	bias online safety page rank revision history search engine wiki	1.4 We are collectors 2.4 We are researchers 3.4 We are vloggers 4.4 We are HTML editors	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Use a range of social skills. <b>Cultural</b> Appreciate cultural influences

## SUBJECT CURRICULUM LONG TERM PLAN

Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	
Children know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.  They understand how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output.  They know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.  They understand how to 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 ...		Making a computer game gives ample scope for pupils to design and create programs to accomplish a given goal.  The pupils will be working with a variety of input and output, which will include keyboard and/or mouse (input), and the computer display together with speakers or headphones (output).  Creating the games involves common programming constructs such as sequences of instructions, selection (the behaviour of the game varies according to the player's actions) and repetition (which might be dependent on a particular event occurring, such as clicking a sprite).  If games use scores, levels, randomisation or time limits, the pupils will need to work with variables.  The pupils' games are unlikely to work first time, so they'll need to use logical reasoning to detect and correct errors. As they provide feedback to one another, they'll become more discerning in evaluating digital content		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 know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.  Children understand how to 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.  They know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of way		In creating their website, pupils exploit the opportunities the internet and the web offer for collaboration.  In researching their pages, pupils use search technologies, and become more expert in doing so effectively. They also learn about the algorithms search engines use to select and rank results. In considering the sources they use, and in reviewing one another's work, pupils become more discerning in evaluating digital content.  Pupils use web-based software to create digital content for a purpose, in this case collecting, analysing, evaluating and presenting information.  Pupils learn about acceptable behaviour when using collaborative tools, and recognise how to use shared systems safely and responsibly.	
Summer Term 1 – 5.5 We are bloggers				Summer Term 2 – 5.3 We are artists			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC

## SUBJECT CURRICULUM LONG TERM PLAN

audience blog blogroll copyright dashboard hyperlinks podcast	1.5 We are storytellers 2.5 We are detectives 3.5 We are communicators 4.5 We are co-authors	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Moral</b> Investigate moral and ethical issues. <b>Social</b> Use a range of social skills. Volunteer and cooperate. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	geometric landscape op art sprite symmetry tessellations	1.3 We are painters 2.3 We are photographers 3.3 We are presenters 4.3 We are musicians	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity <b>Moral</b> Offer reasoned views. <b>Social</b> Use a range of social skills. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
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 know how to 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.		Pupils' blogs will be hosted on a web server, and thus accessible to web browsers connecting to them via the internet. As pupils share their views, they're engaged in communication. There's potential for collaboration in the comment space. As pupils comment on blogs, they become more discerning in evaluating digital content.  In creating a blog post, pupils make use of a variety of software – most obviously a web browser, but they're also using the software running on the distant web server. If they use tablets		Children know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output.  They understand how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.  Children understand how to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a		Pupils use a variety of software (vector graphics, turtle graphics and terrain rendering tools) to design and create digital content, in this case geometric art. This art can be seen as presenting information. The pupils can compare the simplicity of the instructions with the complexity of the images, and consider how the algorithms achieve effects.  The turtle graphics work in this unit provides another opportunity for the pupils to develop their programming skills, drawing on sequence and repetition ideas, as well as logical	

## SUBJECT CURRICULUM LONG TERM PLAN

<p>Children can use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p> <p>They know how to be discerning in evaluating digital content.</p>	<p>for blogging they might also use the WordPress app.</p> <p>There are important online safety messages, as pupils think about blogging as part of their 'digital footprint', as well as what constitutes acceptable behaviour in terms of comments on blogs.</p>	<p>range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>reasoning, algorithmic thinking and debugging, which the pupils will be familiar with from other programming work.</p>
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# SUBJECT CURRICULUM LONG TERM PLAN

Year Group: 6

Autumn Term 1 – 6.1 We are adventure gamers				Autumn Term 2 - 6.5 We are travel writers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
Python repetition variable selection print procedure syntax	1.1 We are treasure hunters 2.1 We are astronauts 3.1 We are programmers 4.1 We are software developers 5.1 We are game developers	Science – creating a science themed game.	<b>Spiritual</b> Use imagination and creativity <b>Moral</b> Understand consequences	geotagging GPS route location tracklog smartphone map metadata	1.5 We are storytellers 2.5 We are detectives 3.5 We are communicators 4.5 We are co-authors 5.5 We are bloggers	Writing about Tudor trip (history).	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Moral</b> Investigate moral and ethical issues. <b>Social</b> Use a range of social skills. Volunteer and cooperate. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	



## SUBJECT CURRICULUM LONG TERM PLAN

<p>Children know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>They understand how to use sequence, selection and repetition in programs; work with variables and various forms of input and output.</p> <p>Children can use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>		<p>The pupils will be designing, writing and debugging a program with a specific goal in mind. They will be working in a text-based language, allowing them to compare and contrast this with Scratch, which they will have encountered previously. Encourage pupils to look for similarities and differences. It is important that pupils first plan their program before they start writing the code.</p> <p>Python is used here in a form where commands are executed in sequence, just as blocks are used in Scratch. The pupils meet Python’s commands for repetition and selection, work with variables and a list, and use text-based input and output. They create their own functions to provide a clearer structure for their program.</p> <p>The pupils will encounter a new type of error (bug) in Python programming – the syntax error – where spelling or punctuation mistakes prevent Python from understanding the code they write. Fixing these mistakes is vital in text-based programming.</p>		<p>Children know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p> <p>They understand how to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <p>They know how to use technology safely, respectfully and responsibly identify a range of ways to report concerns about content and contact.</p>		<p>The unit focuses on developing and applying pupils’ skills and understanding with software across ‘a range of digital devices’ as they collect ‘data and information’, evaluate and analyse this and then present this in an interesting and appealing way. Devices are likely to include smartphones or tablet computers, providing an opportunity to teach the pupils more about how these devices work.</p> <p>The pupils also develop their understanding of algorithms, as they consider how shortest or fastest routes are calculated – although the details are left as an extension task.</p> <p>The safe and responsible use of technology is emphasised in this unit: pupils are encouraged to use the GPS facility on smartphones or tablets while on the visit and consider the implications of geotagging of photographs and other media.</p>	
Spring Term 1 - 6.3 We are advertisers				Spring Term 2 – 6.4 We are network technicians			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
footage rough cut storyboard advert	1.3 We are painters 2.3 We are photographers	History – advert linked to WW2	Spiritual Enjoy learning about oneself, others and the surrounding	command prompt internet IP address packet of data	1.4 We are collectors 2.4 We are researchers	N/A	Spiritual Enjoy learning about oneself, others and the surrounding

## SUBJECT CURRICULUM LONG TERM PLAN

Creative Commons video camera rushes of footage final cut	3.3 We are presenters 4.3 We are musicians 5.3 We are artists		world. Use imagination and creativity <b>Moral</b> Offer reasoned views. <b>Social</b> Use a range of social skills. <b>Cultural</b> Understand, accept, respect and celebrate diversity.	the web webserver network Domain Name Service (DNS)	3.4 We are vloggers 4.4 We are HTML editors 5.4 We are web developers		world. Use imagination and creativity. <b>Social</b> Use a range of social skills. <b>Cultural</b> Appreciate cultural influences
<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood		<b>Threshold Concepts</b> Knowledge without which later concepts will not be fully understood / <b>Core Knowledge</b> The minimum all pupils should know		<b>Key skills</b> Which can be applied once the knowledge is understood	
<p>Children know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <p>They can use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p> <p>Children can select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <p>They know how to use technology safely, respectfully and responsibly;</p>		<p>If the pupils have access to YouTube in your school (or a similar video sharing platform), the unit provides an opportunity for them to develop their skills in using YouTube's search engine effectively and understanding how this selects and ranks results.</p> <p>This is a complex project in which the pupils will be using a variety of devices (web servers, digital cameras, computers) and a range of software for a particular purpose. They analyse content produced by others, record original content ('collecting information') themselves and present this in a well-crafted form before finally evaluating how successful they have been.</p> <p>Safe and responsible use of technology is emphasised throughout. You may</p>		<p>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.</p> <p>They can use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>		<p>In computer networks, all information (data) is transmitted and received in a digital, binary format.</p> <p>Networking hardware (copper cables, optical fibre, wifi access points, hubs, switches and routers) allows computers to pass data from one to another to create a computer network. These networks connect together to make the internet. A standard system has been developed for the internet: data is broken into 'packets', which are passed from one router to another, based on the IP (internet protocol) address of the packet's recipient.</p> <p>Computers connected to the internet provide different services, e.g. serving web pages, dealing with email or converting server names (such as</p>	

## SUBJECT CURRICULUM LONG TERM PLAN

recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		decide to ask pupils to create films about online safety topics, perhaps for Safer Internet Day.				www.google.com) into numerical IP addresses.  Understanding how the internet works empowers pupils to use this technology safely and responsibly, through recognising that the internet is not completely secure and that servers might not always be what they seem.	
Summer Term 1 – 6.2 We are computational thinkers				Summer Term 2 – 6.6 We are publishers			
Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC	Key Vocabulary	Interleaving Opportunities (e.g. when past topics can be revisited)	Links to wider curriculum (e.g. different subjects or key stages)	SMSC
algorithm flowchart pseudocode linear search random search binary search selection sort quicksort	1.2 We are TV chefs 2.2 We are games testers 3.2 We are bug fixers 4.2 We are toy designers 5.2 We are cryptographers	N/A	<b>Spiritual</b> Enjoy learning about oneself, others and the surrounding world. Use imagination and creativity. <b>Social</b> Participate in the local community <b>Cultural</b> Participate in culture opportunities	Desktop publishing (DTP) magazine yearbook collaboration design images typeface layout	1.6 We are celebrating 2.6 We are zoologists 3.6 We are opinion pollsters 4.6 We are meteorologists 5.6 We are architects	N/A	<b>Spiritual</b> Explore beliefs and experience. Enjoy learning about oneself, others and the surrounding world. <b>Moral</b> Appreciate diverse viewpoints. <b>Social</b> Respect and tolerance. <b>Cultural</b> Understand, accept, respect and celebrate diversity.
Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood		Threshold Concepts Knowledge without which later concepts will not be fully understood / Core Knowledge The minimum all pupils should know		Key skills Which can be applied once the knowledge is understood	

## SUBJECT CURRICULUM LONG TERM PLAN

<p>Children can design, write and debug programs that accomplish specific goals.</p> <p>They know how to use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Children can use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>This unit is designed to provide some depth to the pupils' computational thinking by getting them to think through some of the most common problems in computing, e.g. search and sort, as well as some key areas of maths where an algorithmic approach is useful.</p> <p>In computing, the pupils are expected to reason about algorithms to explain how they work. The activities here aim to develop this. The pupils look first at inefficient search algorithms (random and linear searching) before looking at binary (divide and conquer) search.</p> <p>In sorting, the pupils learn about an inefficient, but easy to understand algorithm (selection sort) before looking at the much more efficient quicksort algorithm.</p> <p>The unit draws on their mathematical understanding as they look at algorithms for testing if a number is prime and finding the highest common factor of two numbers.</p>	<p>Children understand computer networks including the internet and the opportunities they offer for communication and collaboration.</p> <p>They know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p> <p>They understand how to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p> <p>Children know how to use technology safely, respectfully and responsibly.</p>	<p>The pupils will put their software skills and understanding to good use through working collaboratively on a large project. They will 'select, use and combine software' such as desktop publishing and word-processing packages 'to design and create content' for a yearbook or school magazine. This process will include 'collecting' and 'presenting information'.</p> <p>The pupils need to be 'discerning in evaluating' the content they and their peers produce to ensure it is of high enough quality for their publication.</p> <p>They will also make use of the 'opportunities for communication and collaboration' provided through the school's network and, perhaps, the internet.</p>
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