



Computing Policy

Purpose of Study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

The national curriculum for computing aims to ensure that all pupils:

- 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.

Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Opportunities for Personal, Social Health Education

A lot of PSHE will take place during computing lessons. The children will have to take responsibility for their own use of the internet. They will need to ensure that they search the internet appropriately and use email and messaging responsibly. A lot of PSHE will take place during the e-safety lessons. The computing curriculum for PSHE provides great opportunities for approaching a range of key internet safety issues such as cyberbullying, safe social networking, healthy digital behaviours, pornography, sexting, privacy and online reputation. The children will need to know the dangers of the internet and how to deal with problems that do arise. See the e-safety policy for more elaboration on this.

Subject Content

Key-stage 1

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.

Key-stage 2

Key stage 2

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.

How is computing taught throughout the school?

See Appendix 1- Medium Term Plans

Inclusion and Equal Opportunities

At our school we teach computing to all children, whatever their ability. All children are provided with equal access to the computing curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background. Computing forms part of the school curriculum policy 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 attainment outcomes. When pupils are working below the expected outcome within computing, differentiated activities including considering the classroom organisation, teaching materials and teaching style is considered 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 children's needs.

Pupils on the Special Educational Needs register, including those on Health Care Plans, One Plans along with targeted pupils may have specific computing related targets where a priority is appropriate.

Assessment & Reporting

We assess children's work in computing by making informal judgements as we observe them during each computing lesson. On completion of a piece of work, the teacher marks the work and comments as necessary, in line with the marking policy. At the end of a unit of work, the teacher makes a summary judgement about the work of each pupil if they are emerging, working at expected or exceeding the unit outcome. We use this as a basis for assessing the progress of the child at the end of the year. The computing subject leader keeps samples of children's work in a portfolio. These demonstrate what the expected end of year outcomes are in computing for each year group.

See Appendix 2 - Assessment Grids

Resources

The school is well resourced for the teaching of computing. Where new units and programmes of study have been introduced with the new curriculum, budgets have been allocated to the subject leaders to resource these areas to support teaching and learning.

We have started to follow the rising stars computing curriculum but have given teachers the freedom to make changes if they wish.

Monitoring and Review

Monitoring of the standards of children's work and of the quality of teaching in computing is the responsibility of the computing subject leader. The work of the computing subject leader also involves supporting colleagues in the teaching of computing, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Policy Review

This policy was written September 2014 by the computing Subject Leader and Senior Management Team and will be reviewed every 3 years unless the need for review arises beforehand.

Subject	<u>Autumn</u> Topic: Animals and Me	IDEAS	<u>Spring</u> Topic: Where we live	IDEAS	<u>Summer</u> Topic: Fire and Ice	IDEAS
Computing	<p style="text-align: center;">Creativity Illustrating and e-book</p> <ul style="list-style-type: none"> -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. <p style="text-align: center;">Productivity Creating and card electronically</p> <ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> -E-book about life cycles of chosen animals. - Christmas cards. 	<p style="text-align: center;">Programmable Toys – Treasure Hunters</p> <ul style="list-style-type: none"> -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 -recognise common uses of information technology beyond school <p style="text-align: center;">Communication/ Collaboration Producing a talking book.</p> <ul style="list-style-type: none"> -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 	<p>Creating a book about our town.</p>	<p style="text-align: center;">Filming a recipe</p> <ul style="list-style-type: none"> -understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions --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. -recognise common uses of information technology beyond school -use logical reasoning to predict the behaviour of simple programs <p style="text-align: center;">We are collectors</p> <ul style="list-style-type: none"> -understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions -use technology purposefully to create, organise, store, manipulate and retrieve digital content -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. -recognise common uses of information technology beyond school 	

Subject	<u>Autumn</u> Topic: Great Fire of London	<i>IDEAS</i>	<u>Spring</u> Topic: Living and growing	<i>IDEAS</i>	<u>Summer</u> Topic: Florence Nightingale	<i>IDEAS</i>
Computing	<p>We are astronauts -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</p> <p>We are games testers -understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - use logical reasoning to predict the behaviour of simple programs -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.</p>		<p>We are photographers -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</p> <p>We are researchers -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.</p>		<p>We are detectives -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.</p> <p>We are zoologists -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.</p>	

Subject	<p style="text-align: center;"><u>Autumn</u></p> <p style="text-align: center;">Topic: Mountain/Volcanoes</p>	<p style="text-align: center;"><i>IDEAS</i></p>	<p style="text-align: center;"><u>Spring</u></p> <p style="text-align: center;">Topic: Romans</p>	<p style="text-align: center;"><i>IDEAS</i></p>	<p style="text-align: center;"><u>Summer</u></p> <p style="text-align: center;">Topic: Rainforests</p>	<p style="text-align: center;"><i>IDEAS</i></p>
<p style="text-align: center;">Computing</p>	<p style="text-align: center;">We are programmers</p> <ul style="list-style-type: none"> -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 -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 style="text-align: center;">We are bug fixers</p> <ul style="list-style-type: none"> -Debug programs that accomplish specific goals -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 	<p style="text-align: center;">Light data collection</p>	<p style="text-align: center;">We are presenters</p> <ul style="list-style-type: none"> -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 -work with variables and various forms of input and output -use technology safely, respectfully and responsibly <p style="text-align: center;">We are network engineers</p> <ul style="list-style-type: none"> -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 technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 		<p style="text-align: center;">We are communicators</p> <ul style="list-style-type: none"> -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 -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. <p style="text-align: center;">We are opinion pollsters</p> <ul style="list-style-type: none"> -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 -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. 	

Subject	<u>Autumn Topic:</u> RIVERS	IDEAS	<u>SpringTopic:</u> Ancient Egypt	IDEAS	<u>Summer Topic:</u> A Musical Adventure	IDEAS
Computing	<p>We are software developers -design, write and debug programs that accomplish specific goals -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</p> <p>We are meteorologists 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</p> <p>-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 .</p>		<p>We are HTML editors understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration</p> <p>-use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. -Use and combine a variety of software (including internet services) to accomplish given goals, including presenting information.</p> <p>We are toy designers -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</p>		<p>We are co-authors solve problems by decomposing them into smaller parts -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. -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.</p> <p>We are musicians -use sequence, selection, and repetition in programs; work with variables and various forms of input and output -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 -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</p>	

					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.	
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Subject	<u>Autumn</u> Topic World War 1/2	<i>IDEAS</i>	<u>Spring</u> Topic: inventors, inventions ,explorers	<i>IDEAS</i>	<u>Summer</u> Topic: Ancient Greece	<i>IDEAS</i>
Computing	<p>We are game developers -design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>-use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>-use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>-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>We are cryptographers use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>-understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration</p> <p>-use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p>		<p>We are artists use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>-use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>-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>We are web developers understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration</p> <p>- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p>- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</p> <p>-use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>		<p>We are bloggers 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>-select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</p> <p>-use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p> <p>- be discerning in evaluating digital content.</p> <p>We are architects - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p> <p>- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</p>	

Subject	<u>Autumn</u> Topic: In the beginning	IDEAS	<u>Spring</u> Topic: Anglo-Saxons	IDEAS	<u>Summer</u> Topic: Field Exploration	IDEAS
Computing	<p>We are app planners 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 -work with variables and various forms of input and output</p> <p>We are project managers -solve problems by decomposing them into smaller parts . -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</p>	Linked to fossil hunting- Mary Anning	<p>We are market researchers 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.</p> <p>We are interface designers 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 -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 -be discerning in evaluating digital content</p>	Linked to Anglo-Saxons and Vikings and where they come from and what these countries are like now.	<p>We are app developers 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 -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>We are marketers -understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for</p>	

content and contact.
-be discerning in evaluating digital content
-use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

-recognise
acceptable/unacceptable behaviour
-

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
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