2014 National curriculum
Comparison maps
Art, Computing, Design Technology, Geography, History, Languages, Music, PE, PSHE.

Science 2014 curriculum organised in strands to illustrate progression in knowledge, skills and understanding
## Programme of Study Overview KS1 – KS2

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<th>KS1</th>
<th>Lower KS2</th>
<th>Upper KS2</th>
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<tbody>
<tr>
<td></td>
<td>Y1</td>
<td>Y2</td>
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<tr>
<td>Maths</td>
<td>✓</td>
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<tr>
<td>Science</td>
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<tr>
<td>Reading</td>
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<tr>
<td>Writing</td>
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<tr>
<td>Art</td>
<td>KS1</td>
<td>KS2</td>
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<tr>
<td>Computing</td>
<td>KS1</td>
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<tr>
<td>Design Technology</td>
<td>KS1</td>
<td>KS2</td>
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<tr>
<td>Geography</td>
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<td>History</td>
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<td>Languages</td>
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<td>Music</td>
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<td>Physical Education</td>
<td>KS1</td>
<td>KS2</td>
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<tr>
<td>PSHE</td>
<td>Non Statutory</td>
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<tr>
<td>Religious Education</td>
<td>Locally agreed syllabus</td>
<td>Locally agreed syllabus</td>
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Art and design
National Curriculum and 2014 Comparison

2014 Purpose of study
Art, craft and design embody some of the highest forms of human creativity. A high-quality art and design education should engage, inspire and challenge pupils, equipping them with the knowledge and skills to experiment, invent and create their own works of art, craft and design. As pupils progress, they should be able to think critically and develop a more rigorous understanding of art and design. They should also know how art and design both reflect and shape our history, and contribute to the culture, creativity and wealth of our nation.

2014 Aims
The national curriculum for art and design aims to ensure that all pupils:
• produce creative work, exploring their ideas and recording their experiences
• become proficient in drawing, painting, sculpture and other art, craft and design techniques
• evaluate and analyse creative works using the language of art, craft and design
• know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.

2014 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.
# ART AND DESIGN

## Present Curriculum

### Introduction

During Key Stage 1 pupils develop their creativity and imagination by exploring the visual, tactile and sensory qualities of materials and processes. They learn about the role of art, craft and design in their environment. They begin to understand colour, shape and space and pattern and texture and use them to represent their ideas and feelings.

Teaching should ensure that ‘investigating and making’ includes ‘exploring and developing ideas’ and ‘evaluating and developing work’. ‘Knowledge and understanding’ should inform this process.

### Exploring and developing ideas

- a. record from first-hand observation, experience and imagination, and explore ideas
- b. ask and answer questions about the starting points for their work, and develop their ideas.

### Investigating and making art, craft and design

- a. investigate the possibilities of a range of materials and processes
- b. try out tools and techniques and apply these to materials and processes, including drawing
- c. represent observations, ideas and feelings, and design and make images and artefacts.

### Evaluating and developing work

- a. review what they and others have done and say what they think and feel about it
- b. identify what they might change in their current work or develop in their future work.

### Knowledge and understanding

- a. visual and tactile elements, including colour, pattern and texture, line and tone, shape, form and space
- b. materials and processes used in making art, craft and design
- c. differences and similarities in the work of artists, craftspeople and designers in different times and cultures [for example, sculptors, photographers, architects, textile designers].

## Curriculum 2014

### Introduction (Aims used here as there is no KS1 rationale)

The national curriculum for art and design aims to ensure that all pupils:

- produce creative work, exploring their ideas and recording their experiences
- become proficient in drawing, painting, sculpture and other art, craft and design techniques
- evaluate and analyse creative works using the language of art, craft and design
- know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.

### Create

- to use a range of materials creatively to design and make products

### Communicate

- to use drawing, painting and sculpture to develop and share their ideas, experiences and imagination

### Using techniques to create effect

- to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space

### Appreciate artists who inspire and influence us

- about the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work.
### Present Curriculum

**Introduction**
During Key Stage 2 pupils develop their creativity and imagination through more complex activities. These help to build on their skills and improve their control of materials, tools and techniques. They increase their critical awareness of the roles and purposes of art, craft and design in different times and cultures. They become more confident in using visual and tactile elements and materials and processes to communicate what they see, feel and think.

Teaching should ensure that 'investigating and making' includes 'exploring and developing ideas' and 'evaluating and developing work'. 'Knowledge and understanding' should inform this process.

**Exploring and developing ideas**
1. Pupils should be taught to:
   a. record from experience and imagination, to select and record from first-hand observation and to explore ideas for different purposes
   b. question and make thoughtful observations about starting points and select ideas to use in their work
   c. collect visual and other information [for example, images, materials] to help them develop their ideas, including using a sketchbook.

**Investigating and making art, craft and design**
2. Pupils should be taught to:
   a. investigate and combine visual and tactile qualities of materials and processes and to match these qualities to the purpose of the work
   b. apply their experience of materials and processes, including drawing, developing their control of tools and techniques
   c. use a variety of methods and approaches to communicate observations, ideas and feelings, and to design and make images and artefacts.

**Evaluating and developing work**
3. Pupils should be taught to:
   a. compare ideas, methods and approaches in their own and others' work and say what they think and feel about them
   b. adapt their work according to their views and describe how they might develop it further.

**Knowledge and understanding**
4. Pupils should be taught about:
   a. visual and tactile elements, including colour, pattern and texture, line and tone, shape, form and space, and how these elements can be combined and organised for different purposes
   b. materials and processes used in art, craft and design and how these can be matched to ideas and intentions
   c. the roles and purposes of artists, craftspeople and designers working in different times and cultures [for example, Western Europe and the wider world].

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### National Curriculum and 2014 Comparison

**Introduction**
Pupils should be taught to develop their techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design.

Pupils should be taught:

**Create and communicate**
- to create sketch books to record their observations and use them to review and revisit ideas

**Using techniques to create effect**
- to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials (e.g. pencil, charcoal, paint, clay)

**Appreciation of artists who inspire and influence us**
- about great artists, architects and designers in history.
Computing
National Curriculum and 2014 Comparison

2014 Purpose of study
A high-quality computing education equips pupils to understand and change the world through logical thinking and creativity, including by making links with mathematics, science, and design and technology. The core of computing is computer science, in which pupils are taught the principles of information and computation, and how digital systems work. Computing equips pupils to use information technology to create programs, systems and a range of media. It 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.
### Key Stage 1 ICT / Computing

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<thead>
<tr>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
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</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td><strong>Introduction (Aims are used here as there is no KS1 rationale)</strong></td>
</tr>
<tr>
<td>During Key Stage 1 pupils explore ICT and learn to use it confidently and with purpose to achieve specific outcomes. They start to use ICT to develop their ideas and record their creative work. They become familiar with hardware and software.</td>
<td>The national curriculum for computing aims to ensure that all pupils:</td>
</tr>
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<td>• can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation</td>
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<td>• can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems</td>
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<td>• are responsible, competent, confident and creative users of information and communication technology.</td>
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<tr>
<td><strong>Finding things out</strong></td>
<td><strong>Step by step (sequencing)</strong></td>
</tr>
<tr>
<td>1. Pupils should be taught how to:</td>
<td>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</td>
</tr>
<tr>
<td>a. gather information from a variety of sources [for example, people, books, databases, CD-ROMs, videos and TV]</td>
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<tr>
<td>b. enter and store information in a variety of forms [for example, storing information in a prepared database, saving work]</td>
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<tr>
<td>c. retrieve information that has been stored [for example, using a CD-ROM, loading saved work].</td>
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<tr>
<td><strong>Developing ideas and making things happen</strong></td>
<td><strong>Programming</strong></td>
</tr>
<tr>
<td>2. Pupils should be taught:</td>
<td>• create and debug simple programs</td>
</tr>
<tr>
<td>a. to use text, tables, images and sound to develop their ideas</td>
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<tr>
<td>b. how to select from and add to information they have retrieved for particular purposes</td>
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<tr>
<td>c. how to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]</td>
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<tr>
<td>d. to try things out and explore what happens in real and imaginary situations [for example, trying out different colours on an image, using an adventure game or simulation].</td>
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<tr>
<td><strong>Exchanging and sharing information</strong></td>
<td><strong>Cause / effect</strong></td>
</tr>
<tr>
<td>3. Pupils should be taught:</td>
<td>• use technology purposefully to create, organise, store, manipulate and retrieve digital content</td>
</tr>
<tr>
<td>a. how to share their ideas by presenting information in a variety of forms [for example, text, images, tables, sounds]</td>
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<tr>
<td>b. to present their completed work effectively [for example, for public display].</td>
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<tr>
<td><strong>Reviewing, modifying and evaluating work as it progresses</strong></td>
<td><strong>Application</strong></td>
</tr>
<tr>
<td>4. Pupils should be taught to:</td>
<td>• recognise common uses of information technology beyond school.</td>
</tr>
<tr>
<td>a. review what they have done to help them develop their ideas</td>
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<tr>
<td>b. describe the effects of their actions</td>
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<tr>
<td>c. talk about what they might change in future work.</td>
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<tr>
<td><strong>Safety</strong></td>
<td>• 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.</td>
</tr>
<tr>
<td>Present Curriculum</td>
<td>National Curriculum and 2014 Comparison</td>
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<tr>
<td><strong>Introduction</strong></td>
<td><strong>Introduction</strong> (See aims in KS 1 above as there is no KS2 rationale)</td>
</tr>
<tr>
<td>During Key Stage 2 pupils use a wider range of ICT tools and information sources to support their work in other subjects. They develop their research skills and decide what information is appropriate for their work. They begin to question the plausibility and quality of information. They learn how to amend their work and present it in a way that suits its audience.</td>
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<tr>
<td><strong>Finding things out</strong></td>
<td>Programming</td>
</tr>
<tr>
<td>1. Pupils should be taught:</td>
<td>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</td>
</tr>
<tr>
<td>a. to talk about what information they need and how they can find and use it [for example, searching the internet or a CD-ROM, using printed material, asking people]</td>
<td>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output</td>
</tr>
<tr>
<td>b. how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy [for example, finding information from books or newspapers, creating a class database, classifying by characteristics and purposes, checking the spelling of names is consistent]</td>
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<tr>
<td>c. to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.</td>
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<tr>
<td><strong>Developing ideas and making things happen</strong></td>
<td>Step by step (Algorithms)</td>
</tr>
<tr>
<td>2. Pupils should be taught:</td>
<td>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</td>
</tr>
<tr>
<td>a. how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sound as appropriate [for example, desktop publishing, multimedia presentations]</td>
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<tr>
<td>b. how to create, test, improve and refine sequences of instructions to make things happen and to monitor events and respond to them [for example, monitoring changes in temperature, detecting light levels and turning on a light]</td>
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<tr>
<td>c. to use simulations and explore models in order to answer ’What if ... ?’ questions, to investigate and evaluate the effect of changing values and to identify patterns and relationships [for example, simulation software, spreadsheet models].</td>
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<tr>
<td><strong>Exchanging and sharing information</strong></td>
<td>Communication</td>
</tr>
<tr>
<td>3. Pupils should be taught:</td>
<td>• 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</td>
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<tr>
<td>a. how to share and exchange information in a variety of forms, including e-mail [for example, displays, posters, animations, musical compositions]</td>
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<tr>
<td>b. to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information [for example, work for presentation to other pupils, writing for parents, publishing on the internet].</td>
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<tr>
<td><strong>Reviewing, modifying and evaluating work as it progresses</strong></td>
<td>Application and Enquiry</td>
</tr>
<tr>
<td>4. Pupils should be taught to:</td>
<td>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</td>
</tr>
<tr>
<td>a. review what they and others have done to help them develop their ideas</td>
<td>• select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</td>
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<tr>
<td>b. describe and talk about the effectiveness of their work with ICT, comparing it with other methods and considering the effect it has on others [for example, the impact made by a desktop-published newsletter or poster]</td>
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<tr>
<td>c. talk about how they could improve future work.</td>
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<tr>
<td><strong>Safety</strong></td>
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<tr>
<td>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</td>
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</table>
Design and Technology
National Curriculum and 2014 Comparison

Purpose of study
Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others’ needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims
The national curriculum for design and technology aims to ensure that all pupils:
- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

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.
**Key Stage 1 Design Technology**

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<td><strong>Curriculum 2014</strong></td>
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<tr>
<td>During Key Stage 1 pupils learn how to think imaginatively and talk about what they like and dislike when designing and making. They build on their early childhood experiences of investigating objects around them. They explore how familiar things work and talk about, draw and model their ideas. They learn how to design and make safely and could start to use ICT as part of their designing and making. Teaching should ensure that 'knowledge and understanding' are applied when 'developing ideas', 'planning', 'making products' and 'evaluating' them.</td>
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<tr>
<td><strong>Design</strong></td>
<td>• design purposeful, functional, appealing products for themselves and other users based on design criteria</td>
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<tr>
<td>• generate ideas by drawing on their own and other people's experiences</td>
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<tr>
<td>• develop ideas by shaping materials and putting together components</td>
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<tr>
<td>• talk about their ideas</td>
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<tr>
<td>• plan by suggesting what to do next as their ideas develop</td>
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<tr>
<td>• communicate their ideas using a variety of methods, including drawing and making models.</td>
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<tr>
<td><strong>Make</strong></td>
<td>• select from and use a range of tools and equipment to perform practical tasks such as cutting, shaping, joining and finishing</td>
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<tr>
<td>• select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</td>
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<tr>
<td><strong>Evaluate</strong></td>
<td>• explore and evaluate a range of existing products</td>
</tr>
<tr>
<td>• evaluate their ideas and products against design criteria</td>
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<tr>
<td><strong>Technical knowledge</strong></td>
<td>• build structures, exploring how they can be made stronger, stiffer and more stable</td>
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<tr>
<td>• explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</td>
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<tr>
<td><strong>Developing, planning and communicating ideas</strong></td>
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<tr>
<td>1. Pupils should be taught to: a. generate ideas by drawing on their own and other people's experiences b. develop ideas by shaping materials and putting together components c. talk about their ideas d. plan by suggesting what to do next as their ideas develop e. communicate their ideas using a variety of methods, including drawing and making models.</td>
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<tr>
<td><strong>Working with tools, equipment, materials and components to make quality products</strong></td>
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<tr>
<td>2. Pupils should be taught to: a. select tools, techniques and materials for making their product from a range suggested by the teacher b. explore the sensory qualities of materials c. measure, mark out, cut and shape a range of materials d. assemble, join and combine materials and components e. use simple finishing techniques to improve the appearance of their product, using a range of equipment f. follow safe procedures for food safety and hygiene.</td>
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<tr>
<td><strong>Evaluating processes and products</strong></td>
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<tr>
<td>3. Pupils should be taught to: a. talk about their ideas, saying what they like and dislike b. identify what they could have done differently or how they could improve their work in the future.</td>
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<tr>
<td><strong>Knowledge and understanding of materials and components</strong></td>
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<tr>
<td>4. Pupils should be taught: a. about the working characteristics of materials [for example, folding paper to make it stiffer, plaiting yarn to make it stronger] b. how mechanisms can be used in different ways [for example, wheels and axles, joints that allow movement].</td>
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<tr>
<td><strong>Introduction</strong></td>
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<tr>
<td>During Key Stage 2 pupils work on their own and as part of a team on a range of designing and making activities. They think about what products are used for and the needs of the people who use them. They plan what has to be done and identify what works well and what could be improved in their own and other people’s designs. They draw on knowledge and understanding from other areas of the curriculum and use computers in a range of ways. Teaching should ensure that ‘knowledge and understanding’ are applied when ‘developing ideas’, ‘planning’, ‘making products’ and ‘evaluating’ them.</td>
<td>Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:</td>
</tr>
<tr>
<td><strong>Developing, planning and communicating ideas</strong></td>
<td><strong>Design</strong></td>
</tr>
<tr>
<td>a. generate ideas for products after thinking about who will use them and what they will be used for, using information from a number of sources, including ICT-based sources</td>
<td>• use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</td>
</tr>
<tr>
<td>b. develop ideas and explain them clearly, putting together a list of what they want their design to achieve</td>
<td>• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</td>
</tr>
<tr>
<td>c. plan what they have to do, suggesting a sequence of actions and alternatives, if needed</td>
<td><strong>Make</strong></td>
</tr>
<tr>
<td>d. communicate design ideas in different ways as these develop, bearing in mind aesthetic qualities, and the uses and purposes for which the product is intended.</td>
<td>• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</td>
</tr>
<tr>
<td>e. use finishing techniques to strengthen and improve the appearance of their product, using a range of equipment including ICT [for example, ‘drawing’ software or computer-aided design (CAD) software and a printer]</td>
<td>• select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</td>
</tr>
<tr>
<td>f. follow safe procedures for food safety and hygiene.</td>
<td><strong>Evaluate</strong></td>
</tr>
<tr>
<td><strong>Working with tools, equipment, materials and components to make quality products</strong></td>
<td>• investigate and analyse a range of existing products</td>
</tr>
<tr>
<td>a. select appropriate tools and techniques for making their product</td>
<td>• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</td>
</tr>
<tr>
<td>b. suggest alternative ways of making their product, if first attempts fail</td>
<td>• understand how key events and individuals in design and technology have helped shape the world</td>
</tr>
<tr>
<td>c. explore the sensory qualities of materials and how to use materials and processes</td>
<td><strong>Technical knowledge</strong></td>
</tr>
<tr>
<td>d. measure, mark out, cut and shape a range of materials, and assemble, join and combine components and materials accurately</td>
<td>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</td>
</tr>
<tr>
<td>e. use finishing techniques to strengthen and improve the appearance of their product, using a range of equipment including ICT [for example, ‘drawing’ software or computer-aided design (CAD) software and a printer]</td>
<td>• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</td>
</tr>
<tr>
<td>f. follow safe procedures for food safety and hygiene.</td>
<td>• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</td>
</tr>
<tr>
<td><strong>Evaluating processes and products</strong></td>
<td>• apply their understanding of computing to program, monitor and control their products.</td>
</tr>
<tr>
<td>a. reflect on the progress of their work as they design and make, identifying ways they could improve their products</td>
<td><strong>Knowledge and understanding of materials and components</strong></td>
</tr>
<tr>
<td>b. carry out appropriate tests before making any improvements</td>
<td>a. how the working characteristics of materials affect the ways they are used</td>
</tr>
<tr>
<td>c. recognise that the quality of a product depends on how well it is made and how well it meets its intended purpose [for example, how well products meet social, economic and environmental considerations].</td>
<td>b. how materials can be combined and mixed to create more useful properties [for example, using cardboard triangles on the corners of a wooden framework to strengthen it]</td>
</tr>
<tr>
<td>a. how the working characteristics of materials affect the ways they are used</td>
<td>c. how mechanisms can be used to make things move in different ways, using a range of equipment including an ICT control programme</td>
</tr>
<tr>
<td>b. how materials can be combined and mixed to create more useful properties [for example, using cardboard triangles on the corners of a wooden framework to strengthen it]</td>
<td>d. how electrical circuits, including those with simple switches, can be used to achieve results that work.</td>
</tr>
</tbody>
</table>
Purpose of study
A high-quality geography education should inspire in pupils a curiosity and fascination about the world and its people that will remain with them for the rest of their lives. Teaching should equip pupils with knowledge about diverse places, people, resources and natural and human environments, together with a deep understanding of the Earth’s key physical and human processes. As pupils progress, their growing knowledge about the world should help them to deepen their understanding of the interaction between physical and human processes, and of the formation and use of landscapes and environments. Geographical knowledge, understanding and skills provide the frameworks and approaches that explain how the Earth’s features at different scales are shaped, interconnected and change over time.

Aims
The national curriculum for geography aims to ensure that all pupils:

• develop contextual knowledge of the location of globally significant places – both terrestrial and marine – including their defining physical and human characteristics and how these provide a geographical context for understanding the actions of processes
• understand the processes that give rise to key physical and human geographical features of the world, how these are interdependent and how they bring about spatial variation and change over time
• are competent in the geographical skills needed to:
  • collect, analyse and communicate with a range of data gathered through experiences of fieldwork that deepen their understanding of geographical processes
  • interpret a range of sources of geographical information, including maps, diagrams, globes, aerial photographs and Geographical Information Systems (GIS)
  • communicate geographical information in a variety of ways, including through maps, numerical and quantitative skills and writing at length.

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.
<table>
<thead>
<tr>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td><strong>Curriculum 2014</strong></td>
</tr>
<tr>
<td>Teaching should ensure that 'geographical enquiry and skills' are used when developing 'knowledge and understanding of places, patterns and processes', and 'environmental change and sustainable development'. During Key Stage 1 pupils investigate their local area and a contrasting area in the United Kingdom or abroad, finding out about the environment in both areas and the people who live there. They also begin to learn about the wider world. They carry out geographical enquiry inside and outside the classroom. In doing this they ask geographical questions about people, places and environments, and use geographical skills and resources such as maps and photographs.</td>
<td>Pupils should develop knowledge about the world, the United Kingdom and their locality. They should understand basic subject-specific vocabulary relating to human and physical geography and begin to use geographical skills, including first-hand observation, to enhance their locational awareness. Pupils should be taught to:</td>
</tr>
<tr>
<td><strong>Geographical enquiry and skills</strong></td>
<td><strong>Location knowledge</strong></td>
</tr>
<tr>
<td>1. In undertaking geographical enquiry, pupils should be taught to:</td>
<td>• name and locate the world’s seven continents and five oceans</td>
</tr>
<tr>
<td>a. ask geographical questions [for example, ‘What is it like to live in this place?’]</td>
<td>• name, locate and identify characteristics of the four countries and capital cities of the United Kingdom and its surrounding seas</td>
</tr>
<tr>
<td>b. observe and record [for example, identify buildings in the street and complete a chart]</td>
<td><strong>Place knowledge</strong></td>
</tr>
<tr>
<td>c. express their own views about people, places and environments [for example, about litter in the school]</td>
<td>• understand geographical similarities and differences through studying the human and physical geography of a small area of the United Kingdom, and of a small area in a contrasting non-European country</td>
</tr>
<tr>
<td>d. communicate in different ways [for example, in pictures, speech, writing].</td>
<td><strong>Human and physical geography</strong></td>
</tr>
<tr>
<td>2. In developing geographical skills, pupils should be taught to:</td>
<td>• identify seasonal and daily weather patterns in the United Kingdom and the location of hot and cold areas of the world in relation to the Equator and the North and South Poles</td>
</tr>
<tr>
<td>a. use geographical vocabulary [for example, hill, river, motorway, near, far, north, south]</td>
<td>• use basic geographical vocabulary to refer to:</td>
</tr>
<tr>
<td>b. use fieldwork skills [for example, recording information on a school plan or local area map]</td>
<td>o key physical features, including: beach, cliff, coast, forest, hill, mountain, sea, ocean, river, soil, valley, vegetation, season and weather</td>
</tr>
<tr>
<td>c. use globes, maps and plans at a range of scales [for example, following a route on a map]</td>
<td>o key human features, including: city, town, village, factory, farm, house, office, port, harbour and shop</td>
</tr>
<tr>
<td>d. use secondary sources of information [for example, CD-ROMs, pictures, photographs, stories, information texts, videos, artefacts]</td>
<td><strong>Geographical skills and fieldwork</strong></td>
</tr>
<tr>
<td>e. make maps and plans [for example, a pictorial map of a place in a story].</td>
<td>• use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied at this key stage</td>
</tr>
<tr>
<td>3. Pupils should be taught to:</td>
<td>• use simple compass directions (North, South, East and West) and locational and directional language [for example, near and far; left and right], to describe the location of features and routes on a map</td>
</tr>
<tr>
<td>a. identify and describe what places are like [for example, in terms of landscape, jobs, weather]</td>
<td>• use aerial photographs and plan perspectives to recognise landmarks and basic human and physical features; devise a simple map, and use and construct basic symbols in a key</td>
</tr>
<tr>
<td>b. identify and describe where places are [for example, position on a map, whether they are on a river]</td>
<td>• use simple fieldwork and observational skills to study the geography of their school and its grounds and the key human and physical features of its surrounding environment.</td>
</tr>
<tr>
<td>c. recognise how places have become the way they are and how they are changing [for example, the quality of the environment in a street]</td>
<td></td>
</tr>
<tr>
<td>Present Curriculum</td>
<td>National Curriculum and 2014 Comparison</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><strong>Knowledge and understanding of places</strong></td>
<td><strong>Location knowledge</strong></td>
</tr>
<tr>
<td>1. In undertaking geographical enquiry, pupils should be taught to:</td>
<td>a. locate the world’s countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities</td>
</tr>
<tr>
<td>a. use geographical vocabulary [for example, temperature, transport, industry]</td>
<td>b. name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time</td>
</tr>
<tr>
<td>b. to use appropriate fieldwork techniques [for example, labelled field sketches] and instruments [for example, a rain gauge, a camera]</td>
<td>c. identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime/Greenwich Meridian and time zones (including day and night)</td>
</tr>
<tr>
<td>c. to use atlases and globes, and maps and plans at a range of scales [for example, using contents, keys, grids]</td>
<td>d. understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America</td>
</tr>
<tr>
<td>d. to use secondary sources of information, including aerial photographs [for example, stories, information texts, the internet, satellite images, photographs, videos]</td>
<td>e. describe and understand key aspects of:</td>
</tr>
<tr>
<td>e. to communicate in ways appropriate to the task and audience [for example, by writing to a newspaper about a local issue, using email to exchange information about the locality with another school]</td>
<td>o. physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle</td>
</tr>
<tr>
<td>f. to use ICT to help in geographical investigations [for example, creating a data file to analyse fieldwork data]</td>
<td>o. human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water</td>
</tr>
<tr>
<td>g. decision-making skills [for example, deciding what measures are needed to improve safety in a local street]</td>
<td><strong>Place knowledge</strong></td>
</tr>
<tr>
<td>2. In developing geographical skills, pupils should be taught:</td>
<td>a. describe and explain how and why places are similar to and different from other places in the same country and elsewhere in the world [for example, taking part in a local conservation project]</td>
</tr>
<tr>
<td>a. to identify and describe what places are like [for example, in terms of weather, jobs]</td>
<td>b. use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied</td>
</tr>
<tr>
<td>b. the location of places and environments they study and other significant places and environments [for example, places and environments in the news]</td>
<td>c. use the eight points of a compass, four and six-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world</td>
</tr>
<tr>
<td>c. to describe where places are [for example, in which region/country the places are, whether they are near rivers or hills, what the nearest towns or cities are]</td>
<td>d. use fieldwork to observe, measure and record the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies</td>
</tr>
<tr>
<td>d. to explain why places are like they are [for example, in terms of weather conditions, local resources, historical development]</td>
<td><strong>Geographical skills and fieldwork</strong></td>
</tr>
<tr>
<td>e. to identify how and why places change [for example, through the closure of shops or building of new houses, through conservation projects] and how they may change in the future [for example, through an increase in traffic or an influx of tourists]</td>
<td>a. use appropriate geographical vocabulary [for example, temperature, transport, industry]</td>
</tr>
<tr>
<td>f. to describe and explain how and why places are similar to and different from other places in the same country and elsewhere in the world [for example, comparing a village with a part of a city in the same country]</td>
<td>b. to use appropriate geographical vocabulary [for example, temperature, transport, industry]</td>
</tr>
<tr>
<td>g. to recognise how places fit within a wider geographical context [for example, as part of a bigger region or country] and are interdependent [for example, the supply of goods, movements of people]</td>
<td>c. to identify and explain different views that people, including themselves, hold about topical geographical issues [for example, views about plans to build an hotel in an overseas locality]</td>
</tr>
<tr>
<td><strong>Knowledge and understanding of patterns and processes</strong></td>
<td>d. to describe and explain how and why places and environments affect the future quality of people’s lives</td>
</tr>
<tr>
<td>a. recognise and explain patterns made by individual physical and human features in the environment [for example, where frost forms in the playground, the distribution of hotels along a seafront]</td>
<td>e. to communicate in ways appropriate to the task and audience [for example, by writing to a newspaper about a local issue, using email to exchange information about the locality with another school]</td>
</tr>
<tr>
<td>b. recognise some physical and human processes [for example, river erosion, a factory closure] and explain how these can cause changes in places and environments.</td>
<td>f. to use ICT to help in geographical investigations [for example, creating a data file to analyse fieldwork data]</td>
</tr>
<tr>
<td><strong>Knowledge and understanding of human and physical change and sustainable development</strong></td>
<td>g. decision-making skills [for example, deciding what measures are needed to improve safety in a local street]</td>
</tr>
<tr>
<td>5. Pupils should be taught to:</td>
<td><strong>Geographical skills and fieldwork</strong></td>
</tr>
<tr>
<td>a. recognise how people can improve the environment [for example, by reclaiming derelict land] or damage it [for example, by polluting a river], and how decisions about places and environments affect the future quality of people’s lives</td>
<td>a. use appropriate geographical vocabulary [for example, temperature, transport, industry]</td>
</tr>
<tr>
<td>b. recognise how and why people may seek to manage environments sustainably, and to identify opportunities for their own involvement [for example, taking part in a local conservation project]</td>
<td>b. to use appropriate geographical vocabulary [for example, temperature, transport, industry]</td>
</tr>
</tbody>
</table>

Key Stage 2 Geography

Introduction

Teaching should ensure that 'geographical enquiry and skills' are used when developing 'knowledge and understanding of places, patterns and processes', and 'environmental change and sustainable development'. During Key Stage 2 pupils investigate a variety of people, places and environments at different scales in the United Kingdom and abroad, and start to make links between different places in the world. They find out how people affect the environment and how they are affected by it. They carry out geographical enquiry inside and outside the classroom. In doing this they ask geographical questions, and use geographical skills and resources such as maps, atlases, aerial photographs and ICT.

Geographical enquiry and skills

1. In undertaking geographical enquiry, pupils should be taught to:
   a. ask geographical questions [for example, 'What is this landscape like?', 'What do I think about it?']
   b. collect and record evidence [for example, by carrying out a survey of shop functions and showing them on a graph]
   c. analyse evidence and draw conclusions [for example, by comparing population data for two localities]
   d. identify and explain different views that people, including themselves, hold about topical geographical issues [for example, views about plans to build an hotel in an overseas locality]
   e. communicate in ways appropriate to the task and audience [for example, by writing to a newspaper about a local issue, using email to exchange information about the locality with another school]

2. In developing geographical skills, pupils should be taught:
   a. to use appropriate geographical vocabulary [for example, temperature, transport, industry]
   b. to use appropriate fieldwork techniques [for example, labelled field sketches] and instruments [for example, a rain gauge, a camera]
   c. to use atlases and globes, and maps and plans at a range of scales [for example, using contents, keys, grids]
   d. to use secondary sources of information, including aerial photographs [for example, stories, information texts, the internet, satellite images, photographs, videos]
   e. to draw plans and maps at a range of scales [for example, a sketch map of a locality]
   f. to use ICT to help in geographical investigations [for example, creating a data file to analyse fieldwork data]
   g. decision-making skills [for example, deciding what measures are needed to improve safety in a local street].
History
National Curriculum and 2014 Comparison

2014 Purpose of study
A high-quality history education will help pupils gain a coherent knowledge and understanding of Britain’s past and that of the wider world. It should inspire pupils’ curiosity to know more about the past. Teaching should equip pupils to ask perceptive questions, think critically, weigh evidence, sift arguments, and develop perspective and judgment. History helps pupils to understand the complexity of people’s lives, the process of change, the diversity of societies and relationships between different groups, as well as their own identity and the challenges of their time.

Aims
The national curriculum for history aims to ensure that all pupils:

- know and understand the history of these islands as a coherent, chronological narrative, from the earliest times to the present day: how people’s lives have shaped this nation and how Britain has influenced and been influenced by the wider world
- know and understand significant aspects of the history of the wider world: the nature of ancient civilisations; the expansion and dissolution of empires; characteristic features of past non-European societies; achievements and follies of mankind
- gain and deploy a historically-grounded understanding of abstract terms such as ‘empire’, ‘civilisation’, ‘parliament’ and ‘peasantry’
- understand historical concepts such as continuity and change, cause and consequence, similarity, difference and significance, and use them to make connections, draw contrasts, analyse trends, frame historically-valid questions and create their own structured accounts, including written narratives and analyses
- understand the methods of historical enquiry, including how evidence is used rigorously to make historical claims, and discern how and why contrasting arguments and interpretations of the past have been constructed
- gain historical perspective by placing their growing knowledge into different contexts, understanding the connections between local, regional, national and international history; between cultural, economic, military, political, religious and social history; and between short- and long-term timescales.

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.
# Key Stage 1 History

## Present Curriculum

### Introduction
During Key Stage 1 pupils learn about people's lives and lifestyles. They find out about significant men, women, children and events from the recent and more distant past, including those from both Britain and the wider world. They listen and respond to stories and use sources of information to help them ask and answer questions. They learn how the past is different from the present.

### Chronological understanding
1. Pupils should be taught to:
   a. place events and objects in chronological order
   b. use common words and phrases relating to the passing of time (for example, before, after, a long time ago, past).

### Knowledge and understanding of events, people and changes in the past
2. Pupils should be taught to:
   a. recognise why people did things, why events happened and what happened as a result
   b. identify differences between ways of life at different times.

### Historical interpretation
3. Pupils should be taught to identify different ways in which the past is represented.

### Historical enquiry
4. Pupils should be taught:
   a. how to find out about the past from a range of sources of information (for example, stories, eye-witness accounts, pictures and photographs, artefacts, historic buildings and visits to museums, galleries and sites, the use of ICT-based sources)
   b. to ask and answer questions about the past.

### Organisation and communication
5. Pupils should be taught to select from their knowledge of history and communicate it in a variety of ways (for example, talking, writing, using ICT).

## National Curriculum and 2014 Comparison

### Introduction
Pupils should develop an awareness of the past, using common words and phrases relating to the passing of time. They should know where the people and events they study fit within a chronological framework and identify similarities and differences between ways of life in different periods. They should use a wide vocabulary of everyday historical terms. They should ask and answer questions, choosing and using parts of stories and other sources to show that they know and understand key features of events. They should understand some of the ways in which we find out about the past and identify different ways in which it is represented.

### Chronology
- changes within living memory. Where appropriate, these should be used to reveal aspects of change in national life

### Significant events in the past
- events beyond living memory that are significant nationally or globally (for example, the Great Fire of London, the first aeroplane flight or events commemorated through festivals or anniversaries)

### Significant British individuals
- the lives of significant individuals in the past who have contributed to national and international achievements. Some should be used to compare aspects of life in different periods (for example, Elizabeth I and Queen Victoria, Christopher Columbus and Neil Armstrong, William Caxton and Tim Berners-Lee, Pieter Bruegel the Elder and LS Lowry, Rosa Parks and Emily Davison, Mary Seacole and/or Florence Nightingale and Edith Cavell)

### Local area history
- significant historical events, people and places in their own locality.
### Present Curriculum

**Introduction**

During Key Stage 2 pupils learn about significant people, events and places from both the recent and more distant past. They learn about change and continuity in their own area, in Britain and in other parts of the world. They look at history in a variety of ways, for example from political, economic, technological and scientific, social, religious, cultural or aesthetic perspectives. They use different sources of information to help them investigate the past both in depth and in overview, using dates and historical vocabulary to describe events, people and developments. They also learn that the past can be represented and interpreted in different ways.

### Chronological understanding

1. Pupils should be taught to:
   a. place events, people and changes into correct periods of time
   b. use dates and vocabulary relating to the passing of time, including ancient, modern, BC, AD, century and decade.

### Knowledge and understanding of events, people and changes in the past

2. Pupils should be taught:
   a. about characteristic features of the periods and societies studied, including the ideas, beliefs, attitudes and experiences of men, women and children in the past
   b. about the social, cultural, religious and ethnic diversity of the societies studied, in Britain and the wider world
   c. to identify and describe reasons for, and results of, historical events, situations, and changes in the periods studied
   d. to describe and make links between the main events, situations and changes within and across the different periods and societies studied

### Historical interpretation

3. Pupils should be taught to recognise that the past is represented and interpreted in different ways, and to give reasons for this.

### Historical enquiry

4. Pupils should be taught:
   a. how to find out about the events, people and changes studied from an appropriate range of sources of information, including ICT-based sources (for example, documents, printed sources, CD-ROMS, databases, pictures and photographs, music, artefacts, historic buildings and visits to museums, galleries and sites)
   b. to ask and answer questions, and to select and record information relevant to the focus of the enquiry.

### Organisation and communication

5. Pupils should be taught:
   a. recall, select and organise historical information
   b. use dates and historical vocabulary to describe the periods studied
   c. communicate their knowledge and understanding of history in a variety of ways (for example, drawing, writing, by using ICT).

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### Curriculum 2014

**Introduction**

Pupils should continue to develop a chronologically secure knowledge and understanding of British, local and world history, establishing clear narratives within and across the periods they study. They should note connections, contrasts and trends over time and develop the appropriate use of historical terms. They should regularly address and sometimes devise historically valid questions about change, cause, similarity and difference, and significance. They should construct informed responses that involve thoughtful selection and organisation of relevant historical information. They should understand how our knowledge of the past is constructed from a range of sources.

In planning to ensure the progression described above through teaching the British, local and world history outlined below, teachers should combine overview and depth studies to help pupils understand both the long arc of development and the complexity of specific aspects of the content.

- See Aims and Introduction above.
Breadth of Study
During the key stage, pupils should be taught the knowledge, skills and understanding through a local history study, three British history studies, a European history study and a world history study.

Local history study
7. A study investigating how an aspect in the local area has changed over a long period of time, or how the locality was affected by a significant national or local event or development or by the work of a significant individual.

British history
8. In their study of British history, pupils should be taught about:
   a. the Romans, Anglo-Saxons and Vikings; Britain and the wider world in Tudor times; and either Victorian Britain or Britain since 1930
   b. aspects of the histories of England, Ireland, Scotland and Wales, where appropriate, and about the history of Britain in its European and wider world context, in these periods.

Romans, Anglo-Saxons and Vikings in Britain
9. An overview study of how British society was shaped by the movement and settlement of different peoples in the period before the Norman Conquest and an in-depth study of how British society was affected by Roman or Anglo-Saxon or Viking settlement.
<table>
<thead>
<tr>
<th>Britain and the wider world in Tudor times</th>
<th>A study of an aspect or theme in British history that extends pupils’ chronological knowledge beyond 1066</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. A study of some significant events and individuals, including Tudor monarchs, who shaped this period and of the everyday lives of men, women and children from different sections of society.</td>
<td>Examples (non-statutory)</td>
</tr>
<tr>
<td></td>
<td>- [the changing power of monarchs using case studies such as John, Anne and Victoria]</td>
</tr>
<tr>
<td></td>
<td>- [changes in an aspect of social history, such as crime and punishment from the Anglo-Saxons to the present or leisure and entertainment in the 20th Century]</td>
</tr>
<tr>
<td></td>
<td>- [the legacy of Greek or Roman culture (art, architecture or literature) on later periods in British history, including the present day]</td>
</tr>
<tr>
<td></td>
<td>- [a significant turning point in British history, for example, the first railways or the Battle of Britain]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Victorian Britain or Britain since 1930</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Teachers can choose between a study of Victorian Britain or Britain since 1930.</td>
<td></td>
</tr>
</tbody>
</table>

**Victorian Britain**

a. A study of the impact of significant individuals, events and changes in work and transport on the lives of men, women and children from different sections of society.

<table>
<thead>
<tr>
<th>Britain since 1930</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12. A study of the impact of the Second World War or social and technological changes that have taken place since 1930, on the lives of men, women and children from different sections of society.</td>
<td></td>
</tr>
</tbody>
</table>

**A European history study**

12. A study of the way of life, beliefs and achievements of the people living in Ancient Greece and the influence of their civilisation on the world today.

- Ancient Greece – a study of Greek life and achievements and their influence on the western world

**A world history study**

13. A study of the key features, including the everyday lives of men, women and children, of a past society selected from: Ancient Egypt, Ancient Sumer, the Assyrian Empire, the Indus Valley, the Maya, Benin, or the Aztecs.

- the achievements of the earliest civilizations – an overview of where and when the first civilizations appeared and a depth study of one of the following: Ancient Sumer; The Indus Valley; Ancient Egypt; The Shang Dynasty of Ancient China
- a non-European society that provides contrasts with British history – one study chosen from: early Islamic civilization, including a study of Baghdad c. AD 900; Mayan civilization c. AD 900; Benin (West Africa) c. AD 900-1300.
Languages
National Curriculum and 2014 Comparison

Purpose of study
Learning a foreign language is a liberation from insularity and provides an opening to other cultures. A high-quality languages education should foster pupils’ curiosity and deepen their understanding of the world. The teaching should enable pupils to express their ideas and thoughts in another language and to understand and respond to its speakers, both in speech and in writing. It should also provide opportunities for them to communicate for practical purposes, learn new ways of thinking and read great literature in the original language. Language teaching should provide the foundation for learning further languages, equipping pupils to study and work in other countries.

Aims
The national curriculum for languages aims to ensure that all pupils:

- understand and respond to spoken and written language from a variety of authentic sources
- speak with increasing confidence, fluency and spontaneity, finding ways of communicating what they want to say, including through discussion and asking questions, and continually improving the accuracy of their pronunciation and intonation
- can write at varying length, for different purposes and audiences, using the variety of grammatical structures that they have learnt
- discover and develop an appreciation of a range of writing in the language studied.

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.
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</tr>
<tr>
<td>Learning another language presents opportunities for the reinforcement of knowledge, skills and understanding developed in other curriculum areas. These opportunities can be exploited through:</td>
<td>Teaching may be of any modern or ancient foreign language and should focus on enabling pupils to make substantial progress in one language. The teaching should provide an appropriate balance of spoken and written language and should lay the foundations for further foreign language teaching at key stage 3. It should enable pupils to understand and communicate ideas, facts and feelings in speech and writing, focused on familiar and routine matters, using their knowledge of phonology, grammatical structures and vocabulary.</td>
</tr>
<tr>
<td>● aspects of English such as speaking and listening skills, knowledge and understanding of grammatical structures and sentence construction</td>
<td></td>
</tr>
<tr>
<td>● aspects of mathematics such as counting, calculations, money, the time and the date</td>
<td></td>
</tr>
<tr>
<td>● songs, alphabet, poems, rhymes and stories in other languages</td>
<td></td>
</tr>
<tr>
<td>● international or multi-cultural work, for example celebration of festivals, storytelling</td>
<td></td>
</tr>
<tr>
<td>● using ICT, for example e-mail with schools abroad, materials from the internet and satellite television</td>
<td></td>
</tr>
<tr>
<td>● geographical and historical work relating to other countries.</td>
<td></td>
</tr>
</tbody>
</table>

| Understanding and using the foreign language | |
|-----------------------------------------------||
| 1. In the early stages of language learning pupils might be taught: | Pupils should be taught to: |
| a. how to use and respond to the foreign language | ● listen attentively to spoken language and show understanding by joining in and responding |
| b. how to listen carefully in order to discriminate sounds, identify meaning and develop auditory awareness | ● explore the patterns and sounds of language through songs and rhymes and link the spelling, sound and meaning of words |
| c. correct pronunciation and intonation | ● engage in conversations; ask and answer questions; express opinions and respond to those of others; seek clarification and help* |
| d. how to ask and answer questions | ● speak in sentences, using familiar vocabulary, phrases and basic language structures |
| e. techniques for memorising words, phrases and short extracts | |
| f. how to use context and clues to interpret meaning | |
| g. how to make use of their knowledge of English or another language in learning the foreign language. | |

| 2. Pupils can be taught about other countries and cultures by: | |
| a. working with authentic materials including some from ICT-based sources | develop accurate pronunciation and intonation so that others understand when they are reading aloud or using familiar words and phrases* |
| b. considering their own culture and comparing it with others | ● present ideas and information orally to a range of audiences* |
| c. considering the experiences of other people. | ● read carefully and show understanding of words, phrases and simple writing |

| 3. In order to develop their knowledge, skills and understanding further, pupils might also be taught: | |
| a. the interrelationship of sounds and writing | appreciate stories, songs, poems and rhymes in the language |
| b. simple aspects of grammar and how to apply them | broaden their vocabulary and develop their ability to understand new words that are introduced into familiar written material, including through using a dictionary |
| c. how to initiate conversations | |
| d. how to use dictionaries and other reference materials | |
| e. how to communicate with each other in the foreign language in pairs and groups and with their teacher | |
| f. how to use their knowledge of the language creatively and imaginatively | |
| g. how to use the foreign language for real purposes. | |

| Applying and developing fluency | |
|--------------------------------||
| ● write phrases from memory, and adapt these to create new sentences, to express ideas clearly | |
| ● describe people, places, things and actions orally* and in writing | |
| ● understand basic grammar appropriate to the language being studied, including (where relevant): feminine, masculine and neuter forms and the conjugation of high-frequency verbs; key features and patterns of the language; how to apply these, for instance, to build sentences; and how these differ from or are similar to English. | |

The starred (*) content above will not be applicable to ancient languages.
Music
National Curriculum and 2014 Comparison

Purpose of study
Music is a universal language that embodies one of the highest forms of creativity. A high-quality music education should engage and inspire pupils to develop a love of music and their talent as musicians, and so increase their self-confidence, creativity and sense of achievement. As pupils progress, they should develop a critical engagement with music, allowing them to compose, and to listen with discrimination to the best in the musical canon.

Aims
The national curriculum for music aims to ensure that all pupils:

- perform, listen to, review and evaluate music across a range of historical periods, genres, styles and traditions, including the works of the great composers and musicians
- learn to sing and to use their voices, to create and compose music on their own and with others, have the opportunity to learn a musical instrument, use technology appropriately and have the opportunity to progress to the next level of musical excellence
- understand and explore how music is created, produced and communicated, including through the inter-related dimensions: pitch, duration, dynamics, tempo, timbre, texture, structure and appropriate musical notations.

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.
### Key Stage 1 Music

#### Present Curriculum

**Introduction**
Teaching should ensure that 'listening, and applying knowledge and understanding', are developed through the interrelated skills of 'performing', 'composing' and 'appraising'.

During Key Stage 1 pupils listen carefully and respond physically to a wide range of music. They play musical instruments and sing a variety of songs from memory, adding accompaniments and creating short compositions, with increasing confidence, imagination and control. They explore and enjoy how sounds and silence can create different moods and effects.

<table>
<thead>
<tr>
<th>Controlling sounds through singing and playing - performing skills</th>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pupils should be taught how to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. use their voices expressively by singing songs and speaking chants and rhymes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. play tuned and untuned instruments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. rehearse and perform with others [for example, starting and finishing together, keeping to a steady pulse].</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Creating and developing musical ideas - composing skills</th>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Pupils should be taught how to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. create musical patterns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. explore, choose and organise sounds and musical ideas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Responding and reviewing - appraising skills</th>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Pupils should be taught how to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. explore and express their ideas and feelings about music using movement, dance and expressive and musical language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. make improvements to their own work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listening, and applying knowledge and understanding</th>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Pupils should be taught:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. to listen with concentration and to internalise and recall sounds with increasing aural memory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. how the combined musical elements of pitch, duration, dynamics, tempo, timbre, texture and silence can be organised and used expressively within simple structures [for example, beginning, middle, end]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. how sounds can be made in different ways [for example, vocalising, clapping, by musical instruments, in the environment] and described using given and invented signs and symbols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. how music is used for particular purposes [for example, for dance, as a lullaby]</td>
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<td></td>
</tr>
</tbody>
</table>

### National Curriculum and 2014 Comparison

**Introduction**
As there is no KS1 rationale the aims have been used in place:

- perform, listen to, review and evaluate music across a range of historical periods, genres, styles and traditions, including the works of the great composers and musicians
- learn to sing and to use their voices, to create and compose music on their own and with others, have the opportunity to learn a musical instrument, use technology appropriately and have the opportunity to progress to the next level of musical excellence
- understand and explore how music is created, produced and communicated, including through the inter-related dimensions: pitch, duration, dynamics, tempo, timbre, texture, structure and appropriate musical notations.

<table>
<thead>
<tr>
<th>Vocal expression</th>
<th>Pupils should be taught to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>use their voices expressively and creatively by singing songs and speaking chants and rhymes</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Play instruments</th>
<th>Pupils should be taught to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>play tuned and untuned instruments musically</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compose and create music</th>
<th>Pupils should be taught:</th>
</tr>
</thead>
<tbody>
<tr>
<td>experiment with, create, select and combine sounds using the inter-related dimensions of music.</td>
<td></td>
</tr>
</tbody>
</table>
# Key Stage 2 Music

## Present Curriculum

### Introduction
Teaching should ensure that ‘listening, and applying knowledge and understanding’, are developed through the interrelated skills of ‘performing’, ‘composing’ and ‘appraising’.

During Key Stage 2 pupils sing songs and play instruments with increasing confidence, skill, expression and awareness of their own contribution to a group or class performance. They improvise, and develop their own musical compositions, in response to a variety of different stimuli with increasing personal involvement, independence and creativity. They explore their thoughts and feelings through responding physically, intellectually and emotionally to a variety of music from different times and cultures.

### Controlling sounds through singing and playing - performing skills
1. Pupils should be taught how to:
   a. sing songs, in unison and two parts, with clear diction, control of pitch, a sense of phrase and musical expression
   b. play tuned and untuned instruments with control and rhythmic accuracy
   c. practise, rehearse and present performances with an awareness of the audience.

### Creating and developing musical ideas - composing skills
2. Pupils should be taught how to:
   a. improvise, developing rhythmic and melodic material when performing
   b. explore, choose, combine and organise musical ideas within musical structures.

### Responding and reviewing - appraising skills
3. Pupils should be taught how to:
   a. analyse and compare sounds
   b. explore and explain their own ideas and feelings about music using movement, dance, expressive language and musical vocabulary
   c. improve their own and others’ work in relation to its intended effect.

### Listening, and applying knowledge and understanding
4. Pupils should be taught:
   a. to listen with attention to detail and to internalise and recall sounds with increasing aural memory
   b. how the combined musical elements of pitch, duration, dynamics, tempo, timbre, texture and silence can be organised within musical structures [for example, ostinato] and used to communicate different moods and effects
   c. how music is produced in different ways [for example, through the use of different resources, including ICT] and described through relevant established and invented notations
   d. how time and place can influence the way music is created, performed and heard [for example, the effect of occasion and venue].

## National Curriculum and 2014 Comparison

### Introduction
Pupils should be taught to sing and play musically with increasing confidence and control. They should develop an understanding of musical composition, organising and manipulating ideas within musical structures and reproducing sounds from aural memory.

### Controlling sounds through singing and playing - performing skills
- **Play and perform**
  - play and perform in solo and ensemble contexts, using their voices and playing musical instruments with increasing accuracy, fluency, control and expression

### Creating and developing musical ideas - composing skills
- **Create and compose**
  - improvise and compose music for a range of purposes using the inter-related dimensions of music

### Responding and reviewing - appraising skills
- **Listen and rehearse sounds accurately**
  - listen with attention to detail and recall sounds with increasing aural memory

### Listening, and applying knowledge and understanding
- **Patterns: Use and apply musical notation**
  - use and understand staff and other musical notations
- **Listening to and appreciate a range of music**
  - appreciate and understand a wide range of high-quality live and recorded music drawn from different traditions and from great composers and musicians
- **Music over time**
  - develop an understanding of the history of music.
**Physical education**

**National Curriculum and 2014 Comparison**

**Purpose of study**
A high-quality physical education curriculum inspires all pupils to succeed and excel in competitive sport and other physically-demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect.

**Aims**
The national curriculum for physical education aims to ensure that all pupils:
- develop competence to excel in a broad range of physical activities
- are physically active for sustained periods of time
- engage in competitive sports and activities
- lead healthy, active lives.

**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.

<table>
<thead>
<tr>
<th>Present Curriculum</th>
<th>Curriculum 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Introduction</td>
</tr>
<tr>
<td>Teaching should ensure that ‘evaluating and improving performance’, connections are made between ‘developing, selecting and applying skills, tactics and compositional ideas’, and ‘fitness and health’.</td>
<td>Pupils should develop fundamental movement skills, become increasingly competent and confident and access a broad range of opportunities to extend their agility, balance and coordination, individually and with others. They should be able to engage in competitive (both against self and against others) and co-operative physical activities, in a range of increasingly challenging situations.</td>
</tr>
</tbody>
</table>

During Key Stage 1 pupils build on their natural enthusiasm for movement, using it to explore and learn about their world. They start to work and play with other pupils in pairs and small groups. By watching, listening and experimenting, they develop their skills in movement and coordination, and enjoy expressing and testing themselves in a variety of situations.
### Key Stage 1 Physical Education

#### Acquiring and developing skills

1. Pupils should be taught to:
   a. explore basic skills, actions and ideas with increasing understanding
   b. remember and repeat simple skills and actions with increasing control and coordination.

#### Selecting and applying skills, tactics and compositional ideas

2. Pupils should be taught to:
   a. explore how to choose and apply skills and actions in sequence and in combination
   b. vary the way they perform skills by using simple tactics and movement phrases
   c. apply rules and conventions for different activities.

3. Pupils should be taught:
   a. describe what they have done
   b. observe, describe and copy what others have done
   c. use what they have learnt to improve the quality and control of their work.

#### Evaluating and improving performance

3. Pupils should be taught:
   a. describe what they have done
   b. observe, describe and copy what others have done
   c. use what they have learnt to improve the quality and control of their work.

#### Knowledge and understanding of fitness and health

4. Pupils should be taught:
   a. how important it is to be active
   b. to recognise and describe how their bodies feel during different activities.

#### Range of activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acquiring and developing skills</strong></td>
<td>Pupils should be taught to: master basic movements including running, jumping, throwing and catching, as well as developing balance, agility and co-ordination</td>
</tr>
<tr>
<td><strong>Selecting and applying skills, tactics and compositional ideas</strong></td>
<td>Pupils should be taught to:</td>
</tr>
<tr>
<td>- develop simple tactics for attacking and defending</td>
<td></td>
</tr>
<tr>
<td>- create simple movement patterns</td>
<td></td>
</tr>
<tr>
<td><strong>Evaluating and improving performance</strong></td>
<td>Pupils should be taught to:</td>
</tr>
<tr>
<td>- recognise their own success</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge and understanding of fitness and health</strong></td>
<td>Pupils should:</td>
</tr>
<tr>
<td>- be physically active for sustained periods of time</td>
<td></td>
</tr>
<tr>
<td>- have the strength, stamina and suppleness to use a range of fundamental movement skills across a broad range of activities</td>
<td></td>
</tr>
<tr>
<td>The activities and experiences in the PE programmes of study should aim to ensure ALL pupils lead healthy and active lives.</td>
<td></td>
</tr>
<tr>
<td><strong>Range of activities</strong></td>
<td>The skills, knowledge and understanding within the physical education programme of study should be delivered through a broad but balanced curriculum. In order for all pupils to make progress and take part confidently, responsibly and successfully, it is important that they experience a wide range of physical activity and sports. No one area of activity should dominate the curriculum. Activity which is broad and balanced to include:</td>
</tr>
<tr>
<td>- team games</td>
<td></td>
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<tr>
<td>- competitive activities</td>
<td></td>
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<tr>
<td>- cooperative activities</td>
<td></td>
</tr>
<tr>
<td>- dance</td>
<td></td>
</tr>
<tr>
<td><strong>Swimming</strong></td>
<td>All schools must provide swimming instruction either in key stage 1 or key stage 2</td>
</tr>
<tr>
<td>Pupils should be taught to:</td>
<td></td>
</tr>
<tr>
<td>- swim competently, confidently and proficiently over a distance of at least 25 metres.</td>
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</tr>
<tr>
<td>- use a range of strokes effectively [for example, front crawl, backstroke and breaststroke].</td>
<td></td>
</tr>
<tr>
<td>- perform safe self-rescue in different water-based situations</td>
<td></td>
</tr>
</tbody>
</table>

Swimming was listed as non-statutory in the key stage.
<table>
<thead>
<tr>
<th>Present Curriculum</th>
<th>National Curriculum and 2014 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Pupils should continue to apply and develop a broader range of skills, learning how to use them in different ways and to link them to make actions and sequences of movement. They should enjoy communicating, collaborating and competing with each other. They should develop an understanding of how to improve in different physical activities and sports and learn how to evaluate and recognise their own success.</td>
</tr>
</tbody>
</table>
| **Acquiring and developing skills** | Pupils should be taught to:  
  - apply and develop a broader range of skills such as running, jumping, throwing and catching in isolation and in combination and develop overall fitness and strength. |
| 1. Pupils should be taught to:  
  a. consolidate their existing skills and gain new ones  
  b. perform actions and skills with more consistent control and quality. |  
  - apply and develop a broader range of skills such as running, jumping, throwing and catching in isolation and in combination and develop overall fitness and strength. |
| **Selecting and applying skills, tactics and compositional ideas** | Pupils should be taught to:  
  - apply basic principles suitable for attacking and defending  
  - use compositional skills to create and perform a range of movement patterns  
  - solve problems and overcome challenges both as an individual and within a team |
| 2. Pupils should be taught to:  
  a. plan, use and adapt strategies, tactics and compositional ideas for individual, pair, small-group and small-team activities  
  b. develop and use their knowledge of the principles behind the strategies, tactics and ideas to improve their effectiveness  
  c. apply rules and conventions for different activities. |  
  - apply basic principles suitable for attacking and defending  
  - use compositional skills to create and perform a range of movement patterns  
  - solve problems and overcome challenges both as an individual and within a team |
| **Evaluating and improving performance** | Pupils should:  
  - develop an understanding of how to improve in different physical activities and sports and learn how to evaluate and recognise their own success  
  - compare their performance with previous ones and demonstrate improvement in order to achieve their personal best |
| 3. Pupils should be taught to:  
  a. identify what makes a performance effective  
  b. suggest improvements based on this information. |  
  - develop an understanding of how to improve in different physical activities and sports and learn how to evaluate and recognise their own success  
  - compare their performance with previous ones and demonstrate improvement in order to achieve their personal best |
| **Knowledge and understanding of fitness and health** | Pupils should:  
  - be physically active for sustained periods of time  
  - develop flexibility, strength, stamina to be able to play in games, take part in performances, overcome challenges and achieve personal bests |
| 4. Pupils should be taught:  
  a. how exercise affects the body in the short term  
  b. to warm up and prepare appropriately for different activities  
  c. why physical activity is good for their health and well-being  
  d. why wearing appropriate clothing and being hygienic is good for their health and safety. |  
  - be physically active for sustained periods of time  
  - develop flexibility, strength, stamina to be able to play in games, take part in performances, overcome challenges and achieve personal bests |

The activities and experiences in the PE programmes of study should aim to ensure ALL pupils lead healthy and active lives.
### Range of activities

During the key stage, pupils should be taught the knowledge, skills and understanding through five areas of activity:

- a. dance activities
- b. games activities
- c. gymnastics activities

and two activity areas from:
- swimming activities and water safety
- athletic activities
- outdoor and adventurous activities

Swimming activities and water safety must be chosen as one of these areas of activity unless pupils have completed the full key stage 2 teaching requirements in relation to swimming activities and water safety during key stage 1.

### Range of activities

The skills, knowledge and understanding within the physical education programmes of study should be delivered through a broad but balanced curriculum. In order for all pupils to make progress and take part confidently, responsibly and successfully, it is important that they experience a wide range of physical activities and sports. No one area of activity should dominate the curriculum.

Activity which is broad and balanced to include:

- competitive striking and fielding, invasion and net/wall games (modified where appropriate)
- dance
- outdoor and adventurous activity challenges
- swimming and water safety (see below)

**Athletics and gymnastics are suggested as areas of activity that can support the development of flexibility, strength, technique, control and balance.**

### Swimming

All schools **must** provide swimming instruction either in key stage 1 or key stage 2

Pupils should be taught to:

- swim competently, confidently and proficiently over a distance of at least 25 metres.
- use a range of strokes effectively [for example, front crawl, backstroke and breaststroke].
- perform safe self-rescue in different water-based situations.
PSHE, National Curriculum 2014 and the Suffolk PSHE framework

DfE guidance issued 11/09/13 states:
Personal, social, health and economic (PSHE) education is an important and necessary part of all pupils' education. All schools should teach PSHE, drawing on good practice, and this expectation is outlined in the introduction to the proposed new national curriculum. PSHE is a non-statutory subject. To allow teachers the flexibility to deliver high-quality PSHE we consider it unnecessary to provide new standardised frameworks or programmes of study. PSHE can encompass many areas of study. Teachers are best placed to understand the needs of their pupils and do not need additional central prescription. However, while we believe that it is for schools to tailor their local PSHE programme to reflect the needs of their pupils, we expect schools to use their PSHE education programme to equip pupils with a sound understanding of risk and with the knowledge and skills necessary to make safe and informed decisions. Schools should seek to use PSHE education to build, where appropriate, on the statutory content already outlined in the national curriculum, the basic school curriculum and in statutory guidance on: drug education, financial education, sex and relationship education (SRE) and the importance of physical activity and diet for a healthy lifestyle.

We want teachers to be free to address the topics most relevant for their pupils, drawing on good practice and advice from professional organisations. Schools are free to use the organisations and resources they choose and we encourage organisations to develop guidance for schools in the areas of their expertise.

Suffolk Schools are able to access the Suffolk PSHE framework to support them in this significant aspect of education.

National Curriculum2000 and 2014
Key Stage 1 Personal, Emotional, Social, Health and Economic education
Introduction
PSHE education is non-statutory; it is included to enable schools to plan a whole curriculum. During Key Stage 1 pupils learn about themselves as developing individuals and as members of their communities, building on their own experiences and on the early learning goals for personal, social and emotional development. They learn the basic concepts and skills for keeping themselves healthy and safe and developing positive relationships. They have opportunities to show they can take some responsibility for themselves and their environment. They begin to learn about their own and other people's feelings and become aware of the views, needs and rights of other children and older people. As members of a class and school community, they learn social skills such as how to share, take turns, play, help others, resolve simple arguments and resist bullying. They begin to take an active part in the life of their school and its neighbourhood.

Key Stage 2 Personal, Emotional, Social, Health and Economic education
PSHE education is non-statutory; it is included to enable schools to plan a whole curriculum. During Key Stage 2 pupils learn about themselves as growing and changing individuals with their own experiences and ideas, and as members of their communities as they become more mature, independent and self-confident. They learn about the wider world and the interdependence of communities within it. They develop their sense of social justice and moral responsibility and begin to understand that their own choices and behaviour can affect local, national and global issues, and political and social institutions. They learn how to take part more fully in school and community activities. As they begin to develop into young adults, they face the challenges of puberty and transfer to secondary school. They learn how to make confident and informed choices about their health and environment; to take more responsibility for their learning, both individually and as part of a group, or groups, and develop the skills and resilience to deal with unwanted behaviours.
<table>
<thead>
<tr>
<th>Developing confidence and responsibility and making the most of their abilities</th>
<th>Pupils should be taught to:</th>
<th>3. Pupils should be taught:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- a. to recognise what they like and dislike, what is fair and unfair, and what is right and wrong</td>
<td>b. to share their opinions on things that matter to them and explain their views</td>
<td>a. how to make simple choices that improve their health and wellbeing</td>
</tr>
<tr>
<td>- b. to share their opinions on things that matter to them and explain their views</td>
<td>c. to recognise, name and deal with their feelings in a positive way</td>
<td>b. to maintain personal hygiene</td>
</tr>
<tr>
<td>- c. to recognise, name and deal with their feelings in a positive way</td>
<td>d. to think about themselves, learn from their experiences and recognise what they are good at</td>
<td>c. how some diseases spread and can be controlled</td>
</tr>
<tr>
<td>- d. to think about themselves, learn from their experiences and recognise what they are good at</td>
<td>e. how to set simple goals</td>
<td>d. about the process of growing from young to old and how people's needs change</td>
</tr>
<tr>
<td>- e. how to set simple goals</td>
<td></td>
<td>e. the names of the main parts of the body</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f. that all household products, including medicines, can be harmful if not used properly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>g. rules for, and ways of, keeping safe, including basic road safety, and about people who can help them to stay safe.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preparing to play an active role as citizens</th>
<th>Pupils should be taught to:</th>
<th>4. Pupils should be taught:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- a. to take part in discussions with one other person and the whole class</td>
<td>b. to take part in a simple debate about topical issues</td>
<td>a. to recognise how their behaviour affects other people</td>
</tr>
<tr>
<td>- b. to take part in a simple debate about topical issues</td>
<td>c. to recognise choices they can make, and recognise the difference between right and wrong</td>
<td>b. to listen to other people, and play and work cooperatively</td>
</tr>
<tr>
<td>- c. to recognise choices they can make, and recognise the difference between right and wrong</td>
<td>d. to agree and follow rules for their group and classroom, and understand how rules help them</td>
<td>c. to identify and respect the differences and similarities between people</td>
</tr>
<tr>
<td>- d. to agree and follow rules for their group and classroom, and understand how rules help them</td>
<td>e. to realise that people and other living things have needs, and that they have responsibilities to meet them</td>
<td>d. that family and friends should care for each other</td>
</tr>
<tr>
<td>- e. to realise that people and other living things have needs, and that they have responsibilities to meet them</td>
<td>f. that they belong to various groups and communities, such as family and school</td>
<td>e. that there are different types of teasing and bullying, that bullying is wrong, and how to get help to deal with bullying</td>
</tr>
<tr>
<td>- f. that they belong to various groups and communities, such as family and school</td>
<td>g. what improves and harms their local, natural and built environments and about some of the ways people look after them</td>
<td></td>
</tr>
<tr>
<td>- g. what improves and harms their local, natural and built environments and about some of the ways people look after them</td>
<td>h. to contribute to the life of the class and school</td>
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<tr>
<td>- h. to contribute to the life of the class and school</td>
<td>i. to realise that money comes from different sources and can be used for different purposes</td>
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</tbody>
</table>
| Developing confidence and responsibility and making the most of their abilities | 1. Pupils should be taught:  
a. to talk and write about their opinions, and explain their views, on issues that affect themselves and society  
b. to recognise their worth as individuals by identifying positive things about themselves and their achievements, seeing their mistakes, making amends and setting personal goals  
c. to face new challenges positively by collecting information, looking for help, making responsible choices, and taking action  
d. to recognise, as they approach puberty, how people's emotions change at that time and how to deal with their feelings towards themselves, their family and others in a positive way  
e. about the range of jobs carried out by people they know, and to understand how they can develop skills to make their own contribution in the future  
f. to look after their money and realise that future wants and needs may be met through saving | 3. Pupils should be taught:  
a. what makes a healthy lifestyle, including the benefits of exercise and healthy eating, what affects mental health, and how to make informed choices  
b. that bacteria and viruses can affect health and that following simple, safe routines can reduce their spread  
c. about how the body changes as they approach puberty  
d. which commonly available substances and drugs are legal and illegal, their effects and risks  
e. to recognise the different risks in different situations and then decide how to behave responsibly, including sensible road use, and judging what kind of physical contact is acceptable or unacceptable  
f. that pressure to behave in an unacceptable or risky way can come from a variety of sources, including people they know, and how to ask for help and use basic techniques for resisting pressure to do wrong  
g. school rules about health and safety, basic emergency aid procedures and where to get help |  

| Preparing to play an active role as citizens | 2. Pupils should be taught:  
a. to research, discuss and debate topical issues, problems and events  
b. why and how rules and laws are made and enforced, why different rules are needed in different situations and how to take part in making and changing rules  
c. to realise the consequences of anti-social and aggressive behaviours, such as bullying and racism, on individuals and communities  
d. that there are different kinds of responsibilities, rights and duties at home, at school and in the community, and that these can sometimes conflict with each other  
e. to reflect on spiritual, moral, social, and cultural issues, using imagination to understand other people's experiences  
f. to resolve differences by looking at alternatives, making decisions and explaining choices  
g. what democracy is, and about the basic institutions that support it locally and nationally  
h. to recognise the role of voluntary, community and pressure groups  
i. to appreciate the range of national, regional, religious and ethnic identities in the United Kingdom  
j. that resources can be allocated in different ways and that these economic choices affect individuals, communities and the sustainability of the environment  
k. to explore how the media present information. | 4. Pupils should be taught:  
a. that their actions affect themselves and others, to care about other people's feelings and to try to see things from their points of view  
b. to think about the lives of people living in other places and times, and people with different values and customs  
c. to be aware of different types of relationship, including marriage and those between friends and families, and to develop the skills to be effective in relationships  
d. to realise the nature and consequences of racism, teasing, bullying and aggressive behaviours, and how to respond to them and ask for help  
e. to recognise and challenge stereotypes  
f. that differences and similarities between people arise from a number of factors, including cultural, ethnic, racial and religious diversity, gender and disability  
g. where individuals, families and groups can get help. |
<table>
<thead>
<tr>
<th>Skills</th>
<th>Themes</th>
<th>Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaking and Listening for Learning and Relationships</td>
<td>Relationships</td>
<td>Friendship, including repairing broken friendship and developing new friendships; Personal feelings, including impact of others; Family, including difference and diversity; Peer influences, including positive as well as negative and body image; Growing up, including physical and emotional aspects and transition to next stage of learning; Bullying, including understanding what constitutes bullying behaviour, personal responsibility not to bully others and developing resilience strategies to lessen the impact of bullying.</td>
</tr>
<tr>
<td>Non-verbal Communication</td>
<td>Health</td>
<td>Healthy Lifestyles, including diet, nutrition and physical activity, Physical development, including growth, naming body parts (a safeguarding issue) and puberty including physical/emotional changes and hygiene, Peer influences, including mental health/wellbeing, Substance use/misuse, including medicines, alcohol, solvents and tobacco; Emergency aid for self and others.</td>
</tr>
<tr>
<td>Assessing and Managing Risk for self and others</td>
<td>Media</td>
<td>Influence of technology, including television, computers, games consoles, mobile technology; Media influence; including commercialisation of children, social networking and critical media consumption.</td>
</tr>
<tr>
<td>Conflict Resolution</td>
<td>Financial Capability</td>
<td>Beginning to understand the role of money for the individual and in society, including laws related to raising money.</td>
</tr>
<tr>
<td>Coping Skills Resilience</td>
<td>Careers &amp; Work Related Learning</td>
<td>Opening up the World of Work to children, including job families, skill development and aspiration through goal setting and reviewing.</td>
</tr>
<tr>
<td>Independence Self-motivation</td>
<td>Citizenship</td>
<td>Developing as an active member of society, including school, local community and global community; Working as part of a team or group to support others.</td>
</tr>
<tr>
<td>Group Work Interdependenc</td>
<td>Enrichment</td>
<td>Enrichment opportunities that support the planned programme in the school.</td>
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</tbody>
</table>
Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

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

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data.

The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils’ engagement with and motivation to study science.

The nature, processes and methods of science

‘Working scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how ‘working scientifically’ might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

‘Working scientifically’ will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Spoken language

The national curriculum for science reflects the importance of spoken language in pupils’ development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

School curriculum

The programmes of study for science are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate. All schools are also required to set out their school curriculum for science on a year-by-year basis and make this information available online.

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. Schools are not required by law to teach the content indicated as being ‘non-statutory’.
Working scientifically progression

Key Stage 1 (Years 1 and 2)
- Ask simple questions and recognise they can be answered in different ways
- Observe closely using simple equipment
- Perform simple tests
- Identify and classify
- Use observations and ideas to suggest answers to questions
- Gather and record data to help in answering questions

Lower Key Stage 2 (Years 3 and 4)
- Ask relevant questions and use different types of scientific enquiries to answer them
- Set up simple practical enquiries, comparative and fair tests
- Make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help in answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identify differences, similarities or changes related to simple scientific ideas and processes
- Use straightforward scientific evidence to answer questions or to support their findings

Upper Key Stage 2 (Years 5 and 6)
- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables, where necessary
- Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Use test results to make predictions to set up further comparative and fair tests
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identify scientific evidence that has been used to support or refute ideas or arguments
# Plants

## Notes and guidance (non-statutory)

Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem). Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.

## Year 2

**Pupils should be taught to:**

- observe and describe how seeds and bulbs grow into mature plants
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

**Notes:** Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them. Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.

## Year 3

**Pupils should be taught to:**

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

**Notes:** Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens. Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.
Year 2
Pupils should be taught to:

- explore and compare the differences between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- identify and name a variety of plants and animals in their habitats, including micro-habitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. Pupils should be introduced to the terms ‘habitat’ (a natural environment or home of a variety of plants and animals) and ‘micro-habitat’ (a very small habitat, for example for woodlice under stones, logs or leaf litter). They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest. Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions for example: ‘Is a flame alive? Is a deciduous tree dead in winter?’ and talk about ways of answering their questions. They could construct a simple food chain that includes humans (e.g. grass, cow, human). They could describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there.

Year 4
Pupils should be taught to:

- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things.

Pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year. Pupils should explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants. Pupils could begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects.

Note: Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses. Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.

Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.
### Year 5

Pupils should be taught to:
- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life processes of reproduction in some plants and animals.

Pupils should study and raise questions about their local environment throughout the year. They should observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment. They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. Pupils might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.

### Year 6

Pupils should be taught to:
- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics.

Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.
### Animals, including humans

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<tbody>
<tr>
<td>Pupils should be taught to:</td>
<td>Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.</td>
<td>Pupils should be taught to:</td>
</tr>
<tr>
<td>• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</td>
<td>• notice that animals, including humans, have offspring which grow into adults</td>
<td>• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</td>
</tr>
<tr>
<td>• identify and name a variety of common animals that are carnivores, herbivores and omnivores</td>
<td>• find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</td>
<td>• identify that humans and some other animals have skeletons and muscles for support, protection and movement.</td>
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<tr>
<td>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</td>
<td>• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</td>
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<tr>
<td>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</td>
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</table>

### Notes and guidance (non-statutory)

- Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.

- Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They should also be introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult. Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.

- Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions. Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.
<table>
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<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
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<tr>
<td>• describe the simple functions of the basic parts of the digestive</td>
<td>• describe the changes as humans develop to old age.</td>
<td>• identify and name the main parts of the human circulatory system,</td>
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<tr>
<td>system in humans</td>
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<td>and describe the functions of the heart, blood vessels and blood</td>
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<td>• identify the different types of teeth in humans and their simple</td>
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<td>• recognise the impact of diet, exercise, drugs and lifestyle on the</td>
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<tr>
<td>functions</td>
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<td>way their bodies function</td>
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<td>• construct and interpret a variety of food chains, identifying</td>
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<td>• describe the ways in which nutrients and water are transported</td>
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<td>producers, predators and prey.</td>
<td></td>
<td>within animals, including humans.</td>
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<td></td>
<td>Pupils should build on their learning from years 3 and 4 about the</td>
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<td></td>
<td>main body parts and internal organs (skeletal, muscular and digestive</td>
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<td>system to explore and answer questions that help them to understand</td>
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<td></td>
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<td>how the circulatory system enables the body to function.</td>
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<td>bodies might be damaged – including how some drugs and other</td>
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<td>Pupils might work scientifically by: exploring the work of</td>
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<td>scientists and scientific research about the relationship between</td>
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<td></td>
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<td>diet, exercise, drugs, lifestyle and health.</td>
</tr>
</tbody>
</table>

Pupils should be introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions. Pupils might work scientifically by: comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.

Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty. Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.

Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function. Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.
<table>
<thead>
<tr>
<th>Evolution and inheritance</th>
<th>Notes and guidance (non-statutory)</th>
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<tbody>
<tr>
<td><strong>Year 6</strong></td>
<td>Building on what they learned about fossils in the topic on rocks in year 3, pupils should find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes’ necks got longer, or the development of insulating fur on the arctic fox. Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. <strong>Note:</strong> At this stage, pupils are not expected to understand how genes and chromosomes work. Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</td>
</tr>
</tbody>
</table>

Pupils should be taught to:

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
<table>
<thead>
<tr>
<th>Uses of everyday materials</th>
<th>Notes and guidance (non-statutory)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td>Pupils should explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Pupils should explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil. Pupils might work scientifically by: performing simple tests to explore questions, for example: ‘What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast’s leotard?’</td>
</tr>
<tr>
<td>Pupils should be taught to:</td>
<td><strong>Year 2</strong></td>
</tr>
<tr>
<td>• distinguish between an object and the material from which it is made</td>
<td>Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupils might find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam. Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.</td>
</tr>
<tr>
<td>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</td>
<td>• identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</td>
</tr>
<tr>
<td>• describe the simple physical properties of a variety of everyday materials</td>
<td>• find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</td>
</tr>
<tr>
<td>• compare and group together a variety of everyday materials on the basis of their simple physical properties.</td>
<td></td>
</tr>
</tbody>
</table>
## Properties and changes of materials

### Year 5

Pupils should be taught to:

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Pupils should build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials, including relating these to what they learnt about magnetism in year 3 and about electricity in year 4. They should explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. Pupils should explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda. They should find out about how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton. Note: Pupils are not required to make quantitative measurements about conductivity and insulation at this stage. It is sufficient for them to observe that some conductors will produce a brighter bulb in a circuit than others and that some materials will feel hotter than others when a heat source is placed against them. Safety guidelines should be followed when burning materials.

Pupils might work scientifically by: carrying out tests to answer questions, for example, ‘Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?’ They might compare materials in order to make a switch in a circuit. They could observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.

## Changes that form new materials

### Year 6

Pupils should be taught to:

- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, oxidisation, and the action of acid on bicarbonate of soda.

Building on their work in Year 5 about changes that are easily reversible, pupils should explore changes that are difficult to reverse, such as burning, rusting (oxidisation) and reactions, for example vinegar with bicarbonate of soda. They should find out about how chemists create new materials, for example Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton. Note: Safety guidelines should be followed when burning materials. Pupils might work scientifically by: observing and comparing the changes that take place, for example when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an impact on our lives, for example cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.
### Rocks

**Year 3**

Pupils should be taught to:
- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter.

**Notes and guidance (non-statutory)**

Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment.

### States of matter

**Year 4**

Pupils should be taught to:
- compare and group materials together, according to whether they are solids, liquids or gases
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

**Notes and guidance (non-statutory)**

Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container).

Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled.

Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. Note: Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning. Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.
### Seasonal changes

**Year 1**

Pupils should be taught to:
- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

**Notes and guidance (non-statutory)**

Pupils should observe and talk about changes in the weather and the seasons.

**Note:** Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.

Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change.

### Light

**Year 3**

Pupils should be taught to:
- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by a solid object
- find patterns in the way that the size of shadows change.

**Notes and guidance (non-statutory)**

Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.

**Note:** Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.

Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.

**Year 6**

Pupils should be taught to:
- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

**Notes and guidance (non-statutory)**

Pupils should build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows. They should talk about what happens and make predictions. Pupils might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).
## Sound

**Year 4**

Pupils should be taught to:
- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases.

Notes and guidance (non-statutory)

Pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways. Pupils might work scientifically by:
- finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.

## Earth and space

**Year 5**

Pupils should be taught to:
- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.

Notes and guidance (non-statutory)

Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night. Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a ‘dwarf planet’ in 2006). They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).

Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils should find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus. Pupils might work scientifically by:
- comparing the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.
### Forces and magnets

#### Year 3

**Pupils should be taught to:**
- compare how things move on different surfaces
- notice that some forces need contact between two objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- describe magnets as having two poles
- predict whether two magnets will attract or repel each other, depending on which poles are facing.

**Notes and guidance (non-statutory):**

Pupils should observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe). Pupils might work scientifically by: comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers to their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.

### Forces

#### Year 5

**Pupils should be taught to:**
- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

**Notes and guidance (non-statutory):**

Pupils should explore falling objects and raise questions about the effects of air resistance. They should explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. They should experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel. Pupils should explore the effects of levers, pulleys and simple machines on movement. Pupils might find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. Pupils might work scientifically by: exploring falling paper cones or cupcake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might explore resistance in water by making and testing boats of different shapes. They might design and make products that use levers, pulleys, gears and/or springs and explore their effects.
### Forces
#### Year 6
Pupils should be taught to:
- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Identify the effect of drag forces, such as air resistance, water resistance and friction, that act between moving surfaces.
- Describe, in terms of drag forces, why moving objects that are not driven tend to slow down.
- Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.

Pupils should explore falling objects and the effects of air resistance. They should experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects, for example by observing the effects of a brake on a bicycle wheel. They should explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. Pupils should explore the effects of levers, pulleys and simple machines on movement. Pupils might find out how scientists such as Galileo and Isaac Newton helped to develop the theory of gravitation. Pupils might work scientifically by: designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might explore resistance in water by making and testing boats of different shapes. They might design and make a simple lever and explore its effects.

### Electricity
#### Year 4
Pupils should be taught to:
- Identify common appliances that run on electricity
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- Recognise some common conductors and insulators, and associate metals with being good conductors.

Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6.

**Note:** Pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity. Pupils might work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.

#### Year 6
Pupils should be taught to:
- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- Use recognised symbols when representing a simple circuit in a diagram.

Building on their work in year 4, pupils should construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols.

**Note:** Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity. Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.
Key Stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

‘Working scientifically’ is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.
Key Stage 1  |  Years 1 and 2  | National Curriculum 2014

Science Y1  |  Plants  |
---|---|
Pupils should be taught to:  
- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees  
- identify and describe the basic structure of a variety of common flowering plants, including trees.

Animals, including humans  
- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals  
- identify and name a variety of common animals that are carnivores, herbivores and omnivores  
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)  
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Everyday materials  
- distinguish between an object and the material from which it is made  
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock  
- describe the simple physical properties of a variety of everyday materials  
- compare and group together a variety of everyday materials on the basis of their simple physical properties.

Seasonal changes  
- observe changes across the four seasons  
- observe and describe weather associated with the seasons and how day length varies.

Science Y2  |  Living things and their habitats  |
Pupils should be taught to:  
- explore and compare the differences between things that are living, dead, and things that have never been alive  
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other  
- identify and name a variety of plants and animals in their habitats, including micro-habitats  
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Plants  
- observe and describe how seeds and bulbs grow into mature plants  
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Animals, including humans  
- notice that animals, including humans, have offspring which grow into adults  
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)  
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Uses of everyday materials  
- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses  
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Working scientifically  
During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:  
- asking simple questions and recognising that they can be answered in different ways  
- observing closely, using simple equipment  
- performing simple tests  
- identifying and classifying  
- using their observations and ideas to suggest answers to questions  
- gathering and recording data to help in answering questions.
The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

‘Working scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.
During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Working scientifically**
- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

**Science Y3**

**Pupils should be taught to:**

**Plants**
- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

**Animals, including humans**
- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement.

**Rocks**
- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter.

**Light**
- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by a solid object
- find patterns in the way that the size of shadows change.

**Forces and magnets**
- compare how things move on different surfaces
- notice that some forces need contact between two objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- describe magnets as having two poles
- predict whether two magnets will attract or repel each other, depending on which poles are facing.

**Science Y4**

**Pupils should be taught to:**

**Living things and their habitats**
- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things.

**Animals, including humans**
- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey.

**States of matter**
- compare and group materials together, according to whether they are solids, liquids or gases
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

**Sound**
- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases.

**Electricity**
- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors.
The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

‘Working and thinking scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read, spell and pronounce scientific vocabulary correctly.
During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

### Working scientifically
During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

### Science Y5
**Living things and their habitats**
- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals.

**Animals, including humans**
- describe the changes as humans develop to old age

**Properties and changes of materials**
- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

**Earth and space**
- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.

**Forces**
- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

### Science Y6
**Living things and their habitats**
- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics.

**Animals including humans**
- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans.

**Evolution and inheritance**
- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

**Light**
- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

**Electricity**
- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram.
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