



# SOUTH HILL PRIMARY SCHOOL

## Long Term Planning: Science

\*Topics do not need to be taught in the term specified – please adapt to suit curriculum links in your class.

Key: **Biology** Chemistry **Physics**

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>EYFS</b>	<p><b>Bears and Me</b></p> <ul style="list-style-type: none"> <li>Seasonal change -Autumn</li> <li>All about me</li> </ul> <p><i>Ongoing</i></p> <ul style="list-style-type: none"> <li>Welly Wednesdays</li> <li>Classroom 'investigation' area</li> </ul>	<p><b>Festival and Celebrations</b></p> <p><i>Ongoing</i></p> <ul style="list-style-type: none"> <li>Welly Wednesdays</li> <li>Classroom 'investigation' area</li> </ul>	<p><b>People who help us</b></p> <ul style="list-style-type: none"> <li>Labelling body parts</li> <li>Looking after pets</li> <li>Staying healthy</li> </ul> <p><i>Ongoing</i></p> <ul style="list-style-type: none"> <li>Welly Wednesdays</li> <li>Classroom 'investigation' area</li> </ul>	<p><b>Growing</b></p> <ul style="list-style-type: none"> <li>Male/Female animals and their young</li> <li>Frog life cycle</li> <li>Caterpillars and Butterflies</li> <li>Science experiments</li> <li>African Animals</li> <li>Farm Animals</li> <li>Draw and label parts of a plant</li> <li>Planting seeds</li> <li>Staying healthy</li> </ul> <p><i>Ongoing</i></p> <ul style="list-style-type: none"> <li>Welly Wednesdays</li> <li>Classroom 'investigation' area</li> </ul>	<p><b>Traditional Tales</b></p> <ul style="list-style-type: none"> <li>Planting seeds</li> <li>Planting beans and watching them grow</li> <li>Life cycle of a bean</li> <li>Staying healthy</li> </ul> <p><i>Ongoing</i></p> <ul style="list-style-type: none"> <li>Welly Wednesdays</li> <li>Classroom 'investigation' area</li> </ul>	<p><b>Oceans</b></p> <ul style="list-style-type: none"> <li>staying healthy</li> <li>Life on the farm - farm trip</li> <li>Floating and sinking</li> <li>Environment: recycling</li> <li>Life on land/sea – similarities and differences</li> </ul> <p><i>Ongoing</i></p> <ul style="list-style-type: none"> <li>Welly Wednesdays</li> <li>Classroom 'investigation' area</li> </ul>
<b>Year 1</b>	<p><b>Everyday Materials (Objects and materials)</b></p> <ul style="list-style-type: none"> <li>distinguish between an object and the material from which it is made</li> <li>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>describe the simple physical properties of a variety of everyday materials</li> <li>compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul> <p>Charles Macintosh – waterproof fabrics</p>		<p><b>Animals, including humans (Common animals, parts and diets)</b></p> <ul style="list-style-type: none"> <li>identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul> <p>David Attenborough -Animals</p>		<p><b>Plants (Wild and Garden)</b></p> <ul style="list-style-type: none"> <li>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>identify and describe the basic structure of a variety of common flowering plants, including trees</li> </ul>	
<b>Seasonal Changes</b>						



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Observe changes across the four seasons, observe and describe weather associated with the seasons and how day length varies.				
<p><b>Year 2</b></p>	<p><b>Animals including humans (Growth, survival and health)</b></p> <ul style="list-style-type: none"> <li>notice that animals, including humans, have offspring which grow into adults</li> <li>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	<p><b>Uses of everyday materials (Materials for different uses)</b></p> <ul style="list-style-type: none"> <li>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul> <p>John McAdam-building roads</p>	<p><b>Plants (Seeds and bulbs)</b></p> <ul style="list-style-type: none"> <li>observe and describe how seeds and bulbs grow into mature plants</li> <li>find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul> <p>David Bellamy - Plants</p>	<p><b>Living things and their habitats (Living, dead, never alive, habitats)</b></p> <ul style="list-style-type: none"> <li>explore and compare the differences</li> <li>between things that are living, dead, and things that have never been alive</li> <li>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</li> <li>identify and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>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.</li> </ul>
<p><b>Working scientifically In Y1 &amp; Y2</b></p>	<p>In Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the POS content:</p> <ul style="list-style-type: none"> <li>asking simple questions and recognising that they can be answered in different ways</li> <li>observing closely, using simple equipment</li> <li>performing simple tests</li> <li>identifying and classifying</li> <li>using their observations and ideas to suggest answers to questions</li> <li>Gathering and recording data to help in answering questions.</li> </ul>			



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<p><b>Year 3</b></p>	<p><b>Rocks (Rock types, fossils and soil)</b></p> <ul style="list-style-type: none"> <li>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>recognise that soils are made from rocks and organic matter.</li> </ul> <p>Mary Anning – Fossils.</p>	<p><b>Forces and Magnets (Movement and Magnets)</b></p> <ul style="list-style-type: none"> <li>compare how things move on different surfaces</li> <li>notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>observe how magnets attract or repel each other and attract some materials and not others</li> <li>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</li> <li>describe magnets as having two poles</li> <li>predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p>John Dunlop – Tyres John Mc Adam – Road</p>	<p><b>Light (Shadows and reflection)</b></p> <ul style="list-style-type: none"> <li>recognise that they need light in order to see things and that dark is the absence of light</li> <li>notice that light is reflected from surfaces</li> <li>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>find patterns in the way that the size of shadows change.</li> </ul> <p>Alhazen – Study of Light and Vision.</p>	<p><b>Plants (Parts of plant and growth)</b></p> <ul style="list-style-type: none"> <li>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>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</li> <li>investigate the way in which water is transported within plants</li> <li>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>	<p><b>Animals including humans (Food, diet skeletons and muscles)</b></p> <ul style="list-style-type: none"> <li>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</li> <li>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>
<p><b>Year 4</b></p>	<p><b>Electricity (Circuits and Components)</b></p>	<p><b>Sound</b></p>	<p><b>States of Matter (Solid, liquid &amp; Gases)</b></p>	<p><b>Animals, including Humans</b></p>	<p><b>Living things and their habitats</b></p>



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	<ul style="list-style-type: none"> <li>• identify common appliances that run on electricity</li> <li>• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>• 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</li> <li>• recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	<p><b>(Vibrations and features)</b></p> <ul style="list-style-type: none"> <li>• identify how sounds are made, associating them with something vibrating</li> <li>• recognise that vibrations from sounds travel through a medium to the ear</li> <li>• find patterns in the pitch of a sound and features of the object that produced it</li> <li>• find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>• recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> <p>Alexander Bell - Sound</p>	<ul style="list-style-type: none"> <li>• compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• 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)</li> <li>• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul> <p>Spencer Silver – Materials - Post it notes</p>	<p><b>(Digestion, teeth and food chain)</b></p> <ul style="list-style-type: none"> <li>• describe the simple functions of the basic parts of the digestive system in humans</li> <li>• identify the different types of teeth in humans and their simple functions</li> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>	<p><b>(Classification &amp; human effects on the environment)</b></p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>• recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <p>Jane Goodall – Study of Chimpanzees.</p>
<p><b>Working scientifically In Y3 &amp; Y4</b></p>	<p>In Y 3 and Y4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the POS content:</p> <ul style="list-style-type: none"> <li>• asking relevant questions and using different types of scientific enquiries to answer them</li> <li>• setting up simple practical enquiries, comparative and fair tests</li> </ul>				



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- 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

**Year 5**

**Properties and Changes of materials  
(Dissolving, reactions & separation)**

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility,

**Earth and Space  
(solar system and movement)**

- describe the movement of the

**Forces  
(Gravity, friction & machines)**

- explain that unsupported

**Living things and their habitats  
(life cycles and reproduction)**

**Animals including humans (Growth, development & puberty)**

- describe the changes as



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	<p>transparency, conductivity (electrical and thermal), and response to magnets</p> <ul style="list-style-type: none"> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• 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.</li> </ul> <p>Ruth Benerito – wash and wear cotton fabrics.</p>	<p><b>Earth, and other planets, relative to the Sun in the solar system</b></p> <ul style="list-style-type: none"> <li>• describe the movement of the Moon relative to the Earth</li> <li>• describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul> <p>-Copernicus – theory that the sun is at the centre of the universe.          -Galileo Galilei – astronomer          -Charles Ptolemy – astronomer          -Patrick Moore – astronomer          -Brian Cox – Physicist          -Aristotle</p>	<p><b>objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</b></p> <ul style="list-style-type: none"> <li>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul> <p>Isaac Newton – Gravity          Galileo Galilei.</p>	<ul style="list-style-type: none"> <li>• <b>describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</b></li> <li>• <b>describe the life process of reproduction in some plants and animals.</b></li> </ul> <p>David Attenborough and Jane Goodall.</p>	<p><b>humans develop to old age.</b></p>
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<p><b>Year 6</b> New curriculum Sept 2015</p>	<p><b>Light (How light travels)</b></p> <ul style="list-style-type: none"> <li>recognise that light appears to travel in straight lines</li> <li>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</li> </ul> <p>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p><b>Electricity (Changing circuits and symbols)</b></p> <ul style="list-style-type: none"> <li>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</li> <li>use recognised symbols when representing a simple circuit in a diagram.</li> </ul>	<p><b>Evolution and Inheritance (Evolution, adaption and inheritance)</b></p> <ul style="list-style-type: none"> <li>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul> <p>Charles Darwin/Alfred Wallace – theory of evolution</p>	<p><b>Living things and their habitats (Classification: plants, animals and microbes)</b></p> <ul style="list-style-type: none"> <li>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</li> <li>give reasons for classifying plants and animals based on specific characteristics.</li> </ul> <p>Carl Linnaeus – System of naming, ranking and classifying organisms</p>	<p><b>Animals including humans (Circulation and Health)</b></p> <ul style="list-style-type: none"> <li>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</li> <li>describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>
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### **Working scientifically In Y5 & Y6**

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
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- using simple models to describe scientific ideas
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support

### **The New Curriculum 2014**

#### **Science: 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.

### **The New Curriculum 2014**

#### **Science: Lower Key stage 2 (3 & 4)**





- 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.

### **The New Curriculum 2014**

#### **Science: Upper Key stage 2 (5 & 6)**

- 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.