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:

	Animals Including Humans		Living Things and their Habitats		Light and Sound		Electricity
	Plants		Materials		Forces		

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**COMMUNICATION AND LANGUAGE- Listening, Attention and Understanding** • Make comments about what they have heard and ask questions to clarify their understanding. **PHYSICAL DEVELOPMENT – Managing Self** • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. **UNDERSTANDING THE WORLD – The Natural World** • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. What Science looks like in the Early Years: • Children will be given the opportunity to explore a variety of scientific concepts through adult led sessions and the provision available to them. • Children will be encouraged to explore the investigation areas, both inside and out, as well as water, sand, mud kitchen and the wider school grounds. • Children will make predictions, test ideas and be encouraged to use communication skills to explain their findings. • Children will take part in regular Forest Schools sessions and activities in the school grounds. They will observe, notice and comment on the natural world around them. • Children will look at changes such as animal life cycles, freezing and melting and the seasons.					
Year 1	**Living Things and their Habitats** **Seasonal Changes** • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies		**Living Things and their Habitats** **Seasonal Changes** • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies		**Living Things and their Habitats** **Seasonal Changes** • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies	

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	Materials **Everyday Materials** **Focus Scientist/ theory:** Charles Macintosh - waterproof fabrics • 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	**Animals, including Humans** **Focus Scientist/ theory:** David Attenborough - Animals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • 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.	**Plants (Wild and Garden)** **Focus Scientist/ theory:** • 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	
Year 2	**Animals including Humans** **Focus Scientist/ theory:** • 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. **Working Scientifically** • Asking questions • Observing and measuring • Using books, videos, the internet, people and photos to find answers • Recording information • Looking for patterns – sorting and grouping	**Materials** **Uses of everyday materials** **Focus Scientist/ theory:** John McAdam ('macadamisation' the use of materials to construct roads) • 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** • Performing simple tests and using equipment • Saying why a test is fair • Observing and measuirng • Using books, videos, the internet, people and photos to find answers • Recording information • Looking for patterns – sorting and grouping	**Plants** **Focus Scientist:** David Bellamy • 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 **Working Scientifically** • Asking questions • Performing simple tests and using equipment • Saying why a test is fair	**Living things and their habitats** **Focus Scientist/ theory:** • 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

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			• Explaining results – saying what we found out	• Observing and measuring • Using books, videos, the internet, people and photos to find answers • Recording information • Explaining results – saying what we found out	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. **Working Scientifically** • Asking questions • Using books, videos, the internet, people and photos to find answers • Recording information • Looking for patterns – sorting and grouping
Year 3	**Materials** **Rocks** **Focus Scientist:** Mary Anning • 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	**Forces** **Forces and Magnets** **Focus Scientist:** John Dunlop –Tyres (John Mc Adam – Road) • 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	**Light and Sound** **Light** **Focus Scientist:** Alhazen – Study of Light and Vision • 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	**Plants** **Focus Scientist/ theory:** • 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** **Focus Scientist/ theory:** • 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

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	lived are trapped within rock • recognise that soils are made from rocks and organic matter. .	• 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.	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.		and muscles for support, protection and movement.
Year 4	**Electricity** **Focus Scientist/ theory:** • 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	**Light and Sound** **Sound** **Focus Scientist:** Alexander Bell (invented the first telephone) • identify how sounds are made, associating them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns in the pitch of a sound	**Materials** **States of Matter** **Focus Scientist:** Spencer Silver (Invented post it notes) • 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.	**Animals, including Humans** **Focus Scientist/ theory:** • 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	**Living things and their habitats** **Focus Scientist:** Jane Goodall (Study of Chimpanzees) • 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

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	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.	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.			variety of food chains, identifying producers, predators and prey.	• recognise that environments can change and that this can sometimes pose dangers to living things.
Year 5	**Materials** **Properties and Changes of materials** **Focus Scientist:** Ruth Benerito (cotton fabrics) • 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		**Forces** **Earth and Space** **Focus Scientist/ theory:** Copernicus: Heliocentric theory and Ptolemy: Geocentric theory • 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	**Forces** **Focus Scientist/ theory:** Isaac Newton (Gravity) (Galileo Galilei) • 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	**Living things and their habitats** **Focus Scientist/ theory:** David Attenborough (Jane Goodall) • 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** **Focus Scientist/ theory:** • describe the changes as humans develop to old age.

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	of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.		rotation to explain day and night and the apparent movement of the sun across the sky.	mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.		
Year 6 New curriculum Sept 2015	**Light and Sound Light** **Focus Scientist/ theory:** • 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** **Focus Scientist/ theory:** • 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.	**Living Things and their Habitats Evolution and Inheritance** **Focus Scientist/ theory:** Charles Darwin/Alfred Wallace and the Theory of Evolution • 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	**Living things and their habitats** **Focus Scientist:** Carl Linnaeus (System of naming, ranking and classifying organisms) • 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** **Focus Scientist/ theory:** • 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.	

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			and that adaptation may lead to evolution.		

National 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.
National 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.

National 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.

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- 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.