



Our Intent

Intent

At **South Hykeham Primary School**, we recognise the importance of Science in **every aspect of daily life**. As one of the core subjects taught in Primary Schools, we give the teaching and learning of Science the prominence it requires.

The 2014 National Curriculum for Science aims to ensure that all children:

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 skills required to understand the uses and implications of science, today and for the future.

The National Curriculum provides a structure and skill development for the science being taught throughout the school.

At South Hykeham Primary School we **encourage children to be inquisitive** and **we foster a healthy curiosity about the world around them**. We invite them to **ask questions** and become **independent learners** in exploring possible answers for their scientific based questions. All children are en-



Implementation

We create a positive attitude to science learning in our classrooms and teachers reinforce an expectation that all children are capable of achieving high standards in science whatever their levels of attainment in other curriculum areas. Our whole school approach to the teaching and learning of science involves the following;

Science is planned and taught by class teachers in topic blocks as set out in the school programme of study and in accordance with the National Curriculum;

Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves the teachers creating engaging lessons, involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning;

We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence;

'Working scientifically' skills (as set out in the national curriculum) are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with topics;

Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts;

Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.



Impact

Our Science Curriculum is high quality, well thought out and is planned to demonstrate progression. This successful approach results in a fun, engaging, hands-on and high-quality science education. It provides the children with the foundations for understanding the world around them. Through the variety of techniques, resources and outside agencies used in our teaching the children gain an understanding that science has changed our lives and that it is vital to the world's future prosperity. The children at South Hykeham overwhelmingly enjoy science and this results in motivated learners who consider themselves to be scientists.



National Curriculum.

Expectations

Level Expected at the End of EYFS

In our Foundation Stage, this involves following the 'Statutory framework for the Early Years Foundation Stage', and the following are expected:

Understanding the World ELG:

Children at the expected level of development will:

- 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.

Key Stage 1 National Curriculum Expectations

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.

Expectations

Key Stage 2 National Curriculum Expectations

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 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.

<u>Science Curriculum FS-KS1</u>						
	<u>Autumn 1</u>	<u>Autumn 2</u>	<u>Spring 1</u>	<u>Spring 2</u>	<u>Summer 1</u>	<u>Summer 2</u>
<u>EYFS</u>	See EYFS p8		See EYFS p8		See EYFS p8	
<u>KS1</u> <u>CYCLE A</u>	Seasons—Y1 (Autumn)	Materials Y1 POS investigating materials Seasons—Y1 (Winter)	Animals and Humans The human body Animals Y1 POS Seasons -Y1 (Spring)		Seasons—Y1 (Summer) Y1 POS Plants—Planting A And plants Y1 POS	Living things and their habi- tats. Y2 POS
<u>KS1</u> <u>CYCLE B</u>	Materials Year 2 (POS) materials and their purposes Y2 POS		Humans—Exercise, hygiene, food, teeth Y2—POS Plants—Bulbs and seeds Y2 POS Plants- Light and Dark/ What do plants need to grow? Y2 POS		Animals including humans Growing up/life-cycles Y2 POS Animals needs for survival Y2 POS	

Science Curriculum Year 3-6

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
YEAR 3	Forces and Magnets	Light	Rocks	Animals and Nutrition (Link to Sports Relief)	Animals Skeletons/ Muscles	Plants
YEAR 4	States of Matter		Sound	Electricity	Animals	Habitats
YEAR 5	Earth and Space	Forces	Forces (Cont)	Properties and changes of materials	Animals including Humans Life Cycles	Plants Reproduction
YEAR 6	Electricity Plants Reproduction (1 lesson—see Y5 plan)	Animals Including humans	Evolution and Inheritance		Light	Living things and their Habitats

Knowledge and Understanding of the World

EYFS Statutory Educational Programme:

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.



Knowledge and Understanding of the World

The Natural World Outcomes						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<u>3 and 4 year old</u>	Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Talk about the differences between materials and changes they notice.	Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Explore and talk about different forces they can feel.	Begin to understand the need to respect and care for all living things.	Understand the key features of the life cycle of an animal.	Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal.	Begin to understand the need to respect and care for the natural environment.
Reception	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Explore the natural world around them.	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Explore the natural world around them. Describe what they see, hear and feel whilst outside.
ELG	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.		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.	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.	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.	Explore the natural world around them, making observations and drawing pictures of animals and plants.

Knowledge and Understanding of the World

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Children will explore natural materials through the topic of Seasons- Autumn. Children will explore leaves, seeds and fruits from plants and trees in our school grounds. They shall use vocabulary to describe what they have found to talk about what is the same and different about the materials - Key vocab - hard, soft, leaf, curved, straight, smooth, spikey. Talk about the differences between materials and changes they notice. Children will explore how food can change when mixed with ingredients or when heated or cooled. They can use vocabulary such as melt, dissolve, solid, liquid.	Children will continue to explore materials but will explore the uses of some materials in our environment such as - glass - see-through - windows Wood- solid - to make furniture Waterproof materials for wellies, unberellas Children will investigate push as a force to see how this can move and change the shape of materials. Children will explore magnets and find out what magnets are attracted to. Children will notice the change in weather including the daylight hours getting shorter. They will explore the need for warmer clothes as the days and nights become colder.	Children will learn how to care for their pets- exercise, food, water. They will learn that animals go to the vets for treatment.	Children will explore Spring. They will notice signs of Spring including buds on the trees, spring bulbs, birds making nests. They will notice that it is light earlier in the morning and later into the evening. Children will explore animals that live in different parts of the world. They will name similarities and differences between different animals and talk about where they live.	Children will begin to notice different plants in the local environment. Children will be able to sort seeds into different groups and talk about how they have sorted them. They will be able to name the key parts of a plant - leaf, stem, flower, root. They will be able to observe different plants growing over time and make comments about each stage. Children will know that plants need water and light to grow.



SHCPS Science Progression



Seasonal Change	
Year 1	
Observe changes across the 4 seasons.	
Observe and describe weather associated with the seasons and how day length varies	

SHCPS Science Progression

Animals including humans					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Cycle A-Sp2) Identify and name a variety of common animals that are carnivores, herbivores and omnivore. (Cycle A Sp2) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets. (Cycle A-Sp2) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (Cycle A-Sp1)	Notice that animals, including humans, have offspring which grow into adults. (Cycle B-Sum2) Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Cycle B-Sum2) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Cycle B - Sp2)	Identify <u>that animals</u>, 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. (Spring 2) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. (Summer 1)	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. (Summer)	Describe the changes as humans develop to old age. (Summer 2)	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. (Autumn 2)



SHCPS Science Progression



Living things and their habitats			
Year 2	Year 4	Year 5	Year 6
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 microhabitats. 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 (Cycle A - Summer term)	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 (Summer 2)	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 (Summer 2)	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. (Summer 2)



SHCPS Science Progression



Plants		
Year 1	Year 2	Year 3
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 (Cycle A- Summer 1)	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 (Cycle B- Spring)	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. (Summer 2)



SHCPS Science Progression



Evolution and Inheritance

Year 6

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.

(Spring Term)



SHCPS Science Progression



Materials		
Year 1	Year 2	Year 5
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 <u>on the basis of</u> their simple physical properties. (Cycle A-Autumn 2)	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for <u>particular uses</u>. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Cycle B - Autumn)	Compare and group together everyday materials <u>on the basis of</u> 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. (Summer 1)



SHCPS Science Progression



States of matter

Year 4

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 ($^{\circ}\text{C}$).

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

(Autumn Term)



SHCPS Science Progression



Electricity	
Year 4	Year 6
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. (Spring 2)	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. (Autumn Term)



SHCPS Science Progression



Rocks

Year 3

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

(Spring 1)

Earth and Space

Year 5

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.

(Autumn term)



SHCPS Science Progression



Sound

Year 4

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.

(Spring 1)



SHCPS Science Progression



Light	
Year 3	Year 6
Recognise that they need light <u>in order to see</u> 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 an opaque object. Find patterns in the way that the size of shadows change. (Autumn 2)	Recognise that light travels 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. (Summer 1)



SHCPS Science Progression



Forces and Magnets	
Year 3	Year 5
Compare how things move on different surfaces. Notice that some forces need contact between 2 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 2 poles • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing. (Autumn term)	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. (Autumn 2/Spring 1)

SHCPS Science Progression

Scientific Enquiry					
Asking Questions					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask simple questions.	Ask simple questions and recognise that they can be answered in different ways.	Ask questions and understand there are different enquiry types they could use to answer them.	Ask relevant questions and use different types of scientific enquiry to answer them.	Ask scientific questions and begin to understand which questions would be best suited to each enquiry type.	Ask relevant scientific questions and choose which enquiry type would be best suited to answer them.

SHCPS Science Progression

Scientific Enquiry

Plan



Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning is not explicitly mentioned in the KS1 curriculum however, if appropriate, children can verbally state what they will investigate, what they will change and what they will keep the same.		Make relevant predictions. Identify what they will change, observe and keep the same. With support, set up simple practical enquiries.	Make predictions based on simple scientific knowledge. Identify what they will change, observe or measure and keep the same. Set up simple practical enquiries, comparative and fair tests.	Make predictions based on scientific knowledge. With support, plan different types of scientific enquiry. Where appropriate, identify the dependent, independent and controlled variables.	Make predictions based on scientific knowledge. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.



SHCPS Science Progression



Scientific Enquiry					
Making Observations					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observe closely	Observe closely, using simple equipment.	Make careful observations using scientific equipment.	Make systematic and careful observations using scientific equipment.	Use a range of scientific equipment to make systematic and careful observations.	Use a range of scientific equipment to make systematic and careful observations with increased complexity.



SHCPS Science Progression

Scientific Enquiry					
Take Measurements					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Carry out simple tests using non-standard measurements when appropriate.	Perform simple tests using standard units when appropriate.	Perform tests and simple experiments and take measurements using standard units.	Take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	Take accurate measurements using a range of scientific equipment. Start to take repeat readings when appropriate.	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

SHCPS Science Progression

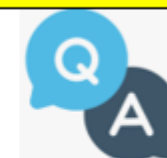
Scientific Enquiry					
Gather, record and classify data					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Gather and record simple data. Sort objects and living things into groups based on simple properties.	Gather and record data to help in answering questions. Identifying and classifying. Interpret and construct simple pictograms, tally charts, block diagrams and simple tables (Year 2 Maths Statistics progression)	Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables. Interpret and present data using bar charts, pictograms and tables (Year 3 Maths Statistics progression)	Gather, record and classify 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. Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs understand and use a greater range of scales in data. (Year 4 Maths Statistics Progression)	Record data using scientific diagrams and labels, classification keys, tables, bar and line graphs. Begin to decide which representations of data are most appropriate and why (Year 5 Maths Statistics progression)	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Interpret and construct pie charts and line graphs and use these to solve problems connect conversion from kilometres to miles in measurement to its graphical representation. connect work on angles, fractions and percentages to the interpretation of pie charts. (Year 6

SHCPS Science Progression

Scientific Enquiry					
Present findings					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explain what they found out to an adult or a partner.	Talk about what they have found out and how they found it out. (non-statutory)	Report on findings from enquiries, including oral and written explanations.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Report and present findings from enquiries, including conclusions and begin to identify causal relationships in oral and written forms such as displays and other presentations.	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.

SHCPS Science Progression

Scientific Enquiry					
Answer questions and make conclusions					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Answer simple questions.	Use their observations and ideas to suggest answers to questions	Make simple conclusions. Use results, findings or observations to answer questions.	Use straight-forward scientific evidence to answer questions or to support their findings. Use results to draw simple conclusions. Begin to identify differences, similarities or changes related to simple ideas or processes.	Make conclusions based on scientific evidence and from their own testing and findings. Identify scientific evidence and use it to answer questions.	Make conclusions based on scientific evidence and from their own testing and findings. Identify scientific evidence that has been used to support or refute ideas or arguments.



SHCPS Science Progression

Scientific Enquiry					
Evaluating					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evaluating is not explicitly mentioned in the KS1 curriculum.		Suggest questions for further investigation.	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Continue to use results to draw simple conclusions, suggest improvements and raise further questions for possible testing.	Use test results to make predictions to set up further comparative and fair tests. Provide some simple examples of how to



Animals including humans

Vocabulary progression

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
hair, eyes, face, nose, ears, teeth, mouth, head, neck, arm, elbow, hand, leg, knee, foot light, dark, blind, hear, loud, quiet, noisy, sweet, salty, sour, bitter, savoury, skin, rough, smooth, hard, soft, smell, scent, sniff, stench animal, mammal, fur, wild mammal, pet, bird, wings, beak, feathers, webbed feet, flippers, tail, fins, scales, gills, amphibian, frog, toad, newt, reptile, lizard, crocodile, turtle, carnivore, sharp teeth, herbivore, plants, vegetable, fruit, omnivore	shelter, heart, exercise, physical health, mental health, healthy diet, unhealthy diet, meat, sugar, germs, hygiene, doctor, disease, plaque, gums, filling offspring, egg, parent, baby, child, teenager, life cycle, adolescent, frogspawn, tadpole, froglet, caterpillar, pupa, butterfly, insect, adult	skeleton, skull, ribcage, pelvis, femur, spine, antennae, exoskeleton, joint, hinge joint, ball- <u>and socket</u> joint, muscle, biceps, triceps, contract, relax carbohydrates, proteins, dairy products, fats, fruit and vegetables, balanced diet, balanced meal, nutrition, Eatwell Guide, vegan diet, vegetarian diet, omnivorous diet, pescatarian diet	incisors, canines, premolars, molars, enamel, root, decay, digestive system, mouth, oesophagus, stomach, small intestine, large intestine, rectum, saliva producer, consumer, prey, predator, farming, overfishing, hunting	foetus, elderly adult, milestone, womb, period, reproduce, hormone, puberty, life expectancy, gestation period, gestation	circulatory system, blood vessels, arteries, veins, capillaries, red blood cells, white blood cells, lungs, plasma, oxygen, atria, ventricles, right atrium, left atrium, right ventricle, left ventricle, oxygenated blood, deoxygenated blood calories, saturated fats, unsaturated fats, trans fats, drug, painkiller, depressant, stimulant, cigarette, tar, nicotine, vape, carbon monoxide, addiction, heart rate



SHCPS Science Progression



Living things and their habitats Vocabulary progression			
Year 2	Year 4	Year 5	Year 6
Arctic plants, hibernate, habitat, cactus, desert, rainfall, ocean, seagrass, woodland, fern, moss, microhabitat, spider, snail, diet, food chain, living, dead, never alive	vertebrate, invertebrate, soft bodied invertebrate, flowering plant, non-flowering plant, seasonal changes, natural resources, rewilding, nature reserve	monotreme, mammary gland, metamorphosis, larva, chrysalis, hatchling, nestling, fledgling, fertilisation, embryo, sperm cells, egg cells, sexual reproduction, anther, stigma, style, filament, ovary, ovule, clone, runner, tuber, asexual reproduction, cutting, parent plant	organism, excretion, reproduction, mollusc, arachnid, classification, coniferous tree, microorganism, bacteria, virus, fungi, characteristics



SHCPS Science Progression



Plants		
Year 1	Year 2	Year 3
plant, flower, leaf, petals, stem, roots, branch, trunk, roots, wildflower, daisy, garden plant, sunflower, nettle, buttercup, dandelion, deciduous tree, horse chestnut, oak, sycamore, evergreen tree, pine, holly, needles, seed, soil, growth	sunlight, compost, herb, blossom, bulb, shoot	water transportation, seedling, seed coating, germination, stamen, pistil, pollen, reproductive organs, pollination, pollinators, wind dispersal, animal dispersal, water dispersal, explosion dispersal, seed dispersal



SHCPS Science Progression



Evolution and Inheritance Vocabulary

Year 6

variation, species, inheritance, desirable characteristics, polar habitat, desert habitat, adaptations, evolution, common ancestor, natural selection, finch, Galapagos Islands, decompose, Charles Darwin, palaeontologist, Mary Anning



SHCPS Science Progression



Materials Vocabulary progression		
Year 1	Year 2	Year 5
material, shiny, dull, rock, heavy, light, object, wood, metal, plastic, glass, wool, solid, liquid, melt, freeze, ice, float, sink, absorb, transparent, opaque	natural material, human-made material, recycle, flexible, rigid, stone, pebble, brick, brittle, flexible, translucent, tough, lightweight, strong, breakable, waterproof	electrical conductor, electrical insulator, thermal insulator, properties, lifespan, dissolve, soluble, insoluble, solution, mixture, reversible changes, reverse, chemical reaction, irreversible change, burning, heating, vinegar, bicarbonate of soda



SHCPS Science Progression



States of matter Vocabulary

Year 4

solid, liquid, gas, states of matter, pouring solid, ooblek, flow, freezing, melting, boiling, condensation, evaporation, melting point, water cycle, precipitation, atmosphere, petri dish



SHCPS Science Progression



Electricity Vocabulary Progression	
Year 4	Year 6
appliances, plug, socket, cell, electrocuted, circuit, switch, battery, buzzer, conductor, insulator	series circuit, voltage, current, complete circuit, incomplete circuit



SHCPS Science Progression



Rocks Vocabulary

Year 3

granite, pumice, sandstone, chalk, marble, gneiss, crystals, grains, layers, texture, hardness, weathering, fossil, shell, fossilisation, sediment, sandy soil, clay soil, peat soil, chalky soil, organic matter, nutrients, deforestation, habitat loss

Earth and Space Vocabulary

Year 5

Solar System, orbit, Sun, planets, Pluto, celestial body, gravity, heliocentric model, geocentric model, rotate, axis, North Pole, South Pole, Earth, night, day, moon, gravitational force, satellite



SHCPS Science Progression



Sound Vocabulary

Year 4

vibration, sound, volume, pitch, outer ear, ear bones, cochlea, ear drum, ear canal, decibel, insulate, high-pitched, low-pitched, background noise

Light Vocabulary progression

Year 3

light sources, natural light sources, artificial light sources, Sun, sunglasses, protect, reflection, shadow

Year 6

retina, iris, pupil, lens, ray diagram, solar eclipse, refraction, medium, rainbow, prism, coloured filter, spectrum of light



SHCPS Science Progression



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Forces and Magnets Vocabulary Progression	
Year 3	Year 5
push, pull, force, contact force, friction, magnet, magnetic, poles, magnetic force, non-metal, iron, aluminium, steel, attract, repel frictional force, motion, air resistance, parachute, surface area, water resistance, streamlined, non-contact force, gravity, weight, lever, gear, pulley, machine	frictional force, motion, air resistance, parachute, surface area, water resistance, streamlined, non-contact force, gravity, weight, lever, gear, pulley, machine



SHCPS Science Progression



Scientific Enquiry Key Vocabulary					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
measure, observe, compare, measurement, growth, trowel, temperature, bend, squash, twist, stretch, absorb		hardness, reaction, bar chart, pictogram, data, increase, decrease, prediction, dissection, scales, filter paper, filter funnel, measuring cylinder, thermometer, conclusion, evaluation, data, volume, decibel meter, stopwatch, beaker, temperature, Petri dish, block chart, bar graph, classifying, classification key		line graph, microscope, anomaly, anomalous result, control, control beaker, sieve, filtering, repeatability, accuracy, correlation, precision, angle, periscope, line graph, scatter graph, independent variable, dependent variable, controlled variables, duration, theory	



SHCPS Science Progression



Scientific Enquiry Exposure words					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
draw, label, change, same, table, record, tally, pipette, size, predict, similar, different, sort, group, identify, pattern, height, number, amount, hand lens, ruler, counting cubes, centimetres, meters, suitable, unsuitable, match, test, scientific enquiry, comparative test, research, pattern seeking		fair test, identify, group and classify, model, modelling, investigate, changed, measured, stayed the same, millimetres, millilitres, data logger, tape measure, features, scientists, diagram, sorting diagram, block diagram, distance, results		causal relationships, decimals, analyse, interpret, conclude, capacity, mass, approximate, justify, secondary source, evidence, duration, mean, calculate, method	



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