

Curriculum rationale:

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 an 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 in the future.

What are the main drivers of the Haringey Primary Science curriculum?

Scope, sequencing, coherence and rigour are the four key principles that underpin the Haringey Primary Science curriculum. These principles ensure our curriculum is accessible for all children and maximises their progression.

Scope:

We follow the National Curriculum for science and 6 topics are studied per year. At its core our science curriculum prioritises pupils' comprehension and application of scientific concepts, so they can use them to make sense of the modern world. We ensure opportunities are provided to demonstrate understanding through application to formal knowledge as well as in informal, everyday experience. We emphasise the significant contributions to science made by scientists from diverse backgrounds.

Appropriate sequencing and coherence have taken into account the substantive knowledge and disciplinary skill pupils need to learn, before carrying out investigations. To this end, progression through disciplinary knowledge is mapped out within the substantive knowledge curriculum map. In science, this largely refers to the working scientifically aspect of the programme of study and includes: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations), drawing conclusions and evaluating.

Sequence:

Units have been sequenced based on the most effective connections between topics within and across the scientific disciplines of Biology, Chemistry and Physics. Careful progression and sequencing of substantive and disciplinary knowledge over time support the hierarchical nature of science. Progression maps for each unit make explicit the links to relevant prior or upcoming learning. Progression through working scientifically skills are also mapped out. Within this layered approach, pupils are also guided from concrete to abstract concepts to develop schema. Regular retrieval, formative and cumulative assessment are built into the framework.

Coherence:

Links to other subject areas are made explicit as well as an emphasis on some of the wider ideas that cut across the disciplines of Science, Technology, Engineering and Maths (STEM).

Rigour:

To achieve depth, our curriculum includes the ‘hinterland’ facts and ideas needed to help pupils develop understanding. Whilst the curriculum is accessible for all, it is also appropriately challenging to achieve mastery. Misconceptions are tackled, including within the development of scientific theories into accepted ideas by the scientific community over time.

How does the science curriculum develop literacy?

Research by Beck, McKeown, and Kucan (2002) has shown that pupil literacy is the strongest predictor of science attainment. The HEP Science curriculum supports all pupils to access new information and effectively communicate their ideas in a variety of contexts.

How does the science curriculum develop SMSC?**Spiritual:**

The science curriculum aims to inspire awe and wonder as pupils relate to and make sense of the world around them. From the uniqueness of individual genetic makeup to the scale of the vastness of the universe. As pupils navigate the Big Ideas of science, they move from the concrete to the abstract and learn that everything is connected in our physical world and beyond. In doing so, we also learn to accept that science cannot provide all the answers and imagination and creativity can lead to new discoveries.

Moral:

Some scientific advancements have had a positive effect on our world as a whole. Others have had a negative, even catastrophic impact on us and our environment and atmosphere. Moral decisions and discussion around these topics are an important part of the decision-making process pupils will use as they navigate their world. To be accepted, based and without prejudice. Modelling this through text, tasks and discussion encourages pupils to be open to a range of ideas and consider them from an informed, critical perspective.

Social:

Much of the success of science depends on the input and feedback from other scientists to develop a shared understanding and evaluate data to make it more trustworthy.

Working scientifically often depends on collaborative tasks and sharing of findings. As pupils build a greater understanding of science, it allows them to deepen their everyday social experiences and to better appreciate the positive and negative social impact of science in their homes, communities and our world.

Cultural:

Pupils have opportunities to research the work of scientists from different backgrounds and examine how they have shaped our lives. Relevant topical issues are regularly taught and discussed. Pupils also make use of the environment around them, particularly when studying plants and animals. Historically and currently, science relies on contributions from around the world. Pupils appreciate the importance of acceptance from the scientific community and the shared standards that must be met before use by citizens. Pupils should experience a sense of enjoyment as they learn about themselves, others and the world around them.

Appendix 1 - Summary of National curriculum for science at key stage 1 and 2:

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 2 Lower Key Stage 2 – Years 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.

Upper Key Stage 2 – Years 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.

Year 1 - Seasonal changes

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Understand there are four seasons	Observe changes across the four seasons	Using their observations and ideas to suggest answers to question	season spring summer autumn winter	A large measuring bowl for collecting rainwater. Colouring and drawing resources.
Understand the changes that take place in autumn	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	Using their observations and ideas to suggest answers to question	autumn hibernate weather protect harvest	Rain gauges, drawing and colouring resources if designing the den, or junk modelling resources if creating a model.
Understand the changes that take place in winter	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	Using their observations and ideas to suggest answers to questions	winter weather frost sleet temperature	Rain gauges.
Understand the changes that take place in spring	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length	Identifying and classifying	spring compare changes grow chick	Rain gauge, scissors and glue.
Understand the changes that take place in summer	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	Using their observations and ideas to suggest answers to questions	summer warm sun protection temperature heatwave	Rain gauges, drawing and colouring resources.
Investigate how you can measure rainfall	Observe and describe weather associated with the seasons and how day length varies	Performing simple tests Gathering and recording data to help in answering questions	rainfall measuring record results graph	The rainwater collected over five weeks. Writing and colouring resources.

Year 1- Animals, including humans 1 - All about me

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Discover the basic parts of the human body	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Identify and classify	head body skeleton limb joint	Class presentation, pen, pencil, wallpaper, marker pens.
Learn about eyes and sight	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Perform simple tests Gather and record data to help in answering questions	brain eyelash eye sight pupil	Class presentation, drawing materials.
Learn about ears and hearing	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Perform simple tests Gather and record data to help in answering questions	sound ear sign language vibration deafness	Class presentation, pen, pencil, a range of instruments or different objects to create sounds
Explore the tongue and taste	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Use observations and ideas to suggest answers to questions	tongue mouth taste flavour sweet	Class presentation, bread dipped or spread with a variety of different flavours for children to taste. You could use marmite, honey, jam, lemon juice, cream cheese, olive oil. You could also include a variety of fruits and vegetables.
Explore the sense of touch	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Gather and record data to help in answering questions	touch fingertips skin organ brain	Class presentation, range of classroom objects.
Discover how your nose smells	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Identify and classify	smell odour nose nostril nose hair	Class presentation, a selection of containers suitable for putting food in. A range of food to smell; for instance, vinegar, garlic, cinnamon sticks, fruits, washing up liquid, liquid hand soap, cheese, crisps, chocolate and onion.

Year 1 - Everyday materials - Exploring everyday materials

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Identify and name a variety of everyday materials	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock	Identify and classify	material fabric wood plastic metal	Squares of fabric, wood, plastic, metal and a bag.
Distinguish between an object and the material it is made from	Distinguish between an object and the material it is made from	Use observations and ideas to suggest answers to questions	object glass property brick elastic	Everyday objects from the classroom.
Describe the properties of everyday materials	Describe the simple physical properties of a variety of everyday materials	Perform simple tests Gather and record data to help in answering questions	property opaque transparent dull stiff	A selection of everyday objects that match the handout.
Identify objects that are natural and those that are manmade	Compare and group together a variety of everyday materials on the basis of their simple physical properties	Identify and classify	natural man made factory rubber polyester	Scissors and a glue stick.
Predict and identify if an object will float or sink	Compare and group together a variety of everyday materials on the basis of their simple physical properties	Perform simple tests	predict float sink submerge buoyant	Bowls of water. A selection of objects to investigate.
Explore which materials are best for different objects	Describe the simple physical properties of a variety of everyday materials	Perform simple tests Identify and classify Use observations and ideas to suggest answers to questions Gather and record data to help in answering questions	absorbent sponge waterproof umbrella soak	Sponges, paper towels, paper, cloth, tin foil, cut up plastic bag, tray and water.

Year 1 - Everyday materials - Building (based on the Three Little Pigs)

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Build a structure strong enough to withstand wind	Describe the simple physical properties of everyday materials	Perform simple tests	solid strong brick clay wind	Hairdryer/fan, a selection of materials for children to explore and select to build their house and adhesives.
Build a waterproof structure	Compare and group together a variety of everyday materials on the basis of their simple physical properties	Perform simple tests	waterproof absorbent non-absorbent roof slate	A selection of materials for children to test if they are waterproof (as a class), a selection of materials for children to build their roofs, adhesives, a sponge and a small bowl of water.
Understand the properties of glass and its uses	Describe the simple physical properties of everyday materials	Use observations and ideas to suggest answers to questions	transparent opaque suitable window pane window frame	Clear plastic or acetate, card and sticky tape.
Understand that materials are used to create a variety of furniture	Describe the simple physical properties of everyday materials	Use observations and ideas to suggest answers to questions	fabric furniture cotton mattress soft	Class presentation, pen and pencils, craft materials and fabrics.
Explore a variety of fabrics and understand their different properties	Compare and group together a variety of everyday materials on the basis of their simple physical properties	Identify and classify	wool weather jumper suitable waterproof	Class presentation and clothing.
Explain the uses of materials and why they are suitable	Describe the simple physical properties of everyday material	Use observations and ideas to suggest answers to questions	evaluate material properties tile garden	Class presentation, pen and pencil.

Year 1 – Plants				
Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Understand that seeds grow into plants	Become familiar with common names of flowers and plant structures including seeds	Ask simple questions Observe closely and use simple equipment Use their observations and ideas to suggest answers to questions	seed plant tree soil predict	Variety of seeds, planting equipment: cups, soil, labels, water. Story of Jack and the Beanstalk.
Identify the basic parts of a plant and tree	Identify and describe the basic structure of a variety of common flowering plants, including trees Become familiar with common names of flowers and plant structures	Identify and classify	stem petal leaf root flower	2 or 3 fully grown garden plants in pots. Paper and pens for drawing or coloured card, scissors and glue.
Understand that different plants can grow in the same environment	Identify and name a variety of common wild and garden plants	Identify and classify Gather and record data	environment weed daisy dandelion wild	Clipboards and pens if going on a walk. Scissors and glue if sorting the pictures.
Know the difference between deciduous and evergreen trees	Identify and name a variety of deciduous and evergreen trees	Observe closely, using simple equipment	deciduous evergreen seasons branch bush	Crayons and paper for leaf rubbing; a selection of leaves for children to examine; microscopes or magnifying glasses.
Know that fruit trees and vegetables are varieties of plants	Understand how plants change over time	Observe closely Identify and classify Use their observations and ideas to suggest answers to questions Gather and record data to help in answering questions	supermarket fruit vegetable farm tractor	A selection of fruits and vegetables and their seeds or stones. Tools for cutting.
Record the growth of a plant	Observe the growth of planted flowers Become familiar with plant structures Keep records of how plants change over time	Observe closely Gather and record data	growth seedling young plant adult plant observe	The plants from Lesson 1. Ruler.

Year 1 - Animals, including humans 2 - All about animals

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Discover animal families	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Group and sort	fish amphibian reptile mammal bird	Class presentation, scissors, glue, pen and pencil.
Learn about the differences between mammals and birds	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Use observations and ideas to suggest answers to questions Group and sort	feather warm-blooded characteristic backbone hatchling	Class presentation, scissors, glue, pen and pencil.
Learn about the differences between amphibians, reptiles and fish	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Use observations and ideas to suggest answers to questions Group and sort	amphibian reptile gills scale cold-blooded	Class presentation and handout to play the game.
Discover the types of food living things eat	Identify and name a variety of common animals that are carnivores, herbivores and omnivores	Use observations and ideas to suggest answers to questions Group and sort	herbivore carnivore omnivore predator canines	Class presentation.
Explore the difference between wild animals and pets	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Use observations and ideas to suggest answers to questions Group and sort	pet wild shelter veterinary natural	Class presentation, pen and pencil.
Explain the characteristics of an animal	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Use observations and ideas to suggest answers to questions Group and sort	similarities differences compare unsuitable climate	Class presentation.

Year 2 - Uses of everyday materials				
Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Identify different materials and their uses	Identify and compare the suitability of a variety of everyday materials	Using their observations and ideas to suggest answers to questions	material property suitable object brick	Objects from around the classroom.
Understand how to select the right materials to build a bridge	Identify and compare the suitability of a variety of everyday materials	Performing simple tests	bridge triangle obstacle structure construction	Two books, a range of weights, variety of materials to create a bridge - aluminium foil, card, paper, wood, string, masking tape etc.
Explore and test the stretchiness of materials	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Gathering and recording data to help in answering questions	stretchy elastic floppy hinder limit	A variety of materials of different stretchiness (e.g. cotton, wool, nylon...), tape measure or ruler; scissors, marbles, yoghurt carton, string, paper clips.
Understand that materials can change their shape by twisting, bending, squashing or stretching	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Using their observations and ideas to suggest answers to questions	bend twist squash stretch force	A variety of materials which can be twisted, bent, squashed or stretched (e.g. plasticine, wool, foil...).
Find out about Charles Macintosh and explore how materials are suitable for different purposes	Identify and compare the suitability of a variety of everyday materials	Performing simple tests	mackintosh protective fluorescent safety waterproof	Four different sheets of fabric (tissue, tinfoil, clingfilm, plastic, wool fabric, nylon), beaker, elastic band, one tray per table, syringe per group, water.
Discover which materials change shape when making a road with John McAdam	Identify and compare the suitability of a variety of everyday materials	Performing simple tests	John McAdam merchant bound highway road	Chocolate, microwave, clingfilm, raisins, digestive biscuits crushed to various sizes, heatproof tray.

Year 2 - Living things and their habitats				
Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Explore and compare the differences between things that are living, dead, and things that have never been alive	Explore and compare the differences between things that are living, dead, and things that have never been alive	Identifying and classifying	senses nutrition reproduce excrete respire	Equipment for a classification walk: clipboards, pencils.
Identify and name a variety of plants and animals in a microhabitat	Identify and name a variety of plants and animals in their habitats, including microhabitats	Observing closely, using simple equipment	habitat microhabitat fungi survive shelter	Equipment for a nature hunt: clipboards, pencils. Photographs from the handout if not using the outdoors.
Design a suitable microhabitat where living things could survive	Identify and name a variety of plants and animals in their habitats, including microhabitats	Using their observations and ideas to suggest answers to questions	antennae suitable condition colony insect	If creating a real microhabitat outdoors, a selection of natural materials for children to create a 'bug hotel', or modelling resources if creating a model microhabitat.
Find out what animals eat to survive in their habitats	Describe how animals obtain their food from plants and other animals	Asking simple questions and recognising that they can be answered in different ways Gathering and recording data to help in answering questions	producer consumer herbivore carnivore omnivore	Research tools, e.g. internet and books.
Understand a food chain	Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain	Using their observations and ideas to suggest answers to questions	food chain life cycle nutrients rot caterpillar	Card/paper, scissors, sticky tape, coloured pens/pencils, glue stick. You may prefer to provide the learners with animal pictures to cut out instead.
Understand the journey food makes from the farm to the supermarket	Identify and name different sources of food	Using their observations and ideas to suggest answers to questions	automated frozen food forklift truck refrigerated lorry canned	Scissors, glue, colouring pens/pencils.

Year 2 – Living Things and their habitats – Habitats from around the world

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Learn about habitats	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	Identifying and classifying Using their observations and ideas to suggest answers to questions	habitat microhabitat organism environment mate	Glue, scissors.
Appreciate that environments are constantly changing	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	Gathering and recording data to help in answering questions	rainforest moisture extinct climate endangered	Clipboard, pen/pencil, *May require permissions if choosing to walk outside school premises
Explore the rainforest and its problems	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	Using their observations and ideas to suggest answers to questions	biodiversity deforestation poaching pollution rainforest	Books/access to the internet for research, colouring pens/pencils, coloured paper, iPads to film videos (optional)
Describe life in the ocean	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	Asking simple questions and recognising that they can be answered in different ways	plankton ocean ecosystem coral reef trench	Materials to create a collage, paper, paints, corrugated card, coloured card, glue, scissors, sticky tack, pens, pencils
Discover the Arctic and Antarctic habitat	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	Identifying and classifying	Antarctic Arctic caribou narwhal tundra	Books/access to the internet for research
Create a model of a habitat	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	Using their observations and ideas to suggest answers to questions	earthworm desert lizard cactus pond	Shoebox/ or cardboard box, craft materials, toy animals,

Year 2 - Animals, including humans 1 - Growth

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Describe the needs of animals for survival	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Using their observations and ideas to suggest answers to questions	survival shelter nutrition oxygen essential	Class presentation, pen, pencil.
Describe the needs of humans, for survival	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Using their observations and ideas to suggest answers to questions	vital non-essential survive grow healthy	Class presentation, pen, pencil, scissors, glue.
Explore the importance of eating the right food	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Identifying and classifying	protein carbohydrate dairy vitamins calcium fat	Class presentation, pen, pencil, glue.
Describe what a healthy, balanced diet looks like	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Using their observations and ideas to suggest answers to questions	balanced diet nutrients fresh food pre-cooked processed food	Class presentation, pen, pencil, glue, paper plates craft materials for making food, e.g. tissue paper, card, coloured paper, pipe cleaners, playdoh.
Investigate the impact of exercise on our bodies	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Performing simple tests Using their observations and ideas to suggest answers to questions	exercise strength flexibility balance coordination	Class presentation, pen, pencil, stopwatch, bean bags, small sized balls, medium sized balls, large balls.
Investigate the importance of hygiene	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Performing simple tests	hygiene prevent germs bacteria virus	Class presentation, pen, pencil, shallow bowl or plate, water, pepper, dish soap.

Year 2 - Animals, including humans 2 - Life cycles

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Order the stages of the human life cycle	Notice that animals, including humans, have offspring which grow into adults	Identifying and classifying	life cycle grow survive independent adult	Class presentation, pen, pencil, scissors, glue.
Describe the stages of a human life cycle	Notice that animals, including humans, have offspring which grow into adults	Identifying and classifying	foetus womb helpless toddler develop	Class presentation, handout.
Identify the offspring and parent of an animal	Notice that animals, including humans, have offspring which grow into adults	Using their observations and ideas to suggest answers to questions	offspring inherit gene resemble differences	Class presentation, scissors, glue, pen, pencil.
Explore the life cycle of a chicken	Notice that animals, including humans, have offspring which grow into adults	Gathering and recording data to help in answering questions	reproduction hatchling chick bar chart predict	Chicks & data, if available. If you have not hatch chicks, use the handout for chick data, squared paper.
Describe the life cycle of a butterfly	Notice that animals, including humans, have offspring which grow into adults	Asking simple questions and recognise that they can be answered in different ways	caterpillar transformation larva chrysalis metamorphosis	Class presentation, resources to enable the children to create a model of a butterflies life cycle; this may include plasticine, a selection of card or card board, tissue paper, paints/colouring pens, scissors, glue, pipe cleaners.
Explore the life cycle of a frog	Notice that animals, including humans, have offspring which grow into adults	Using their observations and ideas to suggest answers to questions	frog amphibian frogspawn tadpole froglet	Class presentation, pencils, colouring pencils.

Year 2 – Plants				
Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Know the difference between seeds and bulbs	Observe and describe how seeds and bulbs grow into mature plants	Identifying and classifying Observing closely, using simple equipment	seeds bulbs growth plant compare	Variety of seeds and bulbs, cutting equipment, tools for drawing or printing, a variety of liquids.
Design an experiment to find out what plants need to grow	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Asking simple questions and recognising that they can be answered in different ways Performing simple tests	predict investigate control experiment method	Planting equipment, seeds and variables such as a freezer.
Describe what plants need to grow and stay healthy	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Performing simple tests Using their observations and ideas to suggest answers to questions	photosynthesis carbon dioxide oxygen glucose energy	A healthy plant and some tape.
Describe the life cycle of a plant	Understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants	Using their observations and ideas to suggest answers to questions	pollination life cycle germination reproduction seedling	If necessary, pictures of plants at different stages of growth, coloured chalk.
Observe and record the growth of plants over time	Observe and describe how seeds and bulbs grow into mature plants	Performing simple tests Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions	manure crop insulate thrive healthy	Plant experiments from previous lesson.
Understand that plants adapt to suit their environment	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Identifying and classifying	forest desert adapt condition survive	Plant experiments from previous lessons.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
3	<p>Plants</p> <p>Parts of plants, needs of plants and their life cycle.</p>	<p>Rocks</p> <p>Comparing different rocks, fossils, soil formation</p>	<p>Light</p> <p>Light sources, how light is reflected off objects, how shadows form, changing shadows, eye protection</p>	<p>Animals including humans</p> <p>Nutrition, Musculoskeletal system for support, movement, and protection</p>	<p>Forces and magnets</p> <p>Non-contact forces, attraction and repulsion of magnets, magnetic materials and the N and S pole of magnets</p>	<p>Bee project</p> <p>A look at the relationship between bees and their environment; importance in pollination, food and other resource.</p>

4	States of matter/ solids, liquids and gases Group materials based on their properties, changes of state, heating and cooling, the water cycle	Animals including humans Eating, teeth, digestive system and food chains, producers, predators and prey.	Sound Making sounds, vibrations, the ear, changes in pitch and volume	Living things and their habitats Classification, characteristics, and the effects of environmental changes	Electricity Appliances, building circuits and identifying components, circuit diagnostics, conductors and insulators	The History of Science This unit focuses on the development of scientific theories by a diverse range of scientists and inventors, both historical and contemporary.
5	Properties and changes of materials Classifying materials, Dissolving, separating and	Animals including humans Life cycles, plant and animal reproduction, human life cycle	Forces Gravity, air resistance, water resistance and friction between	Living things and their habitats Classifying living things, Life cycles of mammals,	Earth and space The movement of Earth, other planets and the Moon in relation to the Sun	
	changes of state, uses of materials, reversible and irreversible changes		moving surfaces, multiplying forces using levers, pulleys and gears	amphibians, insects and birds	and each other, spherical bodies, night and day	

6	<p>Animals including humans (B1)</p> <p>The circulatory system, lifestyle, health and disease; transport of water in animals</p>	<p>Light (P1, P3)</p> <p>How light travels, how we see objects, the shape of shadows</p>	<p>Electricity (P1, P3)</p> <p>The effects of changing the number and voltage of cells in a circuit; varying the function of components; representing circuits using symbols</p>	<p>Evolution and inheritance (B3)</p> <p>What we learn by looking at fossils; variation, reproduction and adaptation. Evolution</p>	<p>Living things and their habitats (B2)</p> <p>Classifying microorganisms, plants and animals</p>	
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