White Laith Primary School : Science

Contents

Long Term Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Animals (incl. humans)	Forces and Magnets (Magnets)	States of matter	Forces and Magnets (Forces)	Plants Living things and their habitats	Materials
	Seasonal change					
Yr 1	Animals (incl. humans) Plants		Animals (incl. humans) Materials		Animals (incl. humans)	
	Seasonal change					
Yr 2	Materials		Animals (incl. humans)		Plants	Living things and their habitats
Yr 3	Plants		Forces and magnets	Animals (incl. humans)	Rocks and soils	Light
Yr 4	States of matter		Living things and their habitats	Animals (incl. humans)	Sound	Electricity
Yr 5	Materials		Living things and their habitats	Animals (incl. humans)	Forces and magnets	Space
Yr 6	Electricity	Light		Living things and their habitats	Animals (incl. humans)	Evolution

Scientific Knowledge and Conceptual Understanding Progression

Curriculum Aims

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

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

EYFS

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

Personal, Social and Emotional 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

Biology Content

EYFS

Animals including humans	Plants	Living things and their habitats	Evolution
I know different animals have different body parts. I know different animals like different food and live in different places. I know that some animals are big and some are small. I know the life cycle of butterflies (metamorphosis). I know some animals hibernate. I know that some animals are adapted to live under the sea and humans are adapted to live on land. I know that washing my hands kills germs I know the importance of a healthy diet. I know I cannot eat unhealthy foods everyday and I need a variety of food. I know that exercise is good for my body.	I know that plants need sun to grow. I know that plants need water to grow. I know that most plants need soil to grow. I know some plants grow from seeds.	I know about similarities and differences in relation to living things and their habitats. I know how to talk about the features of my own immediate environment and how environments might vary from one to another. I know how to make observations of animals and plants. I can explain why some things occur and talk about changes.	

Chemistry Content

EYFS

Materials	Rocks	State of Matter
I know that objects are made from different materials.		I know that heating and freezing causes changes

Physics Content

EYFS

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
I know that magnets stick to metal objects. I know how to use a magnet to find magnetic materials.	I know how to identify that it is Autumn, Winter, Summer and Spring. I know how to identify seasonal colours. I know that new life begins in the Spring time. I know how to choose appropriate clothing for the seasons.				

Biology Content

Y1

Animals including humans	Plants	Living things and their habitats	Evolution
I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. I can compare a variety of common animals including fish, amphibians, reptiles, birds and mammals. I can identify and name a variety of common animals that are carnivores, omnivores and herbivores. I can identify, name, draw and label the basic parts of the human body. I can identify which part of the body is associated with each sense. I can compare humans.	I can identify different plants. I can identify and describe the basic structure of plants. I understand that plants can grow. I can name a variety of common wild plants. I can sort a variety of plants. I can name a variety of common plants that we can eat. I can identify, name and describe the basic structure of deciduous and evergreen trees.		

Y2

Animals including humans	Plants	Living things and their habitats	Evolution
I can find out about and describe the basic needs of animals, including humans, for survival. I notice that animals, including humans have offspring which grow into adults. I can describe the importance for humans to exercise. I can describe the importance for humans to eat the right amounts of different types of food. I can describe the importance for humans to have good hygiene. I can describe the importance for humans to look after themselves.	I can identify that fruit, vegetables and herbs are types of plant that we eat. I can observe and describe how seeds grow into mature plants. I know what plants need to grow and stay healthy. I can explain the life cycle of plants.	I can explore and compare the differences between things that are living, dead, and things that have never been alive. I can identify and name a variety of plants and animals in their habitats, including microhabitats. I can identify and name a variety of plants and animals in their habitats. I can identify that most living things live in a habitat to which they are suited. I can construct a simple food chain.	

Biology Content

Y3

Animals including humans	Plants	Living things and their habitats	Evolution
I can identify that humans have bones for support, protection and movement. I can identify that some other animals have bones for support, protection and movement. I understand that animals, including humans, need the right type of nutrition. I can identify whether things are aliveor dead.	I can explore the requirements of plants for life and growth. I can identify, locate and describe the function of different parts of flowering plants. I can identify, locate and describe the function of the roots in plants. I can investigate the way in which water is transported within plants. I can explore the part that flowers play in the life cycle of flowering plants, including pollination. I can explore the part that flowers play in the life cycle of flowering plants, including seed formation and seed dispersal.		

Y4

Animals including humans	Plants	Living things and their habitats	Evolution
I can name the basic parts of the digestive system and describe their functions. I can identify the different teeth and describe their functions. I can construct and interpret a variety of food chains. I understand what producers, predators and prey are.		I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in my local environment. I can recognise that environments can change and that this can sometimes pose dangers to living things.	

Biology Content

Y5

Animals including humans	Plants	Living things and their habitats	Evolution
I can describe the human life cycle. I understand how a foetus develops in the womb. I can describe what happens during puberty I can describe what happens when I am a senior.		I can discuss the seven life processes. I can explain how mammals reproduce. I can explain how insects, amphibians, fish, birds reproduce I understand reproduction in plants. I can describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds. I can explain the life cycle of plants.	

Y6

Animals including humans	Plants	Living things and their habitats	Evolution
I can identify and name the main parts of the human circulatory system. I can identify and name the main parts of the heart. I can describe the functions of the heart, blood vessels and blood. I can describe how water and nutrients are transported in humans. I can identify how humans can live a healthy lifestyle - impact of diet, exercise and drugs		I can describe how living things can be classified into broad groups. I understand how I can use classification keys to help group, identify and name a variety of living things. I can describe how living things can be classified into broad groups. I understand that microorganisms are also living things. I can describe how living things can be classified into broad groups. I know that scientists have developed different ways to classify living things.	I can identify how plants are adapted to their environment. I can identify how animals are adapted to their environment. I can explain natural selection and how it may lead to evolution. I can explain how adaptations may lead to evolution. I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Chemistry Content

Y1

Materials	Rocks	States of matter
I can identify a variety of everyday materials. I can describe the physical properties of a variety of everyday materials. I can distinguish between an object and the material from which it is made. I can compare and group together a variety of everyday materials on the basis of their simple physical properties.		

Y2

Materials	Rocks	States of matter
I can identify a variety of everyday materials. I can distinguish between an object and the material it is made from. I can investigate the properties of different materials.		

Y3

Materials	Rocks	States of matter
	I can compare and group together different kinds of rocks on the basis of their appearance. I can compare and group together different kinds of rocks on the basis of their physical properties. I can explain how some rocks are formed. I can explain how the Earth is made up of different layers of rocks and soils. I can describe how fossils are formed when things that have lived are trapped within rock.	

Chemistry Content

Y4

Materials	Rocks	States of matter
		I can identify solids, liquids and gases. I can take accurate measurements usingthermometers. I can 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 I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Y5

Materials	Rocks	States of matter
I can compare and group materials according their properties I can describe the properties of materials using scientific vocabulary. I can investigate the thermal insulation of different materials. I can compare and group materials based on their response to magnets. I know that some materials dissolve in a liquid to make a solution. I can predict how I could separate mixtures. I can explain why some changes are irreversible. I can give reasons, based on research and investigation, for the particular uses of everyday materials.		

Physics Content

Y1

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
	I can observe and describe changes across the four seasons. I can observe how day length varies. I can describe weather associated with the seasons.				

Y3

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
I can compare how different things move. I can compare how objects move on different surfaces I can explore how magnetic forces act at a distance. I can compare and group various everyday materials based on whether they are attracted to a magnet. I can predict whether two magnets will attract or repel each other, depending on which poles are facing. I can record my findings using simple scientific vocabulary.					I can recognise that there needs to be light in order to see things and that darkness is the absence of light I can notice that light is reflected from surfaces. I can recognise that light from the Sun can be dangerous and that there are ways to protect your eyes and skin from the Sun. I can recognise that shadows are formed when light from a light source is blocked by an opaque object. I know that shadows take on the shape of the opaque object. I can predict where a shadow will form in relation to an opaque object and a light source. I can find patterns in the way that the length of shadows change.

Physics Content

Y4

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
			I can identify common appliances that use electricity. I can construct a simple circuit and name the parts of the circuit. Cells, wires, bulbs, switches and buzzers I can identify if a bulb will light up in a circuit. I know how to recognize that switch opens and closes and circuit and associate this with whether or not a lamp lights in a simple series circuit I can recognise common conductors and insulators.	I can identify how sounds are made, associating some of them with something vibrating. I can recognise that vibrations from sounds travel through a medium to the ear. I can find patterns between the pitch of a sound and features of the object that produced it. I can find patterns between the volume of a sound and the strength of the vibrations I know that sounds get fainter as the distance from the souns source increase	

Y5

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects. I can identify the effect of friction between moving surfaces. I can identify the effect of air resistance. I can identify the effect of water resistance. I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.		I can name and order the planets in the solar system and describe key differences I can describe the Sun, Earth and Moon as approximately spherical bodies. I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth. I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. I can describe the movement of the Moon relative to the Earth.			

Physics Content

Y6

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
			I can use symbols when drawing a simple circuit diagram. I can associate the brightness of a lamp with the number and voltage of cells used in the circuit. I can investigate variations in how components function and write a conclusion I can name renewable and non-renewable sources of energy.		I can recognise that light appears to travel in straight lines. I can 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. I can explain how the eye works. I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. I can explain how shadows change during the day.

Working Scientifically Progression

Working scientifically specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. Types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

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- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

EYFS

Understanding the World: The Natural World

- Explore the natural world around them, making observations and drawing pictures of animals and plants
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Communication and Language Listening, Attention and Understanding

- Make comments about what they have heard and ask questions to clarify their understanding

Working Scientifically

Pupils should be taught to use the following practical scientific methods, processes and skills:

EYFS	Show **curiosity** and ask **questions**	Make **observations** using their **senses** and **simple equipment**	Make direct **comparisons**	Use equipment to **measure**	**Record their observations** by drawing, taking photographs, using sorting rings or boxes, on simple tick sheets	Use their **observations** to help them **answer** questions	**Talk** about what they are **doing** and have **found out**	**Identify, sort** and **group**

Yr 1&2	Asking **simple questions** and recognising that they can be answered in different ways	**Observing closely** using **simple equipment**	Preforming **simple tests**	**Identifying** and **classifying**	Using **observations** and **ideas** to **suggest answers** to questions	**Gathering and recording data** to help in answering questions

Working Scientifically

Pupils should be taught to use the following practical scientific methods, processes and skills:

Yr 3 & 4	**Asking relevant questions** and using different types of **scientific enquiries** to answer them	Setting up **simple practical enquiries, comparative** and **fair tests**	Making **systematic** and **careful observations** and, where appropriate, taking accurate **measurements** using **standard units**, using a range of **equipment** including **thermometers** and **dataloggers**	**Gathering, recording, classifying** and **presenting data** in a variety of ways to help in answering questions	**Recording findings** using simple **scientific language, drawings, labelled diagrams, keys, bar charts** and **tables**	**Reporting** on findings from enquiries, including **oral** and **written explanations, displays** or **presentations** of results and conclusions	Using results to **draw** simple **conclusions,** make **predictions** for new values, **suggest improvements** and raise further **questions**	Identifying **differences, similarities** or **changes** related to simple scientific ideas and processes	Using straightforward **scientific evidence** to answer questions or to support their findings

Yr 5&6	**Planning** different types of **scientific enquiries** to answer questions, including **recognising** and **controlling variables** where necessary	Taking **measurements,** using a range of **scientific equipment** with increasing accuracy and precision taking **repeat readings** when appropriate	**Recording data** and results of increasing complexity using **scientific diagrams** and **labels, classification keys, tables, scatter graphs, bar** and **line graphs**	Using test results to make **predictions** to set up further comparative and fair tests	**Reporting a**nd **presenting** 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.	Identifying **scientific evidence** that has been used to support or refute ideas or arguments.

Science Key Vocabulary

	Plants	Living things & habitats	Animals including humans	Evolution	Seasonal Change	Materials
Nursery	Plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil *(names of plants they grow)*	Natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern	Egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, forg spawn, tadpole, frog, change, die, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change, baby, child, adult, smell, taste, touch, feel, hear, see, elderly *(names of animals and their young)*	Natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern	Grow, shoot, die, dead, Egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, forg spawn, tadpole, frog, change, die *names of animals and their young)*	Mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, wobbly, freeze, freezer, cold, hard, soft, bendy, stiff, wood, plastic, paper, card, fabric,
Reception	Tree, bush, herb *(names of plants they see)*	Plant, tree, bush, flower, vegetable, herb, weed, animal, *(name of a contrasting environment eg beach, forest, desert)*	*(names of animals)* live, on land, in water, desert, North Pole, South Pole, sea, hot, cold, wet, dry, ice, snow, hair, eyes, skin, big/tall, small/short, bigger/smaller, baby, child, adult, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, woman, man, elderly	Plant, tree, bush, flower, vegetable, herb, weed, animal, *(name of a contrasting environment eg beach, forest, desert)*	Spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm cold, raining, storm, thunder, lightning, hail, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers	Ice, water, frozen, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smallest, hard, soft, bendy, wood, plastic, paper, card, metal, strong, weak, hot, waterproof, soggy, not waterproof, best change
	Rocks	**Light**	**Forces**	**Sound**	**Electricity**	**Earth & Space**
Nursery	Natural, shells, pebbles, stones	Light, torch, bulb, lamp, shiny, bright, sun, shine, mirror	Object, float, sink, water, up, down, top, bottom, push, pull, magnet, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow	Sound, noise, loud, quiet, high, low, music, bang, blow, pluck, soft, hard, fast, slow, *(names of instruments)*		
Reception		Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through	Float, sink, up, down, top, bottom, move, roll, drop, fly, turn, spin, fall, fast, faster, fastest slow, slower, slowest, further, furthest, wind, air, water, blow, bounce	Sound, noise, listen, hear, music, voices, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar	Battery, plug, wire, sound, light	Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float

Science Key Vocabulary

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans Fish, reptiles, mammals, birds, amphibians, herbivore, omnivore, carnivore, beak	**Animals including humans** Survival, adult, offspring, exercise, hygiene, diet, reproduce, life cycle, nutrition	**Animals including humans** muscles, bones, skull, skeleton, nutrition, vertebrates, invertebrates	**Animals including humans** Digestion, saliva, oesophagus, stomach, pancreas, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, producer, predator, prey	**Animals including humans** foetus, womb, gestation, baby, toddler, infancy, adolescence, adulthood, hormones, reproduction, menopause, menstruation	**Animals including humans** blood, vessels, veins, arteries, oxygenated, deoxygenated, valve, respiration, absorb, aorta, atriums, villi, venacava
Plants Deciduous, evergreen trees, leaves, flowers, roots, seed, trunk, branches, stem	**Plants** Seeds, bulbs, water, light, temperature, growth, sprout, shoot, seed, dispersal, germinate	**Plants** nutrients, reproduction, transportation, dispersal, pollination, anther, stigma, filament, style, ovary, sepal	**Living things and their habitats** Amphibians, carnivore, characteristic, classification, excretion, herbivore, vertebrate, invertebrate, mammals, omnivore, reproduce, reptiles, respiration	**Living things and their habitats** anther, bulb, cell, dispersed, dissect, embryo, fertilization, flower, gamete, germination, life-cycle, metamorphosis, ovary, ovule, petal, plant, pollen, pollination, reproduction, seed, stigma	**Living things and their habitats** classification, taxonomy, reproduce, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, mammals, micro-organisms, excretions, carnivore, herbivore, omnivore, characteristic
Everyday Materials Bendy, absorbent, waterproof, stiff, stretchy, dull, transparent, opaque, translucent	**Living things and their habitats** living, dead, habitat, food chain, never lived, microhabitat, life processes, minibeasts, food source	**Rocks** magma, lava, fossils, soils, crystals, absorbent, permeable, impermeable, durable, sedimentary, igneous	**States of matter** particles, vapour, collection, condensation, evaporation, freeze, gas, heat, liquid, precipitation, property, solid, thermometer	**Earth and Space** Asteroid, axis, comet, galaxy, leap year, meteorite, orbit, planet, shadow, solar system, spin/rotate, star, time zones, universe	**Evolution and Inheritance** fossils, adaptation, evolution, characteristics, inherit, inheritance, DNA, trait, ecosystem, natural selection

Science Key Vocabulary

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Change Summer, Spring, Autumn, Winter, season, weather	**Everyday Materials** Hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent, opaque, transparent, squashing, bending, twisting, stretching, properties, purpose	**Light** Light, dark, shadow, mirror, reflective, reflection, light source, opaque, translucent, transparent	**Sound** Source, pitch, amplitude, vibration	**Materials** Circuit, condensation, conductor, dissolves, electricity, evaporation, filtering, flexible, gas, insoluble, irreversible, liquid, magnetic, melting, particles, permeable, resistance, reversible, solid, soluble, solution, state, temperature, thermal transparent	**Light** refraction, reflective, light, spectrum, rainbow, dark, direction, light ray, light beam, light source, opaque

		Forces and magnets Magnetic force, contact, attract, repel, friction, poles, push, pull, compass	**Electricity** Appliance, battery, circuit, components, conductor, electrical, insulator, mains power, potable, pylon	**Forces** Streamline, surface, grip, force, magnetism, drag, centre, gravity, air resistance, water resistance, friction	**Electricity** amps, volts, pylon, portable, appliance, battery, circuit, components, electrical, mains power

Famous Scientists

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
What is a scientist? What do they do? -they predict, experiment, evaluate, ask questions, observe, record	**Animals including humans** **Dr Edward Wilson** Chief scientist on Scott's expedition	**Animals including humans**	**Animals including humans** **Adelle Davis** Biochemist and nutritionist who linked health and diet	**Animals including humans** **William Beaumont** Surgeon who first observed and studied human digestion as it occurs in the stomach.	**Animals including humans** **Virginia Apgar** Doctor & Medical Researcher who developed a method of evaluating the well-being of new-born babies	**Animals including humans** **Sir Alexander Fleming** Scottish physician and microbiologist, best known for discovering the world's first broadly effective antibiotic substance, which he named penicillin.
	Materials **Chester Greenwood** Inventor of earmuffs	**Materials** **Charles Macintosh** Chemist and inventor of waterproof clothing	**Rocks** **James Hutton** Scientist who studied rocks and the effects of natural processes on	**States of matter** **Daniel Fahrenheit** Physicist who invented the Fahrenheit temperature scale and	**Materials** **Jamie Garcia** Chemist who discovered a fully recyclable plastic	**Evolution and inheritance** **Charles Darwin** Natural Historian who developed the theory of evolution by natural

		John Boyd Dunlop Inventor of pneumatic tyre	them, such as rain, running water, tides, and volcanoes on the development of the earth	the thermometer **Anders Celsius** Astronomer who invented the degrees Celsius temperature scale		selection
	Plants **Beatrix Potter** Mycologist, study of fungi, and scientific illustrator - Botanical drawings	**Living Things & their habitats** **William Kirby** Father of modern entomology, the study of insects	**Plants** **Charles Henry Turner** Zoologist who made ground-breaking discoveries about insect behaviour	**Living Things & their habitats** **Rachel Carson** Aquatic biologist who wrote about environmental pollution	**Living things and their habitats** **Jane Goodall** Wildlife Researcher & Conservationist who studied chimpanzees	**Living things and their habitats** **Carl Linnaeus** Botanist & Zoologist who developed a taxonomy for classifying organisms **Louis Pasteur** French chemist and microbiologist renowned for his discoveries of the principles of vaccination, microbial fermentation, and pasteurization,
	Seasonal Change	**Plants** **Angie Burnett** Plant biologist who grows plants and sees how they react to different conditions that make it more difficult for them to grow	**Forces & Magnets** **Leonardo Da Vinci** First person to plan and carry out tests on friction	**Sound (Greeks)** **Galileo Galilei** Astronomer, Mathematician & Physicist who made the first telescope and discovered Neptune and the rings of Saturn **Aristotle** Philospher who developed the concept that sound travels through air due to the movement of air particles	**Forces** **Brahmagupta** Mathematician & Astronomer who was the first scientist to talk about gravity	**Evolution and inheritance** **Charles Darwin** Natural Historian who developed the theory of evolution by natural selection
			Light **Percy Shaw** Inventor of the cat's eye	**Electricity**	**Space** **Mae Jemison** Astronaut and first Black woman in space **Helen Sharman**	**Electricity** **Thomas Edison** Inventor of the lightbulb and the power grid

					Astronaut who was the first British citizen to go into space	

**For more information about some of these scientists refer also to the Primary Science Education Consultancy reference document – saved on network in Science folder.*

What should I already know?

Biology

	Animals including humans	Plants	Living things and their habitats	Evolution
Yr 1	The names of some common animals. The parts of the human body and how they are associated with each sense. Know how to keep healthy by doing exercise and eating healthily. Know some rhymes about the body (e.g. Heads, Shoulders, Knees and Toes)	Plants can grow Some plants grow from a seed		
Yr 2	There are five types of vertebrates (mammals, fish, reptiles, amphibians, birds) Some animals give birth to live young but others lay eggs. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Identify, name, draw and label the basic parts of the human body and say which part is associated with each sense. Doctors and nurses give us medicine when we are poorly. (PSHE)	Plants can grow. The names of some common garden plants (e.g. poppy, rose) and the names of some common wild plants (e.g. daisy, dandelion, nettle). Deciduous trees lose their leaves in the autumn every year. Evergreen trees have green leaves all year round. The parts of a plant including petals, fruits, roots, seeds, stem, trunks and branches.	Observe changes across the four seasons. The names of some common plants and types of trees. Animals can be grouped into carnivores, herbivores and omnivores	
Yr 3	The parts of the human body and what they do. Can identify and group mammals, fish, reptiles,	Which things are living and which are not. Seeds and bulbs grow into mature plants	Which things are living, dead and things which have never been alive.	

	amphibians, birds. Know about and describe the basic needs of animals (incl. humans) for survival – water, air, food Can describe the importance of exercise, eating the right amounts of different types of food, hygiene	Plants need water, light and a suitable temperature to grow and stay healthy. Plants and animals depend on each other to survive	All animals need water, air and food to survive Animals, including humans, have offspring which grow into adults.	
Yr 4	The parts of the human body and what they do. All animals need water, air and food to survive. Animals get nutrition from what they eat. Humans and some animals have skeletons and muscles for support, protection and movement. What carnivores, omnivores and herbivores are. Excretion is one of the seven living processes.		Examples of habitats (including microhabitats) and the animals and plants that can be found there. Living things depend on each other to survive. How food chains work. How humans affect the natural environment eg deforestation, urban development	
Yr 5	Some examples of life cycles (including those of plants and humans) Animals incl. humans have offspring which grow into adults. Reproduction and growth are two of the seven life processes. How to live a healthy lifestyle.		The differences between the teeth of carnivores and herbivores. Some examples of life cycles (including those of plants and humans) Animals incl. humans have offspring which grow into adults. The processes of dispersal, fertilisation and germination. Reproduction is one of the seven life processes. Excretion is one of the seven life processes. Parts of a plant, their features and what their functions are. The word metamorphic means 'a change of form' (in the context of rocks)	
Yr 6	Animals have offspring which grow into adults. The basic needs of animals for survival (water, food, air) The importance of exercise, hygiene and a balanced diet. Animals get nutrition from what they eat. Some animals have skeletons for support, protection and movement. The basic parts of the digestive system. The different types of teeth in humans. Respiration is one of the seven life processes. The life cycle of a human and how we change as we grow		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 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.	Which things are living and which are not. Identifying animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates) and plants using classification keys Animals that are carnivores, herbivores and omnivores. Animals have offspring which grow into adults. The basic needs of animals for survival (water, food, air) Some animals have skeletons for support, protection and movement. Food chains, food webs and the role of predators and prey. Features of habitats and the animals and plants that exist there (biodiversity) . Examples of different biomes The life cycle of some animals and

				plants Sometimes environments can change and this has an effect on the plants and animals that exist there Living things breed to produce offspring which grow into adults. This is called reproduction. The role of Mary Anning in palaeontology and the discovery of fossils. The features of some rocks and the role they play in the formation of fossils

Chemistry

	Materials	Rocks	State of Matter
Yr 1	Objects feel and look different based on the material they are made from. Use different materials when painting and making art.		
Yr 2	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials incl. wood, plastic, glass, metal, water, rock Know that some materials are natural and some are man-made. 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		
Yr 3		Soil contains nutrients and these help plants to grow. The meaning of the word absorb. Why some materials are used for certain purposes because of their properties	
Yr 4			Identify, name and describe the properties of a variety of everyday materials. Know why some materials are used for certain purposes because of their properties. How magnets work and know that some materials are magnetic
Yr 5	The physical properties of a variety of everyday materials (including those that are transparent) and to compare and group materials on the basis of these properties		

	How materials are suitably used based on their properties. How magnets and electrical circuits work. Some materials which are magnetic. How shapes of solid objects can be changed by squashing, bending, twisting and stretching. Materials that are solids, liquids and gases and their particle structure. The roles of evaporation and condensation in the water cycle and the role temperature has on the rate of evaporation. Some rocks are permeable. Know that materials change state when they are heated or cooled and research at which temperature this happens in degrees Celsius Identify the part played by evaporation and		

Physics

	Forces and magnets	Seasonal Change	Earth and space	Electricity	Sound	Light
Yr 1		The country I live in is the United Kingdom Where the United Kingdom is and locate it on a map. There are different types of weather.				
Yr 2	The shape of some materials can be changed when they are stretched, twisted, bent and squashed. Know how different toys move					
Yr 3	Know what a force is and be able to explain that a push and pull are types of forces. That when forces are applied to an object they allow them to move or stop moving. The strength of the force determines how far and fast an object moves.					Certain things produce light, usually by burning (e.g. the Sun) or electricity (e.g. street lights) Shiny materials do not make light but do reflect it. Shadows are caused when certain materials block light.
Yr 4				Electricity is a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices.	Hearing is one of my five senses. Sounds can be combined using	

				Sources of light and sound may need electricity to work.	musical instruments. What the word vibration means.	
Yr 5	How to compare how things move on different surfaces Forces need contact between two objects but magnetic forces can act at a distance. Know that magnets attract or repel each other and attract some materials and not others. How to group everyday materials on the basis of whether they are magnetic materials. Know magnets have two poles and magnets attract or repel depending on which poles are facing.		We have four seasons (autumn, winter, spring and summer). The Sun is a source of light but the Moon is not. Know that a shadow is caused when an object blocks light from passing through it. The properties of a sphere Shadow length changes during the day as the sun appears to move across the sky			
Yr 6				Where electricity comes from Which appliances need electricity What a circuit is, the components of a circuit and how it works. What electrical conductors and insulators are. What happens when a switch is added to a circuit. What forces and resistance are.		Recognise that they need light in order to see things and that dark is the absence of light. Light from the sun can be dangerous and that there are ways to protect the eyes Shadows are caused when certain materials block light. Light travels in straight lines. When light is blocked by an opaque object, a dark shadow is formed. The further away the light source is, the smaller the shadow is. The closer the source of the light, the bigger the shadow.