



# Marsh Green Primary School

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SCIENCE CURRICULUM



Long Term Overview

**Early Years**

	<u>Autumn</u>	<u>Spring</u>	<u>Summer</u>			
Young Explorers	All about me	Surprise	Frosty	New Life	Growing	Down on the farm
Nursery	I spy around me	Sparkle	Ready, steady, red	Blooming lovely	Dear Zoo	My circle
Reception	Changes – Wonderful Me	Changes - Seasons	Where we live and people who look after it	Yummy, yummy in my tummy	New life	Places

**Key Stage One**

	<u>Autumn</u>	<u>Spring</u>	<u>Summer</u>	
1	Materials (Chemistry)	Animals Including Humans (Biology)	Plants/Seasonal Changes (Biology)	
2	Materials (Chemistry)	Animals Including Humans (Biology)	Living Things and their Habitats (Biology)	Plants/Seasonal Changes (Biology)

**Key Stage Two**

	<u>Autumn</u>	<u>Spring</u>	<u>Summer</u>		
3	Rocks and soils (Chemistry)	Forces and magnets (Physics)	Plants (Biology)	Light and Darkness (Physics)	Animals Including Humans (Biology)

4	Living Things (Biology)	Humans (Biology)	States of Matter (Chemistry)	Electricity (Physics)	Sound (Physics)
5	Forces (Physics)	Earth and Space (Physics)	States of Matter (Chemistry)	Lifecycles and reproduction (Biology)	Humans - changes (Biology)
6	How light travels (Physics)	Simple Circuits (Physics)	The circulatory systems and effects of exercise (Biology)	Classification (Biology)	Adaptation and Evolution (Biology)

Vocabulary Overview – Science

Year Group	Autumn	Spring		Summer
1	<p style="text-align: center;"><b>Materials (Chemistry)</b></p> <ol style="list-style-type: none"> <li>material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</li> <li>material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</li> <li>hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</li> <li>wood, metal, plastic, glass, rubber, rock, fabric, paper and brick</li> <li>material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</li> <li>material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</li> </ol>	<p style="text-align: center;"><b>Animals Including Humans (Biology)</b></p> <ol style="list-style-type: none"> <li>animal mammal fish bird amphibian reptile</li> <li>animal mammal fish bird amphibian reptile similarities differences</li> <li>animal omnivore herbivore carnivore meat plants nutrition similarities differences</li> <li>animal human body head, eyes, mouth, ears, shoulders, nose, chest, arm, hand, fingers, knee, leg, foot, toes</li> <li>senses – hear (hearing), smell, taste, see (seeing, sight) and touch (feel) simple body parts such as; head, eyes, mouth, ears, shoulders, nose, chest, arm, hand, fingers, knee, leg, foot, toes</li> <li>animal human body compare same / similar / similarities different / differences</li> </ol>		<p style="text-align: center;"><b>Plants/Seasonal Changes (Biology)</b></p> <ol style="list-style-type: none"> <li>plant, living, green</li> <li>plant, living, green, stem, leaf, flower, roots</li> <li>plant, living, green, stem, leaf, flower, roots, seed, grow</li> <li>plant, living, green, stem, leaf, flower, roots, seed, grow, wild, dandelion, nettle, daisy, buttercup</li> <li>plant, living, green, stem, leaf, flower, roots, grow, wild, same, different, sort, group</li> <li>plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible</li> <li>plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible, trunk, branch, deciduous, evergreen</li> <li>plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible, trunk, branch, leaf, deciduous, evergreen</li> </ol>
2	<p style="text-align: center;"><b>Materials (Chemistry)</b></p> <ol style="list-style-type: none"> <li>Types of material such as: wood, metal, plastic, glass, rubber, rock, fabric, paper and brick Words to describe materials such as: hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</li> <li>material sort group</li> <li>material, good/bad, best/worst, useful</li> <li>material, good/bad, best/worst, useful</li> <li>material, stretch, squash, bend, twist</li> </ol>	<p style="text-align: center;"><b>Animals Including Humans (Biology)</b></p> <ol style="list-style-type: none"> <li>human, need, want, survive, water, food, air, same, different</li> <li>human, animal, offspring, baby, grow, change, reproduce</li> <li>human, animal, offspring, baby, grow, change, reproduce, life cycle</li> <li>investigate, measure, record, change, grow, different, same, more, less, bigger, smaller, further</li> </ol>	<p style="text-align: center;"><b>Living Things and their Habitats (Biology)</b></p> <ol style="list-style-type: none"> <li>sensitivity, growth, respiration, excretion, nutrition, living, alive, dead, movement, reproduction</li> <li>living, alive, habitat, live, microhabitat</li> <li>living, alive, habitat, live, microhabitat</li> <li>living, alive, habitat, live, microhabitat, conditions, prefer, woodlice, woodlouse, dark, dry, damp, bright</li> </ol>	<p style="text-align: center;"><b>Plants/Seasonal Changes (Biology)</b></p> <ol style="list-style-type: none"> <li>plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible</li> <li>plant, living, same, different, sort, group, fruit, vegetable, seed, bulb</li> <li>plant, living, same, different, sort, group, fruit, vegetable, seed, bulb, need, healthy, look after, water, sunlight, warmth, energy</li> <li>need, healthy, look after, water, sunlight, warmth, energy</li> <li>plant, living, same, different, sort, group, fruit, vegetable, seed, bulb, need, healthy, look after, water, sunlight, warmth, energy, change, grow</li> </ol>

			<p>5. exercise, heart rate, investigate, measure, record, change, different, same, more, less, faster, slower</p> <p>6. healthy, diet, food, groups, fats, protein, fruits, vegetables, fibre, nutrients, vitamins, carbohydrates, dairy</p> <p>7. healthy, hygiene, germs, bacteria, wash, clean</p>	<p>5. living, alive, habitat, live, microhabitat, adapted, adaptation, features, suited</p> <p>6. living, alive, habitat, live, microhabitat, nutrition, food chain, eaten, omnivore, herbivore, carnivore</p>	
3	<p><b>Rocks and soils (Chemistry)</b></p> <p>1. rock, appearance, hard, soft, permeable, impermeable, smooth, rough, shiny, dull, bright, dark, sparkly, plain</p> <p>2. rock, appearance, hard, soft, permeable, impermeable, durable, hard wearing, waterproof, strong, geologist</p> <p>3. rock, appearance, hard, soft, permeable, impermeable, durable, hard-wearing, waterproof, strong, geologist, igneous, metamorphic, sedimentary</p> <p>4. rock, appearance, hard, soft, permeable, impermeable, durable, hard wearing, waterproof, strong, geologist, igneous, metamorphic, sedimentary, soils, decaying, microbes, crust, mantle, outer core, inner core</p> <p>5. igneous, metamorphic, sedimentary, soils, decaying, microbes, crust, mantle, outer core, inner core</p>	<p><b>Forces and magnets (Physics)</b></p> <p>1. force, push, pull, move, movement</p> <p>2. force, push, pull, move, fair, more, less, hard, soft</p> <p>3. magnet, force, contact, distance, magnetic pole, attract, repel</p> <p>4. magnet, force, contact, distance, attract, repel, material, predict</p> <p>5. magnet, force, contact, distance, attract, repel, material, predict</p> <p>6. magnet, force, contact, distance, attract, repel, material, predict</p>	<p><b>Plants (Biology)</b></p> <p>1. plant, living, seed, need, healthy, look after, water, sunlight, warmth, energy, nutrients, room, air</p> <p>2. plant, living, seed, need, healthy, look after, water, sunlight, warmth, energy, nutrients, room, air, function, flower, roots, stem, leaf</p> <p>3. plant, living, seed, need, healthy, look after, water, sunlight, warmth, energy, nutrients, room, air, function, flower, roots, stem, leaf</p> <p>4. nutrients, room, air, function, flower, roots, stem, leaf, transport</p> <p>5. warmth, energy, nutrients, room, air, function, flower, roots, stem, leaf, transport, flower, petal, pollen, pollination, pollinator</p> <p>6. roots, stem, leaf, transport, flower, petal, pollen, pollination, pollinator, dispersed, explosion, water, wind, animals</p>	<p><b>Light and Darkness (Physics)</b></p> <p>1. light source, light, dark, absence, reflects, luminous, natural, man-made</p> <p>2. reflective, surface, see, light, travel, straight lines, bounce</p> <p>3. reflected, damage, protection, sun protection factor, white light, visible</p> <p>4. shadow, opaque, translucent, transparent, black</p> <p>5. height, length, centimetres, equipment, variable, fair test, results, conclusion, pattern</p> <p>6. shadow, opaque, translucent, transparent, black, shiny</p>	<p><b>Animals Including Humans (Biology)</b></p> <p>1. skeleton, bones, protect, support, movement</p> <p>2. key bones (femur, skull, collarbone, jaw, hip, kneecap, rib cage, shoulder blade, spine)</p> <p>3. muscles, support, protect, movement, contract, relax</p> <p>4. skeleton, bones, spine, backbone, spinal column, vertebrate, invertebrate</p> <p>5. carbohydrates, fats, fibre, sugar, fruits, vegetables, dairy, protein, nutrition, healthy, unhealthy</p>

	6. geologist, igneous, metamorphic, sedimentary, soils, decaying, microbes, crust, mantle, outer core, inner core, organism, fossil, amber, clay, mould					
4	<p><b>Living Things (Biology)</b></p> <p>1. life process, living/non-living, movement, respiration sensitivity, growth, reproduction, excretion nutrition</p> <p>2. sort, group, herbivore, omnivore and carnivore criteria, characteristics mammal, fish, amphibian, bird and reptile</p> <p>3. vertebrate, invertebrate, skeleton, exoskeleton, endoskeleton, minibeast</p> <p>4. habitat, vertebrate, invertebrate, minibeast, skeleton, environment, nature</p> <p>5. classification key, identify questions, characteristics features</p> <p>6. environmental change pollution, deforestation climate, change, biodiversity littering, extinction</p>	<p><b>Humans (Biology)</b></p> <p>1. digestive system, mouth, teeth, salivary gland, tongue, bolus, oesophagus, enzyme, stomach, liver, pancreas, peristalsis, large intestine, small intestine, anus, rectum, stool, bile</p> <p>2. incisor, canine, premolar, molar and wisdom teeth, grind, tear, rip and chew, Function, deciduous (retrieval from year 1)</p> <p>3. tooth decay, enamel gum, dentine, pulp, root, crown prevent, sugar, acid variables</p> <p>4. herbivore, omnivore, carnivore producer, predator, prey, environment</p>	<p><b>States of Matter (Chemistry)</b></p> <p>1. solid, liquid, gas, characteristics, properties, volume, particles</p> <p>2. liquid, viscosity, plan, fair test, conclusion, variable</p> <p>3. hot/cold, measurement, units</p> <p>4. heating, cooling, solid, liquid, gas, change states, freeze, melt, evaporate, condense</p> <p>5. water cycle, evaporation, condensation, collection (run-off), precipitation, reuse, body of water</p> <p>6. evaporation, condensation, water vapour, liquid, solid, gas, variables. fair test, conclusion</p> <p>7. heat, rate of evaporation, variables, fair testing, conclusion, relationship, temperature</p>		<p><b>Electricity (Physics)</b></p> <p>1. electricity, electrical, appliance, mains power, battery power, electrical charge, power station pylons, overhead cables.</p> <p>2. component, circuit, flow of electricity, motor, switch, buzzer, wire, crocodile clip, battery</p> <p>3. component, circuit, flow of electricity, motor, switch, buzzer, wire, crocodile clip, battery</p> <p>4. electrical conductor, electrical insulator, wires, material</p> <p>5. complete and incomplete circuit, switch, selector switch, push switch, pull switch</p>	<p><b>Sound (Physics)</b></p> <p>1. vibrate, vibrations, volume, pitch, sound, vocal cords</p> <p>2. vibration, sound vibration, sound wave, solids, liquids and gases, particles</p> <p>3. ear canal, semi-circular canals, cochlea, auditory nerve, vibration, sound vibration, sound wave, pinnae/pinna, eardrum</p> <p>4. vibrations, sound waves, pinnae/pinna, measure, fair test, method, variables, conclusion, communicate</p> <p>5. pitch, energy, vibration, decibel</p> <p>6. vibrations, muffle, material, protect, volume, variables, fair test, method, conclusion, communicate</p>

5	<p style="text-align: center;"><b>Forces (Physics)</b></p> <ol style="list-style-type: none"> <li>1. mass, Earth, gravity, gravitational pull, weight, pull</li> <li>2. push, pull, friction, slowing, heat</li> <li>3. newton, meter, Sir Isaac Newton force, surface, conclusion</li> <li>4. resistance, friction, air resistance, drag, streamlined</li> <li>5. water resistance, air resistance, gravity, upthrust, float, buoyancy</li> </ol>	<p style="text-align: center;"><b>Earth and Space</b></p>	<p style="text-align: center;"><b>States of Matter (Chemistry)</b></p> <ol style="list-style-type: none"> <li>1. solid, liquid, gas, compress, rigid, heat, cool evaporation, condensation, melting, freezing state of matter, particles</li> <li>2. property, characteristic, durable, flexible, absorbent waterproof, magnetic, permeable, conductive transparent, stretchy</li> <li>3. thermal insulator, properties, fair test, variables, prediction, thermometer, degrees Celsius</li> <li>4. magnetic, magnets, attract, repel, magnetic field, metal, material, iron, steel, copper, aluminium, gold, silver, nickel, cobalt, Earth's magnetic pole, compass</li> <li>5. soluble, insoluble, dissolve, material, saturated, solution, evaporation</li> <li>6. separate/separation, materials, soluble/insoluble, magnetic, filter/filtering, sieve/sieving, evaporation, solids/liquids/gases, reversible/irreversible</li> <li>7. sieve/sieving, evaporation, solids/liquids/gases, reversible/irreversible</li> </ol>	<p style="text-align: center;"><b>Lifecycles and reproduction (Biology)</b></p> <ol style="list-style-type: none"> <li>1. life process, living/non-living movement respiration, sensitivity, growth, reproduce, excretion, nutrition</li> <li>2. reproduction, offspring, pregnant, gestation, uterus, womb, DNA, parent, male, female</li> <li>3. offspring, reproduce reproduction, mammal, fish, bird, amphibian, reptile, womb, egg, foetus, fertilise</li> <li>4. Pollination, fertilisation, seed dispersal, anther, filament, stigma, style, ovary, sepal, nectar</li> <li>5. reproduction, life cycle, stage, puberty, adolescent, cocoon, chrysalis, incubated</li> <li>6. reproduction, life cycle, pollination, fertilisation, seed dispersal, anther, filament, stigma, style, ovary</li> </ol>	<p style="text-align: center;"><b>Humans – changes (Biology)</b></p> <ol style="list-style-type: none"> <li>1. baby toddler child teenager adult senior change develop learn</li> <li>2. baby change develop learn womb foetus gestation period sperm egg</li> <li>3. teenager, puberty, change, develop, learn, moods, spots, hair, smell, sweat</li> <li>4. senior adult difficulty change develop illness fitness</li> </ol>
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6	<p><b>How light travels (Physics)</b></p> <ol style="list-style-type: none"> <li>1. light source, dark, absence, reflects, luminous/ luminescent, light ray, light beam, light speed, straight</li> <li>2. reflective, reflect, surface, see, travel, straight lines, bounce, predict, observation</li> <li>3. iris, pupil, lens, cornea, sclera, retina, optic nerve, refract</li> <li>4. shadow, opaque, translucent, transparent, block, form, absence, variable</li> <li>5. refract, refraction, bend, states of matter, light rays, speed, prism, visible/white light</li> <li>6. reflect, reflection, straight lines, shiny, dull, mirror, convex, concave, transparent, translucent and opaque</li> </ol>	<p><b>Simple Circuits (Physics)</b></p> <ol style="list-style-type: none"> <li>1. component, circuit, symbol, flow of electricity, motor, switch, buzzer, wire, crocodile clip, battery</li> <li>2. flow of electricity, complete/incomplete, voltage, volts, current</li> <li>3. fair test, variables, method, prediction, data logger, sensor, circuit</li> <li>4. fair test, variables, conclusion, prediction, point, evidence, explain</li> <li>5. renewable and non-renewable energy, fossil fuel, climate change, solar, hydro, wind farms, coal, gas and oil</li> </ol>	<p><b>The circulatory systems and effects of exercise (Biology)</b></p> <ol style="list-style-type: none"> <li>1. heart, veins, arteries, blood, lungs, oxygen</li> <li>2. heart, veins, arteries, blood, lungs, oxygen</li> <li>3. heart, veins, arteries, blood, lungs, oxygen, exercise, pulse, heart rate, heartbeat</li> <li>4. veins, arteries, blood, vitamins, water, oxygen, transported</li> <li>5. exercise, healthy, unhealthy, diet, personal hygiene, illness, sick, medicine</li> <li>6. exercise, healthy, unhealthy, diet, personal hygiene, illness, sick, medicine, smoking, alcohol, excessive, overweight</li> </ol>	<p><b>Classification (Biology)</b></p> <ol style="list-style-type: none"> <li>1. classify, mammals, reptiles, amphibians, birds, fish, skeleton, exoskeleton, vertebrate, invertebrate, herbivore, carnivore, omnivore.</li> <li>2. classification key, species, characteristics, features</li> <li>3. plants, seed dispersal, flowering, non-flowering, vascular, non-vascular, classify, classification key</li> <li>4. microorganism, microbe, microscope yeast, mould, inflate, respiration</li> <li>5. microorganism, microbe, fungi, algae, bacteria, protozoa, virus</li> <li>6. classification, standard, method, taxonomy, hierarchy</li> </ol>	<p><b>Adaptation and Evolution (Biology)</b></p> <ol style="list-style-type: none"> <li>1. adapt, adaptation, species, evolution, inheritance, environment</li> <li>2. adapt, adaptation, species, evolution, inheritance, environment</li> <li>3. natural selection, evolution, adaptation, genetic trait, ecosystem, species</li> <li>4. natural selection, evolution, adaptation, Galapagos Islands, Charles Darwin, finches, beaks</li> <li>5. offspring, genes, genetics, inheritance, physical traits</li> <li>6. fossils/fossilisation, species, organism, adaptation, decompose, sediment, inheritance, evolution</li> </ol>
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# Scientific Knowledge and Conceptual Understanding Progression Chart 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



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



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

# Biology Content

Y3

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

Y4

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

# Biology Content

Y5

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

Y6

Animals including humans	Plants	Living things and their habitats	Evolution
<p>I can identify and name the main parts of the human circulatory system.</p> <p>I can identify and name the main parts of the heart.</p> <p>I can describe how water and nutrients are transported in humans.</p> <p>I can identify how humans can live a healthy lifestyle.</p>		<p>I can describe how living things can be classified into broad groups.</p> <p>I understand how I can use classification keys to help group, identify and name a variety of living things.</p> <p>I can describe how living things can be classified into broad groups.</p> <p>I understand that microorganisms are also living things.</p> <p>I can describe how living things can be classified into broad groups.</p> <p>I know that scientists have developed different ways to classify living things.</p>	<p>I can identify how plants are adapted to their environment.</p> <p>I can identify how animals are adapted to their environment.</p> <p>I can explain natural selection and how it may lead to evolution.</p> <p>I can explain how adaptations may lead to evolution.</p> <p>I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>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.</p>

# Chemistry Content

Y1

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

Y2

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

Y3

	<p>I can compare and group together different kinds of rocks on the basis of their properties</p> <p>I can compare and group together different kinds of rocks on the basis of their physical properties.</p> <p>I can explain how some rocks are formed.</p> <p>I can explain how the Earth is made up of different layers of rocks and soils</p> <p>I can describe how fossils are formed when things that have lived are trapped within rock.</p>	
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# Chemistry Content

Y4

Materials	Rocks	States of matter
		<p>I can identify solids, liquids and gases.</p> <p>I can take accurate measurements using thermometers.</p> <p>I can observe that some materials change state when they are heated or cooled.</p> <p>I can identify the part played by evaporation and condensation in the water cycle.</p> <p>I can associate the rate of evaporation with temperature.</p>

Y5

Materials	Rocks	States of matter
<p>I can compare and group materials according to whether they are solids, liquids or gases and name their properties.</p> <p>I can describe the properties of materials using scientific vocabulary.</p> <p>I can investigate the thermal insulation of different materials.</p> <p>I can compare and group materials based on their response to magnets.</p> <p>I know that some materials dissolve in a liquid to make a solution.</p> <p>I can predict how I could separate mixtures.</p> <p>I can explain why some changes are irreversible.</p>		

# Physics Content

Y1

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

Y3

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

# Physics Content

Y4

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
			<p>I can identify common appliances that use electricity. I can construct a simple circuit and name the parts of the circuit.</p> <p>I can identify if a bulb will light up in a circuit.</p> <p>I can recognise common conductors and insulators.</p> <p>I can investigate switches.</p>	<p>I can identify how sounds are made, associating some of them with something vibrating.</p> <p>I can recognise that vibrations from sounds travel through a medium to the ear.</p> <p>I can find patterns between the pitch of a sound and features of the object that produced it.</p> <p>I can find patterns between the volume of a sound and the strength of the vibrations that</p>	

Y5

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
<p>I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects.</p> <p>I can identify the effect of friction between moving surfaces.</p> <p>I can identify the effect of air resistance.</p> <p>I can identify the effect of water resistance.</p> <p>I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</p>		<p>I can describe the planets in the solar system.</p> <p>I can describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>I can describe the movement of the Moon relative to the Earth.</p> <p>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.</p> <p>I can describe the movement of the Moon relative to the Earth.</p>			



# Physics Content

Y6

Forces and magnets	Seasonal change	Earth and space	Electricity	Sound	Light
			<p>I can use symbols when drawing a simple circuit diagram.</p> <p>I can associate the brightness of a lamp with the number and voltage of cells used in the circuit.</p> <p>I can investigate variations in how components function.</p> <p>I can name renewable and non-renewable sources of energy.</p>		<p>I can recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>I can explain how the eye works.</p> <p>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.</p> <p>I can explain how shadows change during the day.</p>

# Working Scientifically Progression Chart

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.

## 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

Communication and Language Listening, Attention and Understanding

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

# KS1

During **Years 1 and 2**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Y1**

	asking simple questions and recognising that they can be answered in different ways;	observing closely, using simple equipment;	performing simple tests;	identifying and classifying;	using their observations and ideas to suggest answers to questions;	gathering and recording data to help in answering questions.
<b>Animals including humans</b>	<b>Lesson 2</b>	<b>Lesson 6</b>		<b>Lesson 1 Lesson 3 Lesson 5</b>	<b>Lesson 2</b>	
<b>Plants</b>	<b>Lesson 5</b>	<b>Lesson 3 Lesson 4 Lesson 5</b>		<b>Lesson 1 Lesson 2</b>	<b>Lesson 7</b>	
<b>Materials</b>	<b>Lesson 4</b>	<b>Lesson 5 Lesson 6</b>	<b>Lesson 4 Lesson 5 Lesson 6</b>	<b>Lesson 1 Lesson 2 Lesson 3 Lesson 4</b>	<b>Lesson 5 Lesson 6</b>	<b>Lesson 5 Lesson 6</b>
<b>Seasonal change</b>		<b>Lesson 5</b>	<b>Lesson 5</b>	<b>Lesson 1 Lesson 2 Lesson 3 Lesson 4</b>	<b>Lesson 5</b>	<b>Lesson 5</b>

# KS1

During **Years 1 and 2**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Y2**

	asking simple questions and recognising that they can be answered in different ways;	observing closely, using simple equipment;	performing simple tests;	identifying and classifying;	using their observations and ideas to suggest answers to questions;	gathering and recording data to help in answering questions.
Animals including humans		Lesson 4 Lesson 5	Lesson 4 Lesson 5	Lesson 1 Lesson 2 Lesson 3	Lesson 4 Lesson 5	Lesson 4 Lesson 5
Plants		Lesson 1 Lesson 2 Lesson 3 Lesson 4 Lesson 5		Lesson 1 Lesson 2	Lesson 4	
Living things and their habitats	Lesson 4	Lesson 2 Lesson 4	Lesson 4	Lesson 1 Lesson 2 Lesson 3 Lesson 4 Lesson 5 Lesson 6	Lesson 4	Lesson 4
Materials	Lesson 3 Lesson 4	Lesson 3 Lesson 4 Lesson 5	Lesson 3 Lesson 4 Lesson 5	Lesson 1 Lesson 2	Lesson 3 Lesson 4 Lesson 5	Lesson 3 Lesson 4

# LKS2

During **Years 3 and 4**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Y3**

Animals including humans
Plants
Light
Rocks
Forces and magnets

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 data loggers;	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions;	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables;	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions;	identifying differences, similarities or changes related to simple scientific ideas and processes;	using straightforward scientific evidence to answer questions or to support their findings.
Lesson 2	Lesson 2	Lesson 2		Lesson 2	Lesson 2			
Lesson 4	Lesson 1 Lesson 4	Lesson 4		Lesson 4	Lesson 4			
Lesson 5	Lesson 5	Lesson 5	Lesson 5	Lesson 4		Lesson 5	Lesson 4	Lesson 4 Lesson 5
Lesson 5	Lesson 2 Lesson 5	Lesson 1 Lesson 2 Lesson 5		Lesson 2 Lesson 5	Lesson 2	Lesson 5		
	Lesson 2	Lesson 4 Lesson 5	Lesson 2	Lesson 3	Lesson 2	Lesson 2	Lesson 2 Lesson 5	Lesson 2 Lesson 5

# LKS2

During **Years 3 and 4**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Y4**

	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 data loggers;	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions;	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables;	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions;	identifying differences, similarities or changes related to simple scientific ideas and processes;	using straightforward scientific evidence to answer questions or to support their findings.
Animals including humans		Lesson 3	Lesson 3	Lesson 3	Lesson 3	Lesson 3	Lesson 3		
Living things and their habitats			Lesson 4	Lesson 4	Lesson 4 Lesson 5	Lesson 4			
Electricity	Lesson 4	Lesson 4	Lesson 4		Lesson 5	Lesson 5	Lesson 4		Lesson 5
Sound	Lesson 7	Lesson 4 Lesson 7	Lesson 6 Lesson 7	Lesson 7		Lesson 1 Lesson 4 Lesson 6 Lesson 7	Lesson 4 Lesson 7	Lesson 4	Lesson 5 Lesson 6
States of matter		Lesson 2 Lesson 4 Lesson 6	Lesson 2 Lesson 3 Lesson 4 Lesson 6 Lesson 7	Lesson 2 Lesson 3 Lesson 4 Lesson 6 Lesson 7	Lesson 4 Lesson 6	Lesson 2 Lesson 4 Lesson 6 Lesson 7	Lesson 6 Lesson 7	Lesson 6 Lesson 7	Lesson 6 Lesson 7

# UKS2

During **Years 5** and **6**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Y5**

	planning different types of <b>scientific enquiries</b> to answer questions, including <b>recognising and controlling variables</b> where necessary;	taking <b>measurements</b> , using a range of <b>scientific equipment</b> , with increasing accuracy and precision, taking <b>repeat readings</b> when appropriate;	recording <b>data</b> and results of increasing complexity using <b>scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</b> ;	using test results to make <b>predictions</b> to set up further comparative and fair tests;	reporting and presenting findings from enquiries, including <b>conclusions, causal relationships and explanations</b> of and a degree of trust in results, in <b>oral and written forms</b> such as displays and other presentations;	identifying <b>scientific evidence</b> that has been used to support or refute ideas or arguments.
Animals including humans						
Living things and their habitats			Lesson 2		Lesson 2	
Materials	Lesson 3 Lesson 4	Lesson 3 Lesson 4	Lesson 3 Lesson 4	Lesson 3	Lesson 3	
Forces and magnets	Lesson 1 Lesson 3 Lesson 4	Lesson 1 Lesson 3 Lesson 4 Lesson 5	Lesson 1 Lesson 3		Lesson 1 Lesson 5	Lesson 1
Earth and space	Lesson 5	Lesson 5	Lesson 5		Lesson 5	Lesson 5

# UKS2

During **Years 5 and 6**, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

**Y6**

	planning different types of <b>scientific enquiries</b> to answer questions, including <b>recognising and controlling variables</b> where necessary;	taking <b>measurements</b> , using a range of <b>scientific equipment</b> , with increasing accuracy and precision, taking <b>repeat readings</b> when appropriate;	recording <b>data</b> and results of increasing complexity using <b>scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</b> ;	using test results to make <b>predictions</b> to set up further comparative and fair tests;	reporting and presenting findings from enquiries, including <b>conclusions, causal relationships and explanations</b> of and a degree of trust in results, in <b>oral and written forms</b> such as displays and other presentations;	identifying <b>scientific evidence</b> that has been used to support or refute ideas or arguments.
Animals including humans	Lesson 3	Lesson 3	Lesson 3		Lesson 3	
Living things and their habitats			Lesson 4		Lesson 4	Lesson 4
Light	Lesson 4	Lesson 4	Lesson 4	Lesson 2	Lesson 4	
Electricity	Lesson 2 Lesson 3	Lesson 2 Lesson 4	Lesson 4	Lesson 2	Lesson 2 Lesson 4	Lesson 4 Lesson 5
Evolution	Lesson 4	Lesson 4			Lesson 4	Lesson 3 Lesson 4 Lesson 6