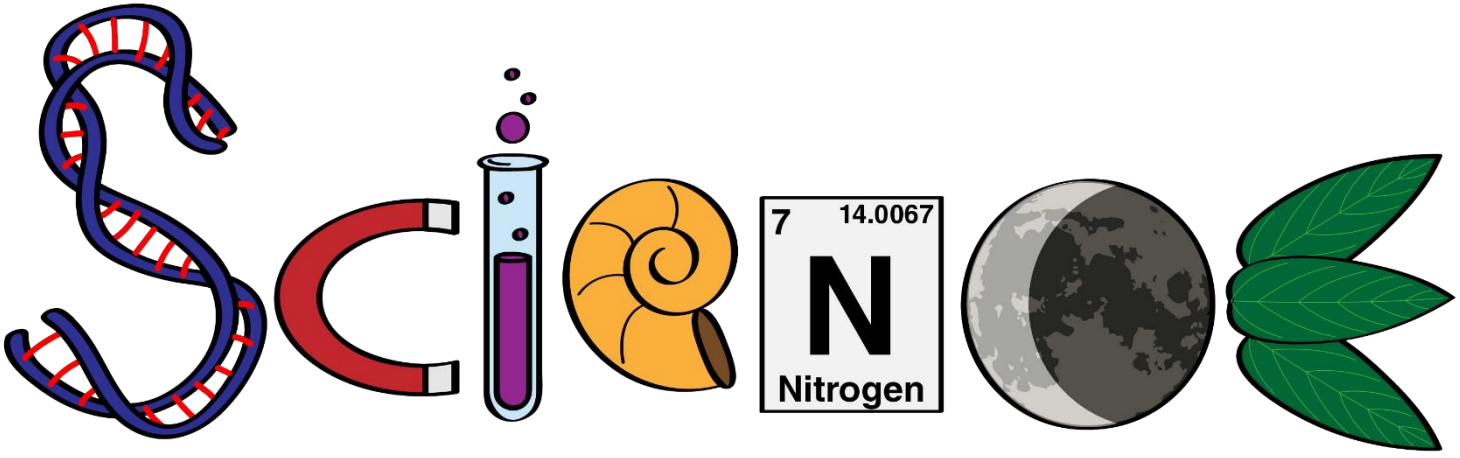


# Marsh Green Primary School

## SCIENCE CURRICULUM

# Long Term Overview

## Early Years

| | Autumn | | Spring | | Summer | |
|---|---|---|---|---|---|---|
| Young Explorers | All about me | Light and Dark | It's Cold Outside | Traditional Tales | People and Communities | All Creatures Great and Small |
| Nursery | Marvellous Me | Winter Wonderland | If We Go Down to the Woods | Take a Look Back | People Who Help Us | Our World |
| Reception | Wonderful Me | Changes | Ship Ahoy | A Tale as Old as Time | Kings and Queens | New Life |

## Key Stage One

| | Autumn | Spring | | Summer |
|---|---|---|---|---|
| 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

| | Autumn | | Spring | | Summer |
|---|---|---|---|---|---|
| 3 | Rocks and soils (Chemistry) | Forces and magnets (Physics) | Light and Darkness (Physics) | Plants (Biology) | 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) | Animals Including Humans (Biology) | Adaptation and Evolution (Biology) | Living Things and Their Habitats (Biology) | |

| Science Education in The Early Years Foundation Phase | |
|---|---|
| Development Matters – Understanding The World | |
| **Young Explorers** | Explore natural materials, indoors and outside.<br>Explore and respond to different natural phenomena in their setting and on trips. |
| **Nursery** | Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"<br>Make healthy choices about food, drink, activity and tooth brushing.<br>Use all their senses in hands-on exploration of natural materials.<br>Explore collections of materials with similar and/or different properties.<br>Talk about what they see, using a wide vocabulary.<br>Begin to make sense of their own life-story and family's history.<br>Explore how things work. Plant seeds and care for growing plants.<br>Understand the key features of the life cycle of a plant and an animal.<br>Begin to understand the need to respect and care for the natural environment and all living things.<br>Explore and talk about different forces they can feel.<br>Talk about the differences between materials and changes they notice. |
| **Reception** | Learn new vocabulary.<br>Ask questions to find out more and to check what has been said to them.<br>Articulate their ideas and thoughts in well-formed sentences.<br>Describe events in some detail.<br>Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.<br>Use new vocabulary in different contexts.<br>Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - tooth brushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian.<br>Explore the natural world around them.<br>Describe what they see, hear and feel while they are outside. |
| **ELG** | The Natural World - UTW<br>Explore the natural world around them, making observations and drawing pictures of animals and plants.<br>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.<br>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.<br>Managing Self - PSED<br>Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.<br>Explain the reasons for rules know right from wrong and try to behave accordingly. |

| | |
|---|---|
| | Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. |

## Vocabulary Overview – Science

| Year Group | Autumn | Spring | | Summer |
|---|---|---|---|---|
| 1 | Materials (Chemistry)<br><br>1. material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light<br>2. material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light<br>3. hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light<br>4. wood, metal, plastic, glass, rubber, rock, fabric, paper and brick<br>5. material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light<br>6. material, wood, metal, plastic, glass, rubber, rock, fabric, paper, brick, hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light | Animals Including Humans (Biology)<br><br>1. animal mammal fish bird amphibian reptile<br>2. animal mammal fish bird amphibian reptile similarities differences<br>3. animal omnivore herbivore carnivore meat plants nutrition similarities differences<br>4. animal human body head, eyes, mouth, ears, shoulders, nose, chest, arm, hand, fingers, knee, leg, foot, toes<br>5. 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<br>6. animal human body compare same / similar / similarities different / differences | | Plants/Seasonal Changes (Biology)<br>1. plant, living, green<br>2. plant, living, green, stem, leaf, flower, roots<br>3. plant, living, green, stem, leaf, flower, roots, seed, grow<br>4. plant, living, green, stem, leaf, flower, roots, seed, grow, wild, dandelion, nettle, daisy, buttercup<br>5. plant, living, green, stem, leaf, flower, roots, grow, wild, same, different, sort, group<br>6. plant, living, green, stem, leaf, flower, roots, seed, grow,<br>wild, same, different, sort, group, fruit, vegetable, eat, consume, edible<br>7. plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible, trunk, branch, deciduous, evergreen<br>8. plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible, trunk, branch, leaf, deciduous, evergreen |
| 2 | Materials (Chemistry)<br><br>1. Types of material such as: wood, metal, plastic, glass, rubber, rock, fabric, paper and brick<br>Words to describe materials such as: hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light<br>2. material sort group<br>3. material, good/bad, best/worst, useful<br>4. material, good/bad, best/worst, useful<br>5. material, stretch, squash, bend, twist | Animals Including Humans (Biology)<br><br>1. human, need, want, survive, water, food, air, same, different<br>2. human, animal, offspring, baby, grow, change, reproduce<br>3. human, animal, offspring, baby, grow, change, reproduce, life cycle | Living Things and their Habitats (Biology)<br><br>1.sensitivity, growth, respiration, excretion, nutrition, living, alive, dead, movement, reproduction<br>2. living, alive, habitat, live, microhabitat<br>3. living, alive, habitat, live, microhabitat | Plants/Seasonal Changes (Biology)<br>1. plant, living, green, stem, leaf, flower, roots, seed, grow, wild, same, different, sort, group, fruit, vegetable, eat, consume, edible<br>2. plant, living, same, different, sort, group, fruit, vegetable, seed, bulb<br>3. plant, living, same, different, sort, group, fruit, vegetable, seed, bulb, need, healthy, look after, water, sunlight, warmth, energy<br>4. need, healthy, look after, water, sunlight, warmth, energy |

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

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

| | | | | | |
|---|---|---|---|---|---|
| | | | | | conclusion, communicate |
| 5 | Forces (Physics)<br><br>1. mass, Earth, gravity, gravitational pull, weight, pull<br>2. push, pull, friction, slowing, heat<br>3. newton, meter, Sir Isaac Newton force, surface, conclusion<br>4. resistance, friction, air resistance, drag, streamlined<br>5. water resistance, air resistance, gravity, upthrust, float, buoyancy | Earth and Space<br><br>1. the Sun, the solar system, dwarf planet (Pluto), gas, orbits, rotate, distance (km and miles) planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune)<br><br>2. sphere/spherical, Aristotle, Greek philosopher, hull, horizon ,ellipse, curve<br><br>3. orbit, gravity, gravitational pull, planet, rotate, time, Earth days<br><br>4. Moon, Earth, Sun, gravity, orbits, space debris, satellites, spherical body<br>5. daytime, night-time, rotate, orbit, axis, shadow,opaque object, light source<br><br>6. orbit, spherical, reflect, Moon, Earth, Sun, new moon, full moon, first quarter, last quarter, waning crescent, waxing crescent, waning gibbous, waxing gibbous | States of Matter (Chemistry)<br>1. solid, liquid, gas, compress, rigid, heat, cool evaporation, condensation, melting, freezing state of matter, particles<br>2. property, characteristic, durable, flexible, absorbent waterproof, magnetic, permeable, conductive transparent, stretchy<br>3. thermal insulator, properties, fair test, variables, prediction, thermometer, degrees Celsius<br>4. magnetic, magnets, attract, repel, magnetic field, metal, material, iron, steel, copper, aluminium, gold, silver, nickel, cobalt, Earth's magnetic pole, compass<br>5. soluble, insoluble, dissolve, material, saturated, solution, evaporation<br>6. separate/separation, materials, soluble/insoluble, magnetic, filter/filtering, sieve/sieving, evaporation, solids/liquids/gases, reversible/irreversible<br>7. sieve/sieving, evaporation, solids/liquids/gases, reversible/irreversible | Lifecycles and reproduction (Biology)<br>1. life process, living/non-living movement respiration, sensitivity, growth, reproduce, excretion, nutrition<br>2. reproduction, offspring, pregnant, gestation, uterus, womb, DNA, parent, male, female<br>3. offspring, reproduce reproduction, mammal, fish, bird, amphibian, reptile, womb, egg, foetus, fertilise<br>4. Pollination, fertilisation, seed dispersal, anther, filament, stigma, style, ovary, sepal, nectar<br>5. reproduction, life cycle, stage, puberty, adolescent, cocoon, chrysalis, incubated<br>6. reproduction, life cycle, pollination, fertilisation, seed dispersal, anther, | Humans – changes (Biology)<br>1. baby toddler child teenager adult senior change develop learn<br>2. baby change develop learn womb foetus gestation period sperm egg<br>3. teenager, puberty, change, develop, learn, moods, spots, hair, smell, sweat<br>4. senior adult difficulty change develop illness fitness |

| | | | | | |
|---|---|---|---|---|---|
| | | | | filament, stigma, style, ovary | |
| 6 | How light travels (Physics)<br><br>1. light source, dark, absence, reflects, luminous/ luminescent, light ray, light beam, light speed, straight<br>2. reflective, reflect, surface, see, travel, straight lines, bounce, predict, observation<br>3. iris, pupil, lens, cornea, sclera, retina, optic nerve, refract<br>4. shadow, opaque, translucent, transparent, block, form, absence, variable<br>5. refract, refraction, bend, states of matter, light rays, speed, prism, visible/white light<br>6. reflect, reflection, straight lines, shiny, dull, mirror, convex, concave, transparent, translucent and opaque | Simple Circuits (Physics)<br><br>1. component, circuit, symbol, flow of electricity, motor, switch, buzzer, wire, crocodile clip, battery<br>2. flow of electricity, complete/incomplete, voltage, volts, current<br>3. fair test, variables, method, prediction, data logger, sensor, circuit<br>4. fair test, variables, conclusion, prediction, point, evidence, explain<br>5. renewable and non-renewable energy, fossil fuel, climate change, solar, hydro, wind farms, coal, gas and oil | Animals Including Humans (Biology)<br><br>1. heart, veins, arteries, blood, lungs, oxygen<br>2. heart, veins, arteries, blood, lungs, oxygen<br>3. heart, veins, arteries, blood, lungs, oxygen, exercise, pulse, heart rate, heartbeat<br>4. veins, arteries, blood, vitamins, water, oxygen, transported<br>5. exercise, healthy, unhealthy, diet, personal hygiene, illness, sick, medicine<br>6. exercise, healthy, unhealthy, diet, personal hygiene, illness, sick, medicine, smoking, alcohol, excessive, overweight | Classification (Biology)<br><br>1. classify, mammals, reptiles, amphibians, birds, fish, skeleton, exoskeleton, vertebrate, invertebrate, herbivore, carnivore, omnivore.<br>2. classification key, species, characteristics, features<br>3. plants, seed dispersal, flowering, non-flowering, vascular, non-vascular, classify, classification key<br>4. microorganism, microbe, microscope yeast, mould, inflate, respiration<br>5. microorganism, microbe, fungi, algae, bacteria, protozoa, virus<br>6. classification, standard, method, taxonomy, hierarchy | Adaptation and Evolution (Biology)<br><br>1. adapt, adaptation, species, evolution, inheritance, environment<br>2. adapt, adaptation, species, evolution, inheritance, environment<br>3. natural selection, evolution, adaptation, genetic trait, ecosystem, species<br>4. natural selection, evolution, adaptation, Galapagos Islands, Charles Darwin, finches, beaks<br>5. offspring, genes, genetics, inheritance, physical traits<br>6. fossils/fossilisation, species, organism, adaptation, decompose, sediment, inheritance, evolution |

# 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

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.<br><br>I can compare a variety of common animals including fish, amphibians, reptiles, birds and mammals.<br><br>I can identify and name a variety of common animals that are carnivores, omnivores and herbivores.<br><br>I can identify, name, draw and label the basic parts of the human body.<br><br>I can identify which part of the body is associated with each sense.<br><br>I can compare humans. | I can identify different plants.<br><br>I can identify and describe the basic structure of plants.<br><br>I understand that plants can grow.<br>I can name a variety of common wild plants.<br><br>I can sort a variety of plants.<br><br>I can name a variety of common plants that we can eat.<br><br>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.<br><br>I notice that animals, including humans have offspring which grow into adults.<br><br>I can describe the importance for humans to exercise.<br><br>I can describe the importance for humans to eat the right amounts of different types of food.<br><br>I can describe the importance for humans to have good hygiene.<br><br>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.<br><br>I can observe and describe how seeds grow into mature plants.<br><br>I know what plants need to grow and stay healthy.<br><br>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.<br><br>I can identify and name a variety of plants and animals in their habitats, including microhabitats.<br><br>I can identify and name a variety of plants and animals in their habitats.<br><br>I can identify that most living things live in a habitat to which they are suited.<br><br>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.<br><br>I can identify that some other animals have bones for support, protection and movement.<br><br>I understand that animals, including humans, need the right type of nutrition. | I can explore the requirements of plants for life and growth.<br><br>I can identify, locate and describe the function of different parts of flowering plants.<br><br>I can identify, locate and describe the function of the roots in plants.<br><br>I can investigate the way in which water is transported within plants.<br><br>I can explore the part that flowers play in the life cycle of flowering plants, including pollination.<br><br>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.<br><br>I can identify the different teeth and describe their functions.<br><br>I can construct and interpret a variety of food chains.<br><br>I understand what producers, predators and prey are. | | I can recognise that living things can be grouped in a variety of ways.<br><br>I can explore and use classification keys to help group, identify and name a variety of living things in my local environment.<br><br>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.<br><br>I understand how a foetus develops in the womb.<br><br>I can describe what happens when I am a teenager.<br><br>I can describe what happens when I am a senior. | | I can discuss the seven life processes.<br><br>I can explain how mammals reproduce.<br><br>I can explain how animals reproduce.<br><br>I understand reproduction in plants.<br><br>I can describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds.<br><br>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.<br><br>I can identify and name the main parts of the heart.<br><br>I can describe how water and nutrients are transported in humans.<br><br>I can identify how humans can live a healthy lifestyle. | | I can describe how living things can be classified into broad groups.<br><br>I understand how I can use classification keys to help group, identify and name a variety of living things.<br><br>I can describe how living things can be classified into broad groups.<br><br>I understand that microorganisms are also living things.<br><br>I can describe how living things can be classified into broad groups.<br><br>I know that scientists have developed different ways to classify living things. | I can identify how plants are adapted to their environment.<br><br>I can identify how animals are adapted to their environment.<br><br>I can explain natural selection and how it may lead to evolution.<br><br>I can explain how adaptations may lead to evolution.<br><br>I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.<br>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.<br><br>I can describe the physical properties of a variety of everyday materials.<br><br>I can distinguish between an object and the material from which it is made.<br><br>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.<br><br>I can distinguish between an object and the material it is made from.<br><br>I can investigate the properties of different materials. | | |

## Y3

| | | |
|---|---|---|
| | I can compare and group together different kinds of rocks on the basis of their properties<br><br>I can compare and group together different kinds of rocks on the basis of their physical properties.<br><br>I can explain how some rocks are formed.<br><br>I can explain how the Earth is made up of different layers of rocks and soils<br><br>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.<br><br>I can take accurate measurements usingthermometers.<br><br>I can observe that some materials change state whenthey are heated or cooled.<br><br>I can identify the part played by evaporation andcondensation in the water cycle.<br><br>I can associate the rate of evaporation withtemperature. |

## Y5

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

# Physics Content

## Y1

| Forces and magnets | Seasonal change | Earth and space | Electricity | Sound | Light |
|---|---|---|---|---|---|
| | I can observe and describe changes across the four seasons.<br><br>I can observe how day length varies.<br><br>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.<br><br>I can compare how objects move on different surfaces<br><br>I can explore how magnetic forces act at a distance.<br><br>I can compare and group various everyday materials based on whether they are attracted to a magnet.<br><br>I can predict whether two magnets will attract or repel each other, depending on which poles are facing.<br><br>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<br><br>I can notice that light is reflected from surfaces.<br><br>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.<br><br>I can recognise that shadows are formed when light from a light source is blocked by an opaque object.<br><br>I know that shadows take on the shape of the opaque object.<br><br>I can predict where a shadow will form in relation to an opaque object and a light source.<br><br>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.<br><br>I can identify if a bulb will light up in a circuit.<br><br>I can recognise common conductors and insulators.<br><br>I can investigate switches. | I can identify how sounds are made, associating some of them with something vibrating.<br><br>I can recognise that vibrations from sounds travel through a medium to the ear.<br><br>I can find patterns between the pitch of a sound and features of the object that produced it.<br><br>I can find patterns between the volume of a sound and the strength of the vibrations that | |

## 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.<br><br>I can identify the effect of friction between moving surfaces.<br><br>I can identify the effect of air resistance.<br><br>I can identify the effect of water resistance.<br><br>I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. | | I can describe the planets in the solar system.<br><br>I can describe the Sun, Earth and Moon as approximately spherical bodies.<br><br>I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system.<br><br>I can describe the movement of the Moon relative to the Earth.<br><br>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.<br><br>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.<br><br>I can associate the brightness of a lamp with the number and voltage of cells used in the circuit.<br><br>I can investigate variations in how components function.<br><br>I can name renewable and non-renewable sources of energy. | | I can recognise that light appears to travel in straight lines.<br><br>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.<br><br>I can explain how the eye works.<br><br>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.<br><br>I can explain how shadows change during the day. |

# 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. |
|---|---|---|---|---|---|---|
| **Animals including humans** | **Lesson 2** | **Lesson 6** | | **Lesson 1**<br>**Lesson 3**<br>**Lesson 5** | **Lesson 2** | |
| **Plants** | **Lesson 5** | **Lesson 3**<br>**Lesson 4**<br>**Lesson 5** | | **Lesson 1**<br>**Lesson 2** | **Lesson 7** | |
| **Materials** | **Lesson 4** | **Lesson 5**<br>**Lesson 6** | **Lesson 4**<br>**Lesson 5**<br>**Lesson 6** | **Lesson 1**<br>**Lesson 2**<br>**Lesson 3**<br>**Lesson 4** | **Lesson 5**<br>**Lesson 6** | **Lesson 5**<br>**Lesson 6** |
| **Seasonal change** | | **Lesson 5** | **Lesson 5** | **Lesson 1**<br>**Lesson 2**<br>**Lesson 3**<br>**Lesson 4** | **Lesson 5** | **Lesson 5** |

# KS1

During **Years 1** and **2**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching 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<br>Lesson 5 | Lesson 4<br>Lesson 5 | Lesson 1<br>Lesson 2<br>Lesson 3 | Lesson 4<br>Lesson 5 | Lesson 4<br>Lesson 5 |
| **Plants** | | Lesson 1<br>Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 5 | | Lesson 1<br>Lesson 2 | Lesson 4 | |
| **Living things and their habitats** | Lesson 4 | Lesson 2<br>Lesson 4 | Lesson 4 | Lesson 1<br>Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 5<br>Lesson 6 | Lesson 4 | Lesson 4 |
| **Materials** | Lesson 3<br>Lesson 4 | Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 1<br>Lesson 2 | Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 3<br>Lesson 4 |

# LKS2

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

**Y3**

| | **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 2 | Lesson 2 | Lesson 2 | | Lesson 2 | Lesson 2 | | | |
| **Plants** | Lesson 4 | Lesson 1<br>Lesson 4 | Lesson 4 | | Lesson 4 | Lesson 4 | | | |
| **Light** | Lesson 5 | Lesson 5 | Lesson 5 | Lesson 5 | Lesson 4 | | Lesson 5 | Lesson 4 | Lesson 4<br>Lesson 5 |
| **Rocks** | Lesson 5 | Lesson 2<br>Lesson 5 | Lesson 1<br>Lesson 2<br>Lesson 5 | | Lesson 2<br>Lesson 5 | Lesson 2 | Lesson 5 | | |
| **Forces and magnets** | | Lesson 2 | Lesson 4<br>Lesson 5 | Lesson 2 | Lesson 3 | Lesson 2 | Lesson 2 | Lesson 2<br>Lesson 5 | Lesson 2<br>Lesson 5 |

# LKS2

During **Years 3** and **4**, pupils should be taught to use the following practical scientific methods, processes and skills through theteaching 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<br>Lesson 5 | Lesson 4 | | | |
| **Electricity** | Lesson 4 | Lesson 4 | Lesson 4 | | Lesson 5 | Lesson 5 | Lesson 4 | | Lesson 5 |
| **Sound** | Lesson 7 | Lesson 4<br>Lesson 7 | Lesson 6<br>Lesson 7 | Lesson 7 | | Lesson 1<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 4<br>Lesson 7 | Lesson 4 | Lesson 5<br>Lesson 6 |
| **States of matter** | | Lesson 2<br>Lesson 4<br>Lesson 6 | Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 2<br>Lesson 3<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 4<br>Lesson 6 | Lesson 2<br>Lesson 4<br>Lesson 6<br>Lesson 7 | Lesson 6<br>Lesson 7 | Lesson 6<br>Lesson 7 | Lesson 6<br>Lesson 7 |

# UKS2

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

**Y5**

| | **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** and **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. |
|---|---|---|---|---|---|---|
| **Animals including humans** | | | | | | |
| **Living things and their habitats** | | | Lesson 2 | | Lesson 2 | |
| **Materials** | Lesson 3<br>Lesson 4 | Lesson 3<br>Lesson 4 | Lesson 3<br>Lesson 4 | Lesson 3 | Lesson 3 | |
| **Forces and magnets** | Lesson 1<br>Lesson 3<br>Lesson 4 | Lesson 1<br>Lesson 3<br>Lesson 4<br>Lesson 5 | Lesson 1<br>Lesson 3 | | Lesson 1<br>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 theteaching of the programme of study content:

**Y6**

| | **planning** di erent 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** and **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. |
|---|---|---|---|---|---|---|
| **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<br>Lesson 3 | Lesson 2<br>Lesson 4 | Lesson 4 | Lesson 2 | Lesson 2<br>Lesson 4 | Lesson 4<br>Lesson 5 |
| **Evolution** | Lesson 4 | Lesson 4 | | | Lesson 4 | Lesson 3<br>Lesson 4<br>Lesson 6 |