
EYFS Science Curriculum Planning

Being Our Best Selves

End Points

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| Three and Four-Year-Olds | Communication and Language | I can understand ‘why’ questions, like: “Why do you think the caterpillar got so fat?” |
| Physical Development | I can make healthy choices about food, drink, activity and toothbrushing. |
| Understanding the World | I can use all my senses in hands-on exploration of natural materials.I can explore collections of materials with similar and/or different properties.I can talk about what I see, using a wide vocabulary.I can begin to make sense of my own life-story and my family’s history.I can explore how things work.I can plant seeds and care for growing plants.I can explain the key features of the life cycle of a plant and an animal.I can begin to explain the need to respect and care for the natural environment and all living things.I can explore and talk about different forces they can feel.I can talk about the differences between materials and changes I notice. |
| Reception | Communication and Language | I can learn new vocabulary.I can ask questions to find out more and to check what has been said to me.I can articulate my ideas and thoughts in well-formed sentences.I can describe events in some detail.I can use talk to work out problems and organise thinking and activities. I can explain how things work and why they might happen. I can use new vocabulary in different contexts. |
| Physical Development | I can explain about the different factors that support my overall health and wellbeing:- regular physical activity - healthy eating - toothbrushing - sensible amounts of ‘screen time’ - having a good sleep routine - being a safe pedestrian |
| Understanding the World | I can explore the natural world around me.I can describe what I see, hear and feel while I am outside.I can recognise some environments that are different to the one in which I live.I can explain the effect of changing seasons on the natural world around me. |
| ELG | Communication and LanguageListening, Attention and Understanding | I can make comments about what I have heard and ask questions to clarify my understanding. |
| Personal, Social and Emotional DevelopmentManaging Self | I can manage my own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. |
| Understanding the WorldThe Natural World | I can explore the natural world around me, making observations and drawing pictures of animals and plants.I can explain some similarities and differences between the natural world around me and contrasting environments, drawing on my experiences and what has been read in class.I can explain some important processes and changes in the natural world around me, including the seasons and changing states of matter. |



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| Science Curriculum Planning KS2 Years One & TwoBeing Our Best SelvesEnd points |
| **Year One Topic** | **End Points** | **Key Vocabulary** |
| Plants | I can explain that growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts, but they vary between the different types of plants. Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring. | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area |
| Animals, including humans | I can explain animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them. I can explain animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals. I can explain humans have key parts in common, but these vary from person to person. I can explain humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body. | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced first-hand from each vertebrate group Parts of the bodySenses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue |
| Everyday materials | I can explain all objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. I can explain materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties. | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through |
| Seasonal changes | I can explain in the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. I can explain the weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people. | Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length |
| **Year Two Topic** | **End Point** | **Key Vocabulary** |
| Living things and their habitat | I can explain all objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) I can explain an object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). I can explain animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. I can explain within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain. | * Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed
* Names of local habitats e.g. pond, woodland etc.
* Names of micro-habitats e.g. under logs, in bushes etc.
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| Plants | I can explain plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. I can explain seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy. | As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy |
| Animals, including humans | I can explain animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. I can explain all animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. I can explain good hygiene is also important in preventing infections and illnesses. | Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta) |
| Uses of everyday materials | I can explain all objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. I can explain objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness. | Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching |

**Working scientifically skills**

**Year 1 & 2**

**End points**

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| **Asking simple questions and recognising that they can be answered in different ways** |
| * While exploring the world, I can develop my ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, I answer these questions.
* I can answer questions developed with the teacher often through a scenario.
* I can be involved in planning how to use resources provided to answer the questions using different types of enquiry, helping me to recognise that there are different ways in which questions can be answered.
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| **Observing closely, using simple equipment** |
| * I can explore the world around me. I can make careful observations to support identification, comparison and noticing change. I can use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make observations.
* I can begin to take measurements, initially by comparisons, then using non-standard units.
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| **Performing simple tests** |
| * I can use practical resources provided to gather evidence to answer questions generated by myself or the teacher. I can carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.
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| **Identifying and classifying** |
| * I can use my observations and testing to compare objects, materials and living things. I can sort and group these things, identifying my own criteria for sorting.
* I can use simple secondary sources (such as identification sheets) to name living things. I can describe the characteristics I used to identify a living thing.
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| **Gathering and recording data to help in answering questions** |
| * I can record my observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.
* I can record my measurements e.g. using prepared tables, pictograms, tally charts and bar charts.
* I can classify using simple prepared tables and sorting rings.
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| **Using their observations and ideas to suggest answers to questions** |
| * I can use my experiences of the world around me to suggest appropriate answers to questions. I am supported to relate these to my evidence e.g. observations I have made, measurements I have taken or information I have gained from secondary sources.
* I can recognise ‘biggest and smallest’, ‘best and worst’ etc. from their data.
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| Science Curriculum Planning KS2 Years Three & FourBeing Our Best SelvesEnd points |
| **Year Three Topic** | **End Points** | **Key Vocabulary** |
| Plants | I can explain that many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom.I know that:* The roots absorb water and nutrients from the soil and anchor the plant in place.
* The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal.
* The leaves use sunlight and water to produce the plant’s food.

I can explain that some plants produce flowers which enable the plant to reproduce. I can explain that pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. I can explain that different plants require different conditions for germination and growth. | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal) |
| Animals Including Humans | I can explain that animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. I can explain that food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. I can explain how humans, and some other animals, have skeletons and muscles which help them move and provide protection and support. | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints |
| Rocks | I can explain rock is a naturally occurring material. That there are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). I can explain that soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. I can explain how some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water. | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil |
| Light | I can explain how we see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. I can explain that the light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. I can explain that shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface. | light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous |
| Forces and magnets | I can explain that a force is a push or a pull. I can explain that when an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. I can explain that for some forces to act, there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.I can explain a magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. I can explain the strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract. | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole |
| **Year Four Topic** | **End Point** | **Key Vocabulary** |
| Living things and their habitats | I can explain living things can be grouped (classified) in different ways according to their features. I can use classification keys to identify and name living things. I can explain living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year. | Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate |
| Animals, including humans | I can explain food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added. I can explain that the food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet. I can explain that humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).I can explain that living things can be classified as producers, predators and prey according to their place in the food chain. | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain |
| States of matter | I can explain that a solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. I can explain that melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0oC. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100oC. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. I can explain the water cycle and recognise that water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation.  | Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle |
| Sound | I can explain that a sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. I can explain that the loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively. I can explain that pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds. | Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation |
| Electricity | I can explain that many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. I can explain that an electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off. I can explain that metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity. | Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol |

**Working scientifically skills**

**Year 3 & 4**

**End points**

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| **Asking relevant questions and using different types of scientific enquiries to answer them** |
| * I can use my prior knowledge when asking questions. I can independently use a range of question stems. Where appropriate, I answer these questions.
* I can answer questions posed by my teacher.
* Given a range of resources, I can decide for myself how to gather evidence to answer the question. I can recognise when secondary sources can be used to answer questions that cannot be answered through practical work. I can identify the type of enquiry that I have chosen to answer their question.
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| **Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers** |
| * I can make systematic and careful observations.
* I can use a range of equipment for measuring length, time, temperature and capacity. I can use standard units for their measurements.
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| **Setting up simple practical enquiries, comparative and fair tests** |
| * I can select from a range of practical resources to gather evidence to answer questions generated by myself or my teacher.
* I can follow my plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.

Text Box |

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| **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** |
| * I can sometimes decide how to record and present evidence. I can record my observation e.g. using photographs, videos, pictures, labelled diagrams or writing. I can record my measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which I can add headings). I can record classifications e.g. using tables, Venn diagrams, Carroll diagrams.
* When supported, I can present the same data in different ways in order to help with answering the question.
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| **Using straightforward scientific evidence to answer questions or to support their findings** |
| * I can answer my own and others’ questions based on observations I have made, measurements I have taken or information I have gained from secondary sources. My answers are consistent with the evidence.
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| **Identifying differences, similarities or changes related to simple scientific ideas and processes** |
| * I can interpret my data to generate simple comparative statements based on my evidence. I can begin to identify naturally occurring patterns and causal relationships.
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| **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions** |
| * I can draw conclusions based on my evidence and current subject knowledge.
* I can identify ways in which I adapted my method as I progressed or how I would do it differently if I repeated the enquiry.
* I can use my evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.
* Following a scientific experience, I can ask further questions which can be answered by extending the same enquiry.
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| **Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions** |
| * I can communicate my findings to an audience both orally and in writing, using appropriate scientific vocabulary.
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| Science Curriculum Planning KS2 Years Five & SixBeing Our Best SelvesEnd points |
| **Year Five Topic** | **End Points** | **Key Vocabulary** |
| Living things and their habitats | I can explain that as part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis. I can explain plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects. | Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings |
| Animals, including humans | I can explain that when babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. I can explain that at puberty, a child’s body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. | Puberty – the vocabulary to describe sexual characteristics |
| Properties and changes of materials | I can explain that materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets. I can explain that some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. I can explain that mixtures can be separated by filtering, sieving and evaporation. I can explain some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible. | Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material |
| Earth and space | I can explain that the Sun is a star. It is at the centre of our solar system.I can explain there are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun. I can explain the Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky. I can explain the Moon orbits the Earth. It takes about 28 days to complete its orbit. I can explain the Sun, Earth and Moon are approximately spherical. | Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets |
| Forces | I can explain a force causes an object to start moving, stop moving, speed up, slow down or change direction. I can explain gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. I can explain air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object. I can explain a mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. I can explain pulleys, levers and gears are all mechanisms, also known as simple machines. | Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears |
| **Year Six Topic** | **End Point** | **Key Vocabulary** |
| Living things and their habitats | I can explain that living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other livings things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot. I can explain animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms. I can explain plants can be divided broadly into two main groups: flowering plants; and non-flowering plants. | Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering |
| Animals, including humans | I can explain the heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system. I can explain diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well out heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins. | Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle |
| Evolution and inheritance | I can explain all living things have offspring of the same kind, as features in the offspring are inherited from the parents. Due to sexual reproduction, the offspring are not identical to their parents and vary from each other. I can explain plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution. I can explain fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics. | Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils |
| Light | I can explain light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. I can explain objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object. |  |
| Electricity | I can explain adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well. I can explain how you can use recognised circuit symbols to draw simple circuit diagrams. | Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage |

**Working scientifically skills**

**Year 5 & 6**

**End points**

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| **Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** |
| * I can independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on my developed understanding following an enquiry.
* Given a wide range of resources I can decide for myself how to gather evidence to answer a scientific question. I can choose a type of enquiry to carry out and justify my choice. I can recognise how secondary sources can be used to answer questions that cannot be answered through practical work.
* I can select from a range of practical resources to gather evidence to answer my questions. I can carry out fair tests, recognising and controlling variables. I can decide what observations or measurements to make over time and for how long. I can look for patterns and relationships using a suitable sample.
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| **Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate** |
| * I can select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.
* During an enquiry, I can make decisions e.g. whether I need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).
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| **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** |
| * I can decide how to record and present evidence. I can record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. I can record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. I can record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.
* I can present the same data in different ways in order to help with answering the question.
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| **Identifying scientific evidence that has been used to support or refute ideas or arguments** |
| * I can answer my own and others’ questions based on observations I have made, measurements I have taken or information I have gained from secondary sources. When doing this, I can discuss whether other evidence e.g. from other groups, secondary sources and my scientific understanding, supports or refutes their answer.
* I can talk about how my scientific ideas change due to new evidence that I have gathered.
* I can talk about how new discoveries change scientific understanding.
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| **Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations** |
| * In my conclusions, I can: identify causal relationships and patterns in the natural world from my evidence; identify results that do not fit the overall pattern; and explain my findings using my subject knowledge.
* I can evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.
* I can identify any limitations that reduce the trust I have in my data.
* I can communicate my findings to an audience using relevant scientific language and illustrations.
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| **Using test results to make predictions to set up further comparative and fair tests** |
| * I can use the scientific knowledge gained from enquiry work to make predictions I can investigate using comparative and fair tests.
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