

Knowledge

Early Years
Animals including humans
<p>Identify and name a variety of underwater animals.</p> <p>Describe and compare the structure of a variety of common underwater animals.</p> <p>Describe and compare the structure of a variety of body parts (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth and teeth).</p> <p>Identify, name, draw and label the basic parts of a human body and say which part of the body is associated with each sense.</p> <p>Notice that humans have offspring that grow into adults (baby, toddler, child, teenager adults).</p>
Living things and their habitat
<p>Plant seeds and care for growing plants.</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Understand the key features of the life cycle of a plant and an animal.</p> <p>Begin to understand the need to respect and care for the natural environment and all living things.</p>
Materials
<p>Explore collections of materials with similar and/or different properties.</p> <p>Talk about the differences between materials and changes they notice.</p> <p>Understand some important processes including changing states of matter.</p>
Forces
<p>Explore and talk about different forces they can feel.</p>
Seasonal Change
<p>Understand the effect of changing seasons on the natural world around them.</p>
Light
<p>Identify some sources of light.</p> <p>Notice it is light in the day and dark at night.</p>

Year One
Plants
<p>Identify and name a variety of common wild and garden plants including deciduous and evergreen trees (poppy, primrose, daffodil, buttercups, daisies, dandelion, lavender, cleaver, hawthorn, horse chestnut, beech, oak, sycamore, lime, pine trees)</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including tree (flower, blossom, leaves, petals, fruit, roots, bulb, seed, trunk, branches, stem)</p> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>

Animals, including humans

Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Notice that animals including humans have offspring grow into adults (life cycle of chicken, frog, butterfly, sheep) (Yr2)

Identify and name a variety of animals that are carnivores, omnivores and herbivores (chicken, fox, cow, sheep, goat, horse, pig)

Describe and compare the structure of a variety of common animals (body parts)

Everyday materials

Distinguish between an object and the material from which it is made.

Identify and name a variety of everyday materials including wood, plastic, glass, metal, water, rock brick, paper, fabrics, elastic and foil.

Describe the simple physical properties of a variety of everyday materials (hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent, manmade/ natural)

Compare and group together a variety of everyday materials on the basis of their simple physical properties.

Seasonal changes

Observe changes across the four seasons

Observe and describe weather associated with the seasons and how day length varies.

Forces (Y3)

Find out about and describe the movement of familiar things

Know that both pushes and pulls are examples of forces

Recognise that when things speed up, slow down or change direction there is a cause for example a push or a pull

Compare how things move on different surfaces

Year Two

Living things and their habitats

Explore and compare the differences between things that are living, dead, and things that have never been alive

Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other

Identify and name a variety of plants and animals in their habitats, including micro-habitats

Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Plants
<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>
Animals including humans
<p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>
Uses of Everyday Materials
<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>

Year Three
Plants
<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>
Animals including humans
<p>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Recognise how different food groups keep us healthy and the impact food has on our bodies.</p>
Rocks
<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter.</p>

Light

Recognise that they need light in order to see things and that dark is the absence of light

Notice that light is reflected from surfaces

Recognise that light from the sun can be dangerous and that there are ways to protect their eyes

Recognise that shadows are formed when the light from a light source is blocked by a solid object

Find patterns in the way that the size of shadows change.

Forces and magnets

Notice that some forces need contact between two objects, but magnetic forces can act at a distance

Observe how magnets attract or repel each other and attract some materials and not others

Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials

Describe magnets as having two poles

Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Year Four

Living things and their habitats

Recognise that living things can be grouped in a variety of ways

Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment

Recognise that environments can change and that this can sometimes pose dangers to living things.

Animals including humans

Describe the simple functions of the basic parts of the digestive system in humans

Identify the different types of teeth in humans and their simple functions

Construct and interpret a variety of food chains, identifying producers, predators and prey.

States of matter

Compare and group materials together, according to whether they are solids, liquids or gases

Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound

Identify how sounds are made, associating some of them with something vibrating

Recognise that vibrations from sounds travel through a medium to the ear

Find patterns between the pitch of a sound and features of the object that produced it

Find patterns between the volume of a sound and the strength of the vibrations that produced it

Recognise that sounds get fainter as the distance from the sound source increases.

Electricity

Identify common appliances that run on electricity

Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery

Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit

Recognise some common conductors and insulators, and associate metals with being good conductors.

Year Five

Living things and their habitats

Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

Describe the life process of reproduction in some plants and animals.

Animals including humans

Describe the changes as adults move to old age.

Properties and changes of materials

Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets

Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution

Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

Demonstrate that dissolving, mixing and changes of state are reversible changes

Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Earth and space

Describe the movement of the Earth, and other planets, relative to the Sun in the solar system

Describe the movement of the Moon relative to the Earth

Describe the Sun, Earth and Moon as approximately spherical bodies

Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Forces

Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

Identify the effects of air resistance, water resistance and friction, that act between moving surfaces

Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Light (Y6)

Recognise that light appears to travel in straight lines

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

Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes

Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Year Six

Living things and their habitats

Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals

Give reasons for classifying plants and animals based on specific characteristics.

Animals including humans

Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood

Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

Describe the ways in which nutrients and water are transported within animals, including humans.

Evolution and inheritance

Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents

Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Electricity

Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit

Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches

Use recognised symbols when representing a simple circuit in a diagram.

Science Skills Progression

Skills – Working Scientifically						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Ask questions stimulated by their exploration of their world.</p>	<p>Ask simple questions and recognise that they can be answered in different ways.</p> <p>Perform simple tests to answer your question.</p>	<p>Ask questions and recognise that they can be answered in a variety of ways.</p> <p>Perform simple tests with a developing knowledge of fair testing.</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p>	<p>Ask relevant questions and using different types of independent scientific enquiries to answer them.</p> <p>Set up simple practical enquiries, comparative and fair tests, some of which planned independently.</p>	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p>	<p>Plan different types of scientific enquiries, including abstract models and multi-step enquiry to answer their own questions, including recognising and controlling variables where necessary.</p>
<p>Talk about what they are doing.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Use all their senses in hands-on exploration of the natural world.</p>	<p>Observe closely, using simple equipment.</p>	<p>Observe closely, using equipment and begin to measure results.</p>	<p>Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p>	<p>Make systematic and careful observations and, where appropriate, making decisions about taking accurate measurements, using standard units, using a range of equipment, including thermometers and data loggers.</p>	<p>Take measurements, using a range of scientific equipment, with increasing accuracy, taking repeat readings when appropriate.</p>	<p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p>
<p>Sort objects into groups according to a given criteria e.g. colour, shape.</p>	<p>Identify and classify. Gather and record simple data to help in answering questions. on their everyday experience to help answer questions.</p>	<p>Identify and classify with clear reasons for selection. Gather and record data to help in answering questions.</p>	<p>Gather, classify and present data in a variety of ways to help to answer questions. Record findings using simple scientific</p>	<p>Gather, classify and present data in a variety of ways to help answer increasingly complex questions. Record findings using an increasing range of scientific language,</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p>

			language and drawings.	drawings, labelled diagrams, keys, bar charts, and tables.		
Talk about what they see, using a wide vocabulary.	Discuss the answers to scientific questions.	Use their observations and ideas to suggest answers to questions.	Use results to draw simple conclusions, work in groups to suggest improvements and raise further questions.	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Use test results to make predictions to set up comparative and fair tests	Use test results to make predictions to set up further comparative and fair tests
	Show confidence and competence in the full range of stage-appropriate practical work, including planning and carrying out science investigations in groups or individually.	Show confidence and competence in the full range of stage-appropriate practical work, including planning and carrying out science investigations in groups or individually.	Show confidence and competence in the full range of stage-appropriate practical work, including planning and carrying out science investigations in groups or individually.	Show confidence and competence in the full range of stage-appropriate practical work, including planning and carrying out science investigations in groups or individually.	Show confidence and competence in the full range of stage-appropriate practical work, including planning and carrying out science investigations in groups or individually.	Show confidence and competence in the full range of stage-appropriate practical work, including planning and carrying out science investigations in groups or individually.
Work constructively with other pupils, demonstrating common understanding.	Work constructively with other pupils, demonstrating common understanding, with all playing a part in successful investigations.	Work constructively with other pupils, demonstrating common understanding in increasingly discrete roles, with all playing a part in successful investigations.	Work constructively with other pupils, demonstrating common understanding in increasingly discrete roles, with all playing a part in successful investigations.	Work constructively with other pupils, demonstrating common understanding in increasingly discrete well-focused roles, with all playing a part in successful investigations.	Work constructively with other pupils, demonstrating common understanding in discrete well-focused roles, with all playing a part in successful investigations.	Work effectively and constructively with other pupils, demonstrating common understanding in discrete well-focused roles, with all playing a part in successful investigations.
		Report on findings from enquiries using mainly oral explanations.	Report on findings from enquiries, including oral and written explanations, displays or	Report on findings from enquiries, including oral and written explanations, displays or presentations of a	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and

			presentations of results and conclusions	variety of results and conclusions	degree of trust in results, in oral and written forms such as displays and other presentations.	degree of trust in results, in oral and written forms such as displays and other presentations and recognise scientific questions that do not yet have definitive answers.
	Use results to draw simple conclusions.	Use results to draw simple conclusions using their growing scientific knowledge.	Use results to draw simple conclusions, make predictions for new values and suggest improvements. Identify differences, similarities or changes relating to their growing scientific knowledge.	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to scientific ideas and processes.	Identify scientific evidence that has been used to support or refute ideas or arguments.	Identify the use of evidence and creative thinking by scientists in the development or support and refute scientific ideas Research contemporary issues and understand the impact of science on society.