



Biology

Reception	Year 1	Year 2
<p>Make healthy choices and know about the importance of healthy eating and exercise.</p> <p>Talk about ways to keep healthy and safe.</p> <p>Manage basic hygiene needs successfully.</p> <p>Make observations of animals and plants and explain why some things occur and talk about changes.</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Describe and compare the structure of a variety of common animals.</p> <p>Group animals according to what they eat.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Compare the differences between things that are living, dead and have never been alive.</p> <p>Understand that animals, including humans, have offspring which grow into adults.</p> <p>Describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, hygiene and eating the right amounts of different types of food.</p> <p>Describe how animals obtain food from plants and other animals, using the idea of a simple food chain and naming the different food sources in this.</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, describing the impact of changing these factors.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro habitats.</p> <p>Identify how living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different plants and animals.</p>



Biology

Year 3	Year 4	Year 5	Year 6
<p>Understand that animals, including humans, need the right type of nutrition and that they cannot make their own food, but use for nutrition.</p> <p>Know that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Identify the different parts of flowering plants and describe the functions of these (roots, stem/trunk, leaves and flowers).</p> <p>Describe the requirements of plants for life and growth (air, light, water, nutrients, and room for growth) and how they vary from plant to plant.</p> <p>Investigate how water is transported in plants.</p> <p>Know the role of flowers in the life cycle- including pollination, seed formation and seed dispersal.</p>	<p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Describe the functions of the basic parts of the human digestive system.</p> <p>Identify the different types of teeth and describe their simple functions.</p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their own local area and other habitats.</p> <p>Recognise that changes in environments can pose danger to and impact on living things.</p>	<p>Describe the differences in lifecycles of mammals, amphibians, insects and birds.</p> <p>Describe the process of reproduction in some plants and animals.</p> <p>Describe the changes as humans develop to old age.</p>	<p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Identify and name the main parts of the human circulatory system and the functions of the heart, blood vessels and blood.</p> <p>Understand how water and nutrients are transported within animals, including humans.</p> <p>Describe how living things are classified into broad groups according to observable characteristics, similarities and differences, including microorganisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but that these vary and are not identical to parents.</p> <p>Understand how living things are adapted to their environments and how adaptation may lead to evolution.</p>

Chemistry

Reception	Year 1	Year 2
<p>Explore how media or materials can be combined or changed.</p> <p>Experiment with different materials to make different textures.</p> <p>Explore mixing of colours.</p> <p>Know the properties of some materials and suggest some of the purposes they are used for.</p>	<p>Distinguish between an object and the material it is made from.</p> <p>Identify and name a range of everyday materials including wood, plastic, metal, glass, water and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group a variety of everyday materials based on their simple physical properties.</p>	<p>Identify and compare the suitability of everyday materials for particular uses.</p> <p>Describe how the shape of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>

Chemistry

Year 3	Year 4	Year 5	Year 6
<p>Compare and group rocks based on physical appearance and simple properties.</p> <p>Understand and use the terms igneous, sedimentary and metamorphic.</p> <p>Describe how fossils are formed when living things are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>Compare and group materials based on whether they are solids, liquids or gases.</p> <p>Observe materials changing state when heated or cooled and find out what temperature these changes occur in different materials.</p> <p>Describe changes of state using the words melting, evaporation, condensation and freezing.</p> <p>Identify how and when evaporation and condensation occur in the water cycle.</p>	<p>Compare and group materials on the basis of their properties including hardness, solubility, transparency, conductivity (thermal and electric) and response to magnets. Use this knowledge to explain the uses of everyday materials.</p> <p>Recognise that some materials dissolve to form a solution and know how to recover the substance from the solution.</p> <p>Use knowledge of states of matter to decide how mixtures may be separated (including filtration, sieving and evaporation).</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible.</p> <p>Explain that some changes result in the formation of new materials and this is usually irreversible (e.g. burning and acid with bicarbonate of soda).</p>	

Physics

Reception	Year 1	Year 2
<p>Look closely at similarities, differences, patterns and change.</p> <p>Demonstrate familiarity with basic scientific concepts, such as floating and sinking, through experimentation.</p>	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	

Physics

Year 3	Year 4	Year 5	Year 6
<p>Know that light is needed in order for things to be seen and that darkness is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Know that light from the sun can be dangerous and that there are ways to protect eyes.</p> <p>Understand that shadows are formed when the light from a light source is blocked by an object.</p> <p>Find patterns in the way the size of shadows change.</p> <p>Compare how different objects move on different surfaces.</p> <p>Notice that some forces require contact but others (e.g. magnetism) can act at a distance.</p> <p>Describe magnets as having two poles.</p> <p>Observe magnetic attraction and repulsion.</p> <p>Predict whether two magnets will attract or repel based on direction of poles.</p> <p>Identify materials attracted to magnets and those which are not. Compare and group materials based on this property.</p>	<p>Identify appliances that run on electricity.</p> <p>Construct simple series electrical circuit, naming and labelling components: cells, wires, bulbs, switches, buzzers.</p> <p>Identify whether or not a lamp will light in a simple circuit based on whether or not it is a complete loop.</p> <p>Understand that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Identify how sounds are made, associating examples with the vibration of objects.</p> <p>Find patterns between the pitch of a sound and the features of the object producing it (including length of vibrating column).</p> <p>Find patterns between the volume of a sound and the strength of vibrations producing it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Explain that unsupported objects fall towards Earth because of the force of gravity.</p> <p>Identify the effects of air resistance, water resistance and friction acting on moving objects.</p> <p>Recognise that some mechanisms (including levers and pulleys) allow a smaller force to have a greater effect.</p> <p>Describe the movement of the Earth and other planets relative to the Sun in the Solar System.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Know that the Earth, Sun and Moon are approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.</p>	<p>Know that light appears to travel in straight lines.</p> <p>Use the concept of the straight-line travel of light to explain how objects are seen because of omitting light or reflecting light from a light source into the eye.</p> <p>Explain why shadows have the same shape as the objects that cast them.</p> <p>Describe the relationship between the brightness of a lamp or loudness of a buzzer with the number and voltage of cells in a circuit.</p> <p>Compare and give reasons for variations in how components function, including brightness of a lamp or loudness of a buzzer.</p> <p>Use recognised symbols to represent circuits.</p>

Working Scientifically

Reception	Year 1	Year 2
<p>Look closely at similarities, differences, patterns and change.</p> <p>Demonstrate familiarity with basic scientific concepts, such as floating and sinking, through experimentation.</p>	<p>Ask simple questions and recognise they can be answered in different ways.</p> <p>Perform simple tests (e.g. to demonstrate what materials keep things warmest).</p> <p>Make simple observations.</p> <p>Use simple measuring equipment and non-standard units of measure.</p> <p>Gather and record data to help answer simple questions.</p> <p>Describe what has been noticed during scientific enquiry.</p> <p>Make a simple written explanation about what has been learned from an investigation.</p> <p>Identify and classify (e.g. mammals and birds)</p>	<p>Ask simple questions, using appropriate scientific terminology, and recognise they can be answered in different ways.</p> <p>Perform simple comparative tests, making attempt to ensure they are fair (e.g. into factors that affect seed growth).</p> <p>Use simple measuring equipment to observe changes over time (e.g. thermometer, rain gauge)</p> <p>Gather and record data, using drawings, labelled diagrams, block graphs and tables, to help in answering questions.</p> <p>Use observations and ideas to suggest answers to scientific questions.</p> <p>Notice similarities, differences and patterns through scientific enquiry.</p> <p>Communicate ideas on what have been found out, through investigation, in a variety of ways (e.g. simple reports).</p> <p>Identify, group and classify according to given criteria (e.g. deciduous trees) (e.g. using a Venn diagram)</p>

Working Scientifically

Year 3	Year 4	Year 5	Year 6
<p>Ask relevant scientific questions to build on existing knowledge.</p> <p>Set up simple practical enquiries, comparative tests and fair tests, explaining how the test is fair.</p> <p>Make systematic observations and, where appropriate, take measurements using standard units and a range of equipment.</p> <p>Gather, record, classify and present data in labelled diagrams, keys, bar charts (pre-drawn axes) and tables.</p> <p>Use simple scientific evidence, from research or enquiry, to answer questions.</p> <p>Report on findings from enquiries through oral and written reports, drawing simple conclusions.</p> <p>Pose further possible questions following an investigation.</p>	<p>Ask relevant scientific questions and suggest a number of ways of investigating them.</p> <p>Set up simple practical enquiries, comparative tests and fair tests, controlling more than 1 variable and explaining how the test is fair.</p> <p>Make systematic and careful observations and, where appropriate, accurately take measurements using standard units and a range of equipment.</p> <p>Gather, record, classify and present data in labelled diagrams, keys, child constructed bar charts and tables.</p> <p>Use simple scientific evidence, from research or enquiry, to answer questions, and support or refute their ideas.</p> <p>Report on findings from enquiries, drawing simple conclusions that compare controlled variables and findings where appropriate.</p> <p>Start to identify how the reliability of an investigation might have been lowered.</p>	<p>Plan different types of scientific enquiries to answer given questions.</p> <p>Set up investigations as appropriate to the scientific question:</p> <ul style="list-style-type: none"> Investigation (e.g. into whether or not materials are soluble) Fair tests, explaining the range of variables being controlled and the variable being investigated Enquiry-based investigation (into skills acquired as people developed from children into adulthood) <p>Take measurements using a range of equipment with precision and accuracy (appropriate to maths capacity and mass).</p> <p>Repeat findings where appropriate.</p> <p>Record data using scientific diagrams, labels, tables, bar graphs and line graphs.</p> <p>Report and present findings from enquiries including:</p> <ul style="list-style-type: none"> Conclusions Causal relationships Reflection on how an investigation could be improved <p>Make links between the findings of an enquiry and prior subject knowledge.</p>	<p>Plan different types of scientific enquiries to answer their own or others' questions.</p> <p>Know what type of investigation would be appropriate to a scientific enquiry.</p> <p>Plan their own enquiry-based investigation.</p> <p>Take measurements using a range of equipment with precision and accuracy (appropriate to maths capacity, mass, ratio and proportion).</p> <p>Repeat findings where appropriate and explain why this is important.</p> <p>Record data using scientific diagrams, labels, classification keys, tables, bar graphs, scatter graphs and line graphs.</p> <p>Report and present findings from enquiries including:</p> <ul style="list-style-type: none"> Conclusions Causal relationships Explanation of degree of trust in findings