

### Key Skills

Subject-specific vocabulary  
Knowledge and understanding  
Working scientifically

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Science Skills should be taught when linked to projects where ever possible to ensure real world



## SCIENCE

	Pre-School	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	Know some names of plants.  Begin to say how they are different from each other.  Start to describe the features of plants.	Identify and name a variety of common wild and garden plants.  Identify and describe the basic structure of a plant (root, stem, leaves and flowers).	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Describe the basic structure of a variety of common flowering plants and trees (root, stem, leaves and flowers, roots, trunk, branches).	Observe and describe how seeds and bulbs grow into mature plants.  Describe how plants need water, light, and suitable temp to grow and stay healthy.	Identify/describe the functions of different parts of flowering plants (inc. roots, stem/trunk, leaves and flower).  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  Investigate the way in which water is transported within plants.  Explore the part that flowers play in the life cycle of flowering plants (inc. pollination, seed formation and seed dispersal).	N/A	N/A	N/A

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<b>Materials</b>	<p>Begin to say similarities and differences between materials.</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Identify and compare the uses (suitability) of a variety of everyday materials (inc. wood, metal, plastic, glass, brick, rock, paper, 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>	<p><b>Rocks</b></p> <p>Compare and group together different types of rocks on the basis of their appearance and simple their physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Relate simple physical properties of some rocks to their formation (igneous/sedimentary)</p> <p>Recognise that soils are made from rocks and organic matter to form igneous, sedimentary and metamorphic rock.</p>	<p><b>States of matter</b></p> <p>Compare and group materials into solids, liquids and gases.</p> <p>Observe and explain that some materials change state when heated/cooled and measure or research the temp at which this happens in degrees Celsius (°C)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p><b>Properties and changes of materials</b></p> <p>Compare/group everyday material based their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials (inc. wood, metal and plastic)</p> <p>Explain how some materials will dissolve in liquid to form a solution Describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases:describe how mixtures might be separated (filtering, sieving and evaporating). Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new materials and that this kind of change is not usually reversible (inc. changes associated with burning and action of acid on bicarbonate of soda).</p>	N/A
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Seasonal Changes			<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>					
Living things and their habitats	<p>Talk about the features of their immediate environment</p> <p>Say how environments vary from one to another</p>	<p>Observe changes across the four seasons.</p> <p>observe and describe weather associated with the seasons and how day length varies.</p>	N/A	<p>Explore &amp; compare the differences between things that are living, dead and things that have never been alive.</p> <p>Identify that most living things live in habitats that they are suited to.</p> <p>Describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other.</p> <p>Identify and name a variety of plants and animals in their habitats (inc. micro-habitats).</p> <p>Describe how animals obtain their food from plants and other animals (simple food chain).</p> <p>Identify and name different sources of food.</p>	N/A	<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 the local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life processes of reproduction in some plants and animals.</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences (inc. micro-organisms, plants and animals).</p>



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Light and sound	N/A	N/A	<p><b>Light</b></p> <p>Identify/name sources of light Explain what darkness is.</p> <p>Compare a variety of sources of light.</p> <p>Describe the features of day and night.</p> <p>Describe the movement of the sun across the sky.</p>	N/A	<p><b>Light</b></p> <p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there re ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Investigate and find patterns in the way the size of shadows change.</p>	<p><b>Sound</b></p> <p>Identify and name how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	N/A	<p><b>Light</b></p> <p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</p> <p>Explain that we see things because light travels from light sources to our eyes of from light sources to objects and then our eyes.</p> <p>Using the idea that light travels in straight lines, explain why shadows have the same shape as the object that cast them.</p> <p>Explain that light can be broken into colours and different colours can be combined to appear as a new colour.</p>
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Earth and Space	N/A	N/A	N/A	N/A	N/A	<p>Explain that the sun is the centre of our solar system.</p> <p>Discuss and understand the terms star, galaxy, milky way and universe.</p> <p>Identify the four seasons and link this to changes in sunlight and weather.</p> <p>Begin to understand the movement of the earth around the sun and the moons movement around the earth.</p>	<p>Describe the movement of 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>Describe the sun, earth and moon as 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>	N/A
Forces and Magnets	N/A	N/A	N/A	Describe how things move at different speeds, speed up and slow down.	<p>Compare how things move on different surfaces (friction).</p> <p>Understand that some forces need contact between two objects and that magnetic forces can act at a distance.</p> <p>Explain the force of gravity.</p> <p>Explore push and pulls as a force.</p> <p><b>Magnets</b> Describe how magnets have two poles - one that attracts and one that repels.</p> <p>Predict and observe how</p>	N/A	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity (drag force).</p> <p>Identify the effect of gravity, air resistance, water resistance and friction that act between moving surfaces.</p> <p>Know how to measure the size of a force using Newtons.</p> <p>Recognise that some mechanisms (inc. levers, pulleys and gears) allow a smaller force to have a greater effect.</p> <p>Explain how scientists such as Galileo Galilei and</p>	N/A

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					<p>magnets attract or repel each other and attract some materials and not others, depending on which poles are facing.</p> <p>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.</p>		Isaac Newton helped to develop the theory of gravitation.	
Electricity	N/A	N/A	N/A	N/A		<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series circuit, identifying and naming its basic parts (inc. batteries, wires, bulbs, switches and buzzers).</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple circuit.</p> <p>Recognise that some common conductors</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of batteries (cells) used in the circuit.</p> <p>Compare and give reasons for variations in how components function (inc. the brightness of a bulb, loudness of buzzers and position of on/off switches).</p> <p>Use recognised symbols when representing a simple circuit diagram knowing the names of all</p>

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						and insulators and associate metals with being good conductors.		components.  Identify what causes a short circuit or a circuit to fuse.
<p><b>Working Scientific-ally</b></p> <p><i>(to be delivered through teaching of subject content and not to be taught separately)</i></p>	N/A	<p>Ask simple questions and recognising that they can be answered in different ways.</p> <p>Observe closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Identifying and classifying.</p> <p>Use observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>	<p>Ask simple questions and recognising that they can be answered in different ways.</p> <p>Observe closely using simple equipment.</p> <p>Perform simple tests and evaluate the findings.</p> <p>Identify and classify.</p> <p>Record findings: drawings, diagrams, photographs, simple prepared formats, such as tables and charts, tally charts and displays.</p>	<p>Observe closely using simple equipment.</p> <p>Perform simple tests, make predictions, measure and evaluate findings.</p> <p>Identify and classify.</p> <p>Record findings: drawings, diagrams, photographs, simple prepared formats, such as tables and charts, tally charts and displays.</p>	<p>Ask relevant questions using different types of scientific enquiries to answer.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to make accurate measurements using standard units (inc. data loggers).</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables.</p> <p>Report findings from investigations including written explanations of results and conclusions, displays or presentations.</p> <p>Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests.</p> <p>Look for similarities and differences or changes in data in order to draw conclusions.</p>	<p>Ask relevant questions using different types of scientific enquiries to answer.</p> <p>Set up simple practical enquiries, comparative and fair tests using a range of equipment.</p> <p>Begin to make accurate measurements using standard units (inc. data loggers and thermometers).</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables.</p> <p>Report findings from investigations including oral and written explanations of results and conclusions, displays or presentations.</p> <p>Use results to draw simple conclusions, make predictions for new values and suggest improvements.</p> <p>Use straightforward scientific evidence to</p>	<p>Plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary.</p> <p>Take measurements, using a range of equipment, with increasing accuracy, taking repeat readings when appropriate.</p> <p>Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Use test results to make predictions to set up further comparative tests.</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of degrees of trust in tests, in oral and written forms.</p>	<p>Plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary.</p> <p>Take measurements, using a range of equipment, with complete accuracy, taking repeat readings when appropriate.</p> <p>Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Continue to use test results to make predictions to set up further comparative</p>



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					Use straightforward scientific language to answer questions or to support findings.	answer questions or to support findings (using secondary sources).	tests.  Report and present findings from enquiries, including conclusions, causal relationships and explanations of degrees of trust in tests, in oral and written forms.  Identify scientific evidence that has been used to support or refute ideas or arguments.
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