


# Science knowledge and skills progression



	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Animals including humans</b> 	<ul style="list-style-type: none"> <li>*Develops curiosity and is interested to explore new and familiar experiences in nature such as grass, mud, puddles, plants and animal life</li> <li>*Enjoys stories about people and nature</li> <li>*Categorise animals by their characteristics</li> <li>*Talk about their body parts and what the function is of each part</li> </ul>	<ul style="list-style-type: none"> <li>*Comment and ask questions of the natural world</li> <li>*Show care and concern of living things</li> <li>*Knows about similarities and differences in relation to living things</li> <li>*Make observations of animals and plants and explain why somethings occurs</li> <li>*Talk about how they have changed since they were a baby.</li> </ul>	<ul style="list-style-type: none"> <li>*Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>*Identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>*Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>*Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> <li>*Understand that animals, including humans, have offspring which grow into adults</li> <li>*Describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>*Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>	<ul style="list-style-type: none"> <li>*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</li> <li>*Identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> <li>*Describe the simple functions of the basic parts of the digestive system in humans</li> <li>*Identify the different types of teeth in humans and their simple functions</li> <li>*Construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	<ul style="list-style-type: none"> <li>*Describe the changes as humans develop to old age</li> <li>*Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>*Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>*Describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>			
<b>Living things and their habitats</b>	<ul style="list-style-type: none"> <li>*Develops curiosity and is interested to explore new and</li> </ul>	<ul style="list-style-type: none"> <li>*Begin to understand the effect their behaviour can</li> </ul>	<ul style="list-style-type: none"> <li>*Explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>*Identify that most living things live in</li> </ul>	<ul style="list-style-type: none"> <li>*Recognise that living things can be grouped in a variety of ways</li> <li>*Explore and use classification keys to help group, identify and name a variety</li> </ul>	<ul style="list-style-type: none"> <li>*Describe the differences in the life cycles of a mammal, amphibian, insect and a bird</li> <li>*Describe the life process of</li> </ul>			



familiar experiences in nature such as grass, mud, puddles, plants and animal life  
\*Listen to traditional stories such as Goldilocks and Three Little Pigs and talk about habitats

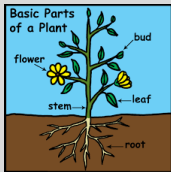
have on the environment  
\*Show care and concern of living things in the environment  
\*Looks closely at similarities, differences, patterns and change in nature  
\*Knows about similarities and differences in relation to places objects, materials and living things

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.

of living things in their local and wider environment  
\*Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things

reproduction in some plants and animals  
\*Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals  
\*Give reasons for classifying plants and animals based on specific characteristics

### Plants



\*Talk about some of the things they have observed such as plants, natural and found objects  
\*Develops curiosity and is interested to explore new and familiar experiences in nature such as grass, mud, puddles, plants and animal life

\*Develop an understanding of growth, decay and changes over time  
\*Show care and concern of living things in the environment  
\*Knows about similarities and differences in relation to living things  
\*Makes observations of animals and plants and explain why somethings occur

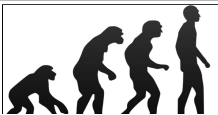
\* Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees  
\*Identify and describe the basic structure of a variety of common flowering plants, including trees  
\*Observe and describe how seeds and bulbs grow into mature plants  
\*Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

\*Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers  
\*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, including pollination, seed formation and seed dispersal

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

### Evolution and

\* Recognise that living things have



<p>inheritance</p> 					<p>changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <ul style="list-style-type: none"> <li>*Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>* Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul>
<p>Seasonal changes</p> 	<ul style="list-style-type: none"> <li>*Develops curiosity and is interested to explore new and familiar experiences in nature such as grass, mud, puddles, plants and animal life</li> </ul>	<ul style="list-style-type: none"> <li>*Looks closely at similarities, differences, patterns and change in nature</li> <li>*Understand some important processes and changes in the natural world around them including the seasons and changing states of matter</li> </ul>	<ul style="list-style-type: none"> <li>*Observe changes across the four seasons</li> <li>*Observe and describe weather associated with the seasons and how day length varies</li> </ul>		
<p>Materials and states of matter</p> 	<ul style="list-style-type: none"> <li>*Notices and becomes interested in the transformative effect of their action on materials and resources</li> <li>*Know how to</li> </ul>	<ul style="list-style-type: none"> <li>*Knows about similarities and differences in relation to materials</li> <li>*Understand some important processes and changes in the</li> </ul>	<ul style="list-style-type: none"> <li>*Distinguish between an object and the material from which it is made</li> <li>*Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>*Describe the simple physical properties of a variety of everyday materials</li> <li>*Compare and group together a variety</li> </ul>	<ul style="list-style-type: none"> <li>*Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>*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)</li> <li>*Identify the part played by evaporation</li> </ul>	<ul style="list-style-type: none"> <li>*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</li> <li>*Recognise that some materials will dissolve in liquid to form a solution, and describe how to recover a substance</li> </ul>

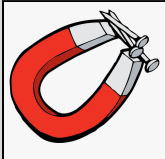
	test whether materials will float or sink.	natural world around them including the seasons and changing states of matter	of everyday materials on the basis of their simple physical properties *Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses *Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	and condensation in the water cycle and associate the rate of evaporation with temperature *Know that some materials are good thermal insulators that prevent the transfer of heat from warm to cold	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
Electricity 		Talk about why things happen and how things work		*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	*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
Earth and Space		*Know some			*Describe the movement of the Earth,



similarities and differences between the natural world around them and contrasting environments

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  
 \*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

**Forces and magnets**



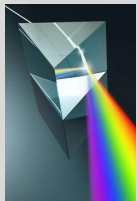
\*Notices and becomes interested in the transformative effect of their action on materials and resources

Talk about why things happen and how things work

\*Compare how things move on different surfaces  
 \*Notice that some forces need contact between two objects but magnetic forces and act at a distance  
 \*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 of having two poles  
 \*Predict whether two magnets will attract or repel each other depending which poles are facing

\*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

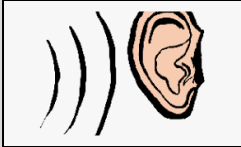

**Light**



\*Talk about why things happen and how things work  
 \*Develops their own ideas through experimentation with diverse

\*Recognise that he/she needs 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 there are ways to

\*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

		materials such as light projected images		protect eyes *Find patterns in the way shadows change	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 *Notice how light can be split into different colours using a prism.
<p>Sound</p> 	*Shows an interest in the way sound makers and instruments sound and experiments with ways of playing with them	*Talk about why things happen and how things work *Makes music in a range of ways e.g plays with sound creatively, plays along to the beat of the song they are singing		*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 the sound and the strength of the vibrations the produced it *Recognise that sounds get fainter as the distance from the sound source increases.	
<p>Rocks</p> 		*Knows about similarities and differences in relation to materials		*Compare and group together different types of rocks on the basis of their appearance and simple physical properties *Describe in simple terms how fossils are formed when things that have lived are trapped within the rock. *Recognise that soils are made from rocks and organic matter.	