

Science-Knowledge Essentials

Below is a list of the key scientific knowledge, in which all children should be fluent. Children should be able to recall these key facts from their year group, and all previous year groups.

Year Group	Key Knowledge
1	<ol style="list-style-type: none">1. To know the names of some common wild and garden plants and to know the main parts of a plant (roots, stem, leaves and flower)2. To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals3. To know the basic parts of the body (face, arms, legs, feet, hands, head) and the senses that they relate to.4. To name some everyday materials (wood, glass, plastic, metal, water, rock).
2	<ol style="list-style-type: none">1. To know how seeds and bulbs grow into mature plants and know that they need water, light and suitable temperature to grow and stay healthy.2. To know the difference between things that are living, dead and those that have never been alive.3. To know that animals, including humans, have offspring which grow into adults and to know and describe the basic needs of animals, including humans, for survival (water, food, shelter and air).4. To know what a habitat is and how habitats differ to suit the needs of the plant/animal.5. To know what a food chain is.

	<p>6. To know the uses of everyday materials (wood, plastic, metal, plastic, water, rock) and describe how they can be changed e.g. squashing, twisting, bending.</p>
<p>3</p>	<p>1. To know the function of the parts of a plant, know what plants need for survival and growth and to know about the life cycle of plants (pollination, seed formation & dispersal).</p> <p>2. To know that plants and animals can be grouped according to their characteristics.</p> <p>3. To know that some habitats are changing and understand the dangers this can cause to them,</p> <p>4. Rocks – To know that there are different types of rock and how fossils are made.</p> <p>5. To know there are a variety of food chains, identifying producers, predators and prey.</p> <p>6. To know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food.</p>
<p>4</p>	<p>1. To know what a simple circuit needs and the components (cell, bulb, wires, buzzers and switches) To know that a conductor lets electricity pass through it and that an insulator does not.</p> <p>To know the simple functions of the basic parts of the digestive system in humans.</p> <p>To know the different types of teeth in humans and their simple functions.</p> <p>To know whether materials are solids, liquids or gases and know what happens to water when it is heated and cooled and the temp that happens at.</p>

	<p>To know that liquids can have a different viscosity.</p> <p>To know the terms; producers, consumers, predators and prey.</p> <p>To know how sounds are made and that vibrations from sounds travel through a medium to the ear.</p> <p>Sound gets fainter as it moves further from the sound's source.</p> <p>Sound waves travel at the same speed, but vibrate in different ways. Some vibrate quickly and have a high frequency or pitch, while others vibrate slowly and give a lower pitch.</p>
5	<p>To know that humans change in the following ways as they get older: skin becomes thinner and wrinkled, organs don't work as well, muscle strength starts to decrease, and hearing and eye-sight start to deteriorate.</p> <p>To know the life cycle of a mammal and to know that this differs to Amphibians, insects and birds.</p> <p>To name the following parts of a flower; stigma, style, ovary, ovule, filament, anther and sepal.</p> <p>Some materials will dissolve in liquid to form a solution and know that they can be separated through evaporating, filtering and distilling.</p> <p>To know that dissolving, mixing and changes of state are reversible changes. To know that an irreversible change is where a change takes place where new material is formed and this cannot be reversed.</p>

	<p>To know that everyday materials are grouped on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>The Earth rotates and know how this gives us day and night.</p> <p>The Earth and other planets move around the Solar System.</p> <p>The names of the planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune and the sun is a star.</p> <p>Objects fall towards the ground because of the force of gravity acting between the earth and the object and this was discovered by Isaac Newton.</p> <p>Air resistance and water resistance are a type of friction that acts on objects to slow them down.</p>
6	<p>To know:</p> <ul style="list-style-type: none">- that the brightness of a lamp is affected by the number of cells used in the circuit.- recognised symbols (including a bulb, cell, battery, motor and buzzer).- Charles Darwin was a scientist who termed 'survival of the fittest' and what this means.- living things produce offspring and that they are not always identical to their parents (inheritance).-adaptation has led to evolution.

- animals and plants have adapted to suit their environment in different ways.
- a key is used to classify groups of living things.
- living things are classified into broad groups according to common characteristics.
- the main parts of the human circulatory system.
- the functions of the heart, blood vessels and blood.
- the impact of diet, exercise, drugs and lifestyle choices on the body.
- light travels in straight lines.
- a shadow is cast when light hits an object.