

Science Progression of Skills

Essential Skills for all children every year

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
- Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
- High levels of originality, imagination or innovation in the application of skills.
- The ability to undertake practical work in a variety of contexts, including fieldwork.
- A passion for science and its application in past, present and future technologies.

Note: Objectives in *green italics* are opportunities to revise topic when not covered within the year or are topics which are not statutory at that year.

	Early Years	Y1	Y2
SKILLS: Work scientifically This concept involves learning the methodologies of the discipline of science.	Questions why things happen Speaking: 30-50 months	Explore the world around them and begin to raise their own simple questions through practical activities.	Ask simple questions about the world and realise there are several different ways to find the answers.
	Engage in open-ended activity. Take a risk, engage in new experiences and learn by trial and error. Handle equipment and tools effectively ELG: Moving & Handling	Observe closely using simple equipment, with help, observe changes over time.	Observe closely, using simple equipment. Choose the resources they need for their chosen activities.
	Develop some ideas of grouping, sequences, cause and effect.	Use simple features to compare objects, materials and living things and, with support, decide how to sort and group them	Use simple features to compare objects, materials and living things and, with some support, decide how to sort and group them.

<p>KNOWLEDGE: Understand plants This concept involves becoming familiar with different types of plants, their structure and reproduction.</p>	<p>To observe and investigate some flowering plants and trees from our local area by completing a local walk.</p> <p>For example: Trees; apple, oak, beech, birch, sycamore. Flowers; buttercup, daisy, daffodils etc...</p> <p>Explore Vocabulary: Tree and flower names.</p>	<p>To observe and investigate some flowering plants, trees and name them from our local area. These are to include deciduous and evergreen trees. See Early Years list.</p> <p>Identify and describe the basic structure of a variety of common flowering plants and trees, including roots, stem/trunk, leaves and flowers.</p> <p>Explore Vocabulary: Tree and Flower Names Roots, stem, trunk, leaves, flowers, petals etc...</p>	<p>Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen from our local area. (See Early Years list and build on it.)</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Explore Vocabulary: Germination, growth, survival, reproduction.</p>
<p>Understand animals and humans This concept involves becoming familiar with different types of animals, humans and the life processes they share.</p>	<p>To explore the names and distinguishing features of animals in their local habitats.</p> <p>Explore vocabulary: Reptile Mammal Insect Amphibian Bird</p> <p>Local animal examples: Snake, mice, ladybird, frog, chicks/chicken</p>	<p>To explore animals and their habitats in the local environment (See early years) and ask related questions.</p> <p>Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).</p> <p>Children can care for animals in the local environment.</p> <p>Children can name their body parts through song and rhyme.</p> <p>Explore vocabulary: Reptile Mammal Insect Amphibian Bird Invertebrates/vertebrates Herbivore Carnivore Omnivore</p>	<p>To explore, compare and contrast local and world environments and their animals, particularly in extreme hot and cold environments.</p> <p>Hot/Cold examples: Penguin, Polar Bear, Camel, Scorpion.</p> <p>Explore vocabulary: Offspring, Habitat, Grow, Adult</p> <p>Notice that animals, including humans, have offspring which grow into adults. Look at one life cycle for example, butterfly, ladybird, frog, chicken, sheep.</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>Investigate 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> <p>Explore Vocabulary: reproduction, growth, survival. Baby, toddler, child, teenager, adult</p>

<p>Investigate living things This concept involves becoming familiar with a wider range of living things, including insects and understanding life processes.</p>	<p>To explore habitats and their animals in their local environment.</p> <p>Explore vocabulary: Reptile Mammal Insect Amphibian Bird</p> <p>Local animal examples: Snake, mice, ladybird, frog, chicks/chicken</p>		<p>Explore and compare the differences between things that are living, that are non-living and that have never been alive.</p> <p>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. (Compare with local and non-local habitats, for example: seashore, woodland, ocean, rainforest.)</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>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.</p> <p>Explore Vocabulary: Habitat, natural environment, micro-habitat,</p>
<p>Understand evolution and inheritance This concept involves understanding that organisms come into existence, adapt, change and evolve and become extinct.</p>		<p><i>Identify how humans resemble their parents in many features.</i></p>	<p><i>Identify how animals and plants are suited to and adapt to their environment in different ways (Extreme Weather Topic)</i></p>
<p>Investigate materials This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.</p>	<p>Explore and investigate some objects and know what materials they are made from.</p> <p>Explore vocabulary: Materials Rigid Rough Waterproof</p>	<p>Explore and investigate some objects and know, by naming, what materials are made from and describe their properties. (Wood, Plastic, Glass, Metal, Water, Rock – Deeper Materials: brick, paper, fabric, elastic, foil.</p> <p>Distinguish between an object and the material from which it is made.</p> <p>Describe the simple physical properties of a variety of everyday materials.</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>Name an increasing number of materials and their properties and to discuss their uses.</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 suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses.</p> <p>Pupils might find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam</p>

		Explore Vocabulary: Hard/Soft; stretchy/Stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/ not absorbent; opaque/ transparent.	Explore vocabulary: Bending, squashing, twisting, stretching, Magnets Opaque Translucent Transparent
Understand movement, forces and magnets This concept involves understanding what causes motion.		<i>Compare how different things move.</i>	<i>Notice and describe how things move, using simple comparisons such as faster and slower.</i>
Understand light and seeing This concept involves understanding how light and reflection affect sight.		<i>Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes.</i>	<i>Know that the sun is a light source and can be used to tell the time.</i>
Investigate sound and hearing This concept involves understanding how sound is produced, how it travels and how it is heard.			<i>Observe and name a variety of sources of sound, noticing that we hear with our ears.</i>
Understand electrical circuits This concept involves understanding circuits and their role in electrical applications.		<i>Identify common appliances that run on electricity.</i> <i>Construct a simple series electrical circuit.</i>	
Understand the Earth's movement in space This concept involves understanding what causes seasonal changes, day and night.	Observe changes across the four seasons. Explore Vocabulary Autumn, Winter, Spring, Summer, hot/cold, sun/rain/cloud/snow/hail/fog.	<i>Observe the apparent movement of the Sun during the day.</i> Observe changes across the four seasons. Observe and describe the weather associated with the seasons and how the day length varies. Explore Vocabulary Autumn, Winter, Spring, Summer, hot/cold, sun/rain/cloud/snow/hail/fog.	Observe and describe weather associated with the seasons and how day length varies. Explore Vocabulary Autumn, Winter, Spring, Summer, hot/cold, sun/rain/cloud/snow/hail/fog. Day, hour, minute, year