



Science Progression Document

	Understanding the World
EYFS	<p>Children know about similarities and differences in relation to places.</p> <p>Children know about similarities and differences in relation to objects.</p> <p>Children know about similarities and differences in relation to materials.</p> <p>Children know about similarities and differences in relation to living things.</p> <p>They talk about the features of their own immediate environment.</p> <p>They talk about how environments might vary from one another.</p> <p>They make observations of animals.</p> <p>They make observations of plants.</p> <p>They explain why some things occur within animals.</p> <p>They explain why some things occur within plants.</p> <p>They talk about changes in animals.</p> <p>They talk about changes in plants.</p>

<p>Year 1 / 2 cycle A</p>	<p><u>Animals: How animals survive</u></p> <ol style="list-style-type: none"> 1. Some things are living, some were once living but now dead and some things have never lived 2. There is variation between all living things 3. Different animals and plants live in different places 4. Living things are adapted to survive in different habitats 5. Environmental change can affect the plants and animals that live there 6. There are many different animals with different characteristics 7. Animals live in habitats which suit them 8. Animals need food to survive 9. Animals need a variety of food to help them grow, repair their bodies, be active and stay healthy 10. Animals move in order to survive 11. Exercise keeps animal's bodies in good condition 	<p><u>Materials and their properties x 2 (why we chose a material for a job)</u></p> <ol style="list-style-type: none"> 1. There are different materials 2. Materials have describable properties 3. Different materials have different properties 4. Materials can be changed by physical force (twisting, bending, squashing and stretching) 	<p><u>Plant reproduction: Making new plants</u></p> <ol style="list-style-type: none"> 1. Flowering plants make seeds to reproduce and make more plants. Some plants die after producing seeds and others live for many generations. 	<p><u>Longitudinal Study: Manage the Meadow</u></p> <p>What is the best way to develop plants and insects in the meadow?</p> <p>Using and applying key knowledge and skills learned over time.</p>	<p><u>Materials and their properties x 2 (why we chose a material for a job)</u></p> <ol style="list-style-type: none"> 1. There are different materials 2. Materials have describable properties 3. Different materials have different properties 4. Materials can be changed by physical force (twisting, bending, squashing and stretching)
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Science Progression Document

	<p>and increases survival chances</p> <p>12. Animals have senses to help individuals survive. When animals sense things they are able to respond</p>				
Key Vocabulary	<p>Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert</p>	<p>Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth</p>	<p>Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem</p>		<p>Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth</p>



Science Progression Document

Year 1/2 cycle B	<p><u>Longitudinal Study:</u></p> <p>Using and applying key knowledge and facts learned but over time</p>	<p><u>Materials and their properties</u></p> <ol style="list-style-type: none"> 1. There are different materials 2. Materials have describable properties 3. Different materials have different properties 4. Materials can be changed by physical force (twisting, bending, squashing and stretching) <p>NB: New context</p>	<p><u>Growing plants</u></p> <ol style="list-style-type: none"> 1. Plants need warmth, light and water to grow and survive 2. Plants usually grow from seed and bulbs. 	<p><u>Animals: Simple animal life time lines</u></p> <ol style="list-style-type: none"> 1. All animals eventually die 2. Animals reproduce new animals when they reach maturity 3. Animals grow until they reach maturity and then don't grow any larger 	<p><u>Pushes, pulls and their effects</u></p> <ol style="list-style-type: none"> 1. Materials can be changed by physical force (twisting, bending, squashing and stretching) 2. Things can move in different ways 3. Pushing and pulling can make things move or stop 4. Pushing and pulling can change the shape of things 5. Pushing and pulling can make things move faster or slower 6. Bigger pushes and pulls have bigger effects Pushing and pulling can make things move faster or slower
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Science Progression Document

Key Vocabulary		Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil	Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem, warmth, light, growth	Die, reproduce, maturity	Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull
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Year 3 /4 Cycle A	<p><u>Electrical circuits</u></p> <ol style="list-style-type: none"> 1. A source of electricity (mains or battery) is needed for electrical devices to work 2. A complete circuit is needed for electricity to flow and devices to work 3. Electricity sources push electricity round a circuit 4. More batteries will push the electricity round the circuit faster 5. Some materials allow electricity to flow easily and these are called conductors. Materials that 	<p><u>Feeding relationships and the environment</u></p> <ol style="list-style-type: none"> 1. Living things can be divided into groups based upon their characteristics 2. Different food chains occur in different habitats 3. Environmental change affects different habitats differently 4. Human activity significantly affects the environment 5. Different organisms are affected differently by environmental change 	<p><u>Animals: Digestion</u></p> <ol style="list-style-type: none"> 1. Different animals are adapted to eat different foods 2. Animals have teeth to help them eat. Different types of teeth do different jobs 3. Food is broken down by the teeth and further in the stomach and intestines where nutrients go into the blood. The blood takes nutrients around the body 4. Nutrients produced by plants move to primary consumers then to secondary consumer 	<p><u>How plants make their food</u></p> <ol style="list-style-type: none"> 1. Plants make their own food in their leaves to provide them with energy, grow, repair, and reproduce 2. Leaves absorb sunlight and carbon dioxide through leaves 3. Plants have roots to provide support and to draw moisture from the soil, through stems to take water to the rest of the plant 4. The plant makes its food from water and carbon dioxide, using sunlight as energy, in the green parts of plants (mainly leaves) 	<p><u>Solids, liquids and gases</u></p> <ol style="list-style-type: none"> 1. Materials can be divided into solids, liquids and gases 2. Solids, liquids and gases are described by observable properties 3. Heating causes solids to melt into liquids and liquids to evaporate to gases 4. Cooling causes gases to condense to liquids and liquids to freeze to solids 5. The temperatures at which given substances change state are always the same. 	<p><u>Longitudinal Study:</u></p>
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	<p>don't allow electricity to flow easily are called insulators</p> <p>6. Devices work harder when more electricity goes through them</p>					
Key Vocabulary	<p>Flow, conductors, insulators</p>	<p>Characteristics, environmental change, organisms, habitats</p>	<p>Nutrients, primary consumer, secondary consumer, adaptation, intestines</p>	<p>energy, grow, repair, and reproduce, carbon dioxide,</p>		

Science Progression Document

Year 3 /4 Cycle B	<p><u>Magnets and their effects</u></p> <ol style="list-style-type: none"> 1. Magnets exert attractive forces on some materials 2. Magnets exert attractive and repulsive forces on each other 3. Magnets exert non-contact forces, which work through some materials 4. Magnetic forces are affected by the magnets strength. 5. Magnetic forces are affected by the object being attracted's mass 6. Magnetic forces are affected by the distance between magnet and object 	<p><u>Mixtures and separating them</u></p> <ol style="list-style-type: none"> 1. Materials change state by heating and cooling. 2. Some changes can be reversed and some can't 3. When two or more substances are mixed and remain present the mixture can be separated. 	<p><u>Animals; Skeletons and movement</u></p> <ol style="list-style-type: none"> 1. Many animals have skeletons to support their bodies and protect vital organs 2. Muscles are connected to bones and move them when they contract 1. Movable joints connect bones 	<p><u>How plants reproduce</u></p> <ol style="list-style-type: none"> 1. Flowering plants have evolved specific parts to carry out pollination, fertilisation and seed growth. 2. Seed dispersal improves chances of enough seeds germinating and growing to mature plants and reproducing. 3. Seeds and bulbs need the right conditions to germinate. They contain a food store for the first stages of growth (i.e. until the plant is able to produce its own food) 	<p><u>Light</u></p> <ol style="list-style-type: none"> 1. There must be light for us to see. Without light it is dark 2. Light comes from a source 3. We need light to see things even shiny things 4. Transparent materials let light through them and opaque materials don't let light through 5. Beams of light bounce off some materials (reflection). 6. Shiny materials reflect light beams better than non-shiny materials
Key Vocabulary	Attract, repel, non-contact force ₂	Reverse, irreversible, separate, heat, cool	Organs, joints, skeleton. Muscles, connect	pollination, fertilisation, seed growth, dispersal, germination,	Light source, transparent, opaque, translucent, reflection, beam, bounce

Science Progression Document

Year 5 /6 Cycle A	<p><u>Animals: Circulation and respiration</u></p> <ol style="list-style-type: none"> 1. Oxygen is breathed into the lungs where it is absorbed by the blood 2. The heart pumps blood around the body <p>Muscles need oxygen to release the energy from food to do work: Oxygen is taken into the blood in the lungs, the heart pumps blood through blood vessels to the muscles, the muscles take the oxygen and nutrients from the blood</p>	<p><u>Making new substances</u></p> <ol style="list-style-type: none"> 1. All matter (including gases) has mass 2. Heating can sometimes cause materials to change permanently. When this happens, a new substance is made. These changes are not reversible. 3. Sometimes mixed substances react to make a new substance. These changes are usually irreversible. 	<p><u>How light behaves and how we see</u></p> <ol style="list-style-type: none"> 1. Light travels in straight lines 2. Light reflects of all objects (unless they are black). Non-shiny surfaces scatter the light so we don't see a single beam. 3. Animals see light sources when light travels from the source into their eyes <p>Animals see objects when light is reflected off that object and enters their eyes</p>	<p><u>Space and Gravity</u></p> <ol style="list-style-type: none"> 1. Stars, planets and moons have so much mass they attract other things, including each other due to a force called gravity. Gravity works over a distance. 2. Stars produce vast amounts of heat and light. All other objects are lumps of rock, metal or ice and can be seen because they reflect the light of stars. 3. Objects with larger masses exert bigger gravitational forces 4. Objects like planets, moons and stars spin 5. Smaller mass objects like planets orbit large mass objects like stars
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Science Progression Document

Key Vocabulary	Oxygen, lungs, breathe, heart, pump, muscles blood vessels, energy, nutrients	Substance, irreversible.	Air resistance, water resistance, friction	Stars, planets and moons, gravity. rock, metal, ice, reflect,. gravitational forces spin, orbit
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Science Progression Document

Year 5 /6 Cycle B	<p><u>Sexual and asexual reproduction</u></p> <ol style="list-style-type: none"> Some organisms reproduce sexually where offspring inherit information from both parents Some organisms reproduce asexually by making a copy of a single parent 	<p><u>Evolution and natural selection</u></p> <ol style="list-style-type: none"> Fossils provide evidence that Living things have changed over time Environmental change can affect how well an organism is suited to its environment. Over time the characteristics that are most suited to the environment become increasingly common. 	<p><u>Forces that oppose motion</u></p> <ol style="list-style-type: none"> Air resistance and water resistance are forces against motion caused by objects having to move air and water out of the way Friction is a force against motion caused by two surfaces rubbing against each other <p><u>Using machines to reduce forces</u></p> <ol style="list-style-type: none"> Some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move 	<p><u>Controlling electrical circuits</u></p> <ol style="list-style-type: none"> Batteries are a store of energy. This energy pushes electricity round the circuit. When the battery's energy is gone it stops pushing. Voltage measures the 'push' Current is how much electricity is flowing round a circuit The greater the current flowing through a device the harder it works When current flows through wires heat is released. The greater the current the more heat is released 	<p><u>How sound is made, travels and can change</u></p> <ol style="list-style-type: none"> Sound travel can be blocked Sound spreads out as it travels Changing the shape, size and material of an object will change the sound it produces. Sound is produced when an object vibrates. Changing the way an object vibrates changes it's sound. Sound moves through all materials by making them vibrate. Bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds Faster vibrations (higher frequencies)
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Science Progression Document

					produce higher pitched sounds
Key Vocabulary	Organisms, reproduce, sexually, offspring, inherit asexually	Fossils, environmental change,, characteristics	gears, pulley, levers	Batteries, voltage, push, Voltage, current, flow	Vibrate, vibrations, louder and quieter sounds, frequencies, pitch