

# Overview of Knowledge progression for Science (Year A)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	How does life changes over time?		How the weather affects us/ the environment		How do stories teach us about the world around us?	
YR	Welly walks – changes in seasons. Mini me small world - materials Forest School Owl babies Ginger bread man – changing states of matter		When I grow up – scientist job roles Vets role play How do plants and animals grow? Butterfly nets and life cycles Mini beast hunt		Welly walk and the seasons Habitats and environments Looking after the planet	
Y1	Everyday Materials (Identify/ describe/group)  Seasonal change	Everyday Materials (Investigate)	Animals (Identify and name/ diets/ skeletons)  Seasonal change	Animals (The human body)	Plants (Identify/ name and observations)  Seasonal change	Plants (Identify/ name and observations)
Y2	Uses of everyday materials (suitability and changing shape)	Uses of everyday materials (suitability and changing shape)	Animals (Growth of baby animals to adults and survival)	Habitats (Living, dead, never lived/ food chains/ identify plants, animals and their habitats)	Plants (Growth/ Survival)	Humans (Nutrition/ Exercise/ Hygiene)
Y3	Forces and Magnets (Friction/ Attraction and Repulsion/ Compare and group magnetic objects)	Light (How we see/ reflection/ shadows)	Animals (Human – nutrition/ muscles and skeletons. Comparison to other animals)	Rocks (Identify/ group/ classify/ fossils)	Plants (Parts/ survival/ water transport/ pollination/ seed formation/ life cycle)	
Y4	Sound (Vibration/ the ear/ pitch and volume)	Electricity (appliances/ symbols/ switches and conductors)	Animals (Digestive system/ teeth and food chains)	Living things and habitats (Group living things/ classification keys/ environmental change)	States of matter (Solids, liquids, gases/ Heating/ Evaporation/ Condensation/ Water cycle)	
Y5	Skills based open-ended investigation: Natural Dyes	Space (Movement of planets/ phases of the moon/ day, night and seasons)	Life cycles and habitats (Plant and animal life cycles/ human development/ reproduction)	Forces (Gravity/ Air resistance/ Friction/pulleys and Levers)	Properties of materials (Compare/ group/ uses of everyday materials)	Changing materials (Dissolving/ Filtration/ Evaporation/ Separation/ Irreversible and reversible change.
Y6	Skills based open-ended investigation: Natural Dyes	Light (Ray diagrams/ the eye/ reflection and shadows) (or science fair project)	Classification (Classify groups/ classification keys/ micro-organisms)	Evolution and inheritance (Variation/ adaption/ natural selection/ fossils/ famous scientists)	Bodily systems (circulatory system/ blood/ heart/ digestive system)	Electricity (symbols/ circuit diagrams/ voltage/ combining components)

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Y R	<p><b>The Natural World</b></p> <ul style="list-style-type: none"> <li>• Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> <li>• Know some similarities and difference between the natural world and contrasting environments.</li> <li>• Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>					
	<p>Amazing me and Why am I amazing? Celebrations. How do we celebrate?</p> <p>Welly walks – changes in seasons. Mini me small world - materials Forest School Owl babies – life cycles Gingerbread man – states of matter</p>		<p>Heroes and transport. What is a superhero? New Life. How do plant and animals grow?</p> <p>When I grow up – scientist job roles Vets role play How do plants and animals grow? Butterfly nets and life cycles Mini beast hunt</p>		<p>Moving on, journeys and adventures (including recycling, looking after the planet) Where would you go on an adventure? Why?</p> <p>Welly walk and the seasons Habitats and environments Looking after the planet</p>	

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	How does life changes over time?		How the weather affects us/ the environment		How do stories teach us about the world around us?	
Y1	<b>Everyday Materials</b> <ul style="list-style-type: none"> <li><i>Properties of materials</i></li> <li><i>Grouping materials</i></li> </ul> <ul style="list-style-type: none"> <li>Know the name of a material the object is made from.</li> <li>Know about the properties of everyday materials</li> </ul> <b>Seasonal change</b> <ul style="list-style-type: none"> <li>Name the four seasons and know about the weather in each season</li> </ul>	<b>Everyday Materials</b> (Investigate)	<b>Animals</b> <ul style="list-style-type: none"> <li><i>Name common animals</i></li> <li><i>Carnivore, Herbivore ...</i></li> </ul> <ul style="list-style-type: none"> <li>Classify animals by amphibian, reptile, mammal, fish and birds</li> <li>Classify animals by what they eat (carnivore, herbivore, omnivore)</li> <li>Describe and compare animals.</li> </ul> <b>Seasonal change</b> <ul style="list-style-type: none"> <li>Name the four seasons and know about the weather in each season</li> </ul>	<b>Animals</b> <ul style="list-style-type: none"> <li><i>The human body and senses</i></li> </ul> <ul style="list-style-type: none"> <li>Name the parts of the human body that can be seen and the senses</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li><i>Common Plants</i></li> <li><i>Plant structure</i></li> </ul> <ul style="list-style-type: none"> <li>Know and name a variety of common wild and garden plants.</li> <li>Know and name the petals, stem, leaves and root of plant</li> </ul> <b>Seasonal change</b> <ul style="list-style-type: none"> <li>Name the four seasons and know about the weather in each season</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li><i>Common Plants</i></li> <li><i>Plant structure</i></li> </ul> <ul style="list-style-type: none"> <li>Know and name the root, trunk and branches of a tree</li> </ul>
Y2	<b>Uses of everyday materials</b> <ul style="list-style-type: none"> <li><i>Identify different materials</i></li> <li><i>Name different materials</i></li> <li><i>Properties of materials</i></li> </ul> <ul style="list-style-type: none"> <li>Know how materials can be changed by squashing and bending</li> </ul>	<b>Uses of everyday materials</b> <ul style="list-style-type: none"> <li><i>Compare the uses of different materials</i></li> <li><i>E.g. Compare movement on different surfaces</i></li> </ul> <ul style="list-style-type: none"> <li>Know why a material might or might not be used for a specific job.</li> </ul>	<b>Animals</b> <ul style="list-style-type: none"> <li><i>Animal reproduction</i></li> </ul> <ul style="list-style-type: none"> <li>Know the basic stages of the life cycles of animals.</li> <li>Survival</li> </ul>	<b>Animals</b> <ul style="list-style-type: none"> <li><i>Alive of dead</i></li> <li><i>Habitats</i></li> <li><i>Adaptations</i></li> <li><i>Food chains</i></li> </ul> <ul style="list-style-type: none"> <li>Classify living things by living, dead or never lived.</li> <li>Know how a specific habitat provides the basic needs of things living there.</li> <li>Match living things to their habitats incl. micro habitats.</li> <li>Name some different sources of food for animals.</li> <li>Know about and explain a simple food chain</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li><i>Plant and seed growth</i></li> <li><i>Plant reproduction</i></li> <li><i>Keeping plants healthy</i></li> </ul> <ul style="list-style-type: none"> <li>Know and explain how seeds and bulbs grow into plants.</li> <li>Know what plants need in order to grow and stay healthy (water, light, temperature)</li> </ul>	<b>Humans</b> <ul style="list-style-type: none"> <li><i>Healthy living</i></li> <li><i>Basic needs</i></li> </ul> <p>Know why exercise. A balanced diet and good hygiene are important.</p>

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Y3	<b>Forces and magnets</b> <ul style="list-style-type: none"> <li><i>Different forces</i></li> <li><i>Magnets</i></li> </ul> <ul style="list-style-type: none"> <li>Know about and describe how objects move on different surfaces.</li> <li>Know that a force is a push or a pull.</li> <li>Know how some forces require contact and some do not. Give examples.</li> <li>Know about and explain how magnets attract and repel. Predict whether magnets will attract or repel and give reason.</li> <li>All magnets have 2 poles</li> </ul>	<b>Light</b> <ul style="list-style-type: none"> <li><i>Reflections</i></li> <li><i>Shadows</i></li> </ul> <ul style="list-style-type: none"> <li>Know that dark is the absence of light.</li> <li>Know that light is needed in order to see and is reflected from a surface.</li> <li>Know and demonstrate how a shadow is formed and explain how a shadow changes shape.</li> <li>Know about the danger of direct sunlight and how to keep protected.</li> </ul>	<b>Animals</b> <ul style="list-style-type: none"> <li><i>Skeleton and muscles</i></li> <li><i>Nutrition</i></li> <li><i>Exercise and health</i></li> </ul> <ul style="list-style-type: none"> <li>Know about the importance of a nutritious, balanced diet.</li> <li>Know how nutrients, water and oxygen are transported within animals and humans.</li> <li>Know about the skeletal and muscular system of a human.</li> </ul>	<b>Rocks</b> <ul style="list-style-type: none"> <li><i>Fossil formation</i></li> <li><i>Compare and group rocks</i></li> <li><i>Soil</i></li> </ul> <ul style="list-style-type: none"> <li>Compare and group rocks based on appearance, physical properties, giving reasons.</li> <li>Know how soil is made and fossils are formed.</li> <li>Know and explain the difference between sedimentary, igneous and metamorphic rocks</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li><i>Basic structure and functions</i></li> <li><i>Life cycle</i></li> <li><i>Water transportation</i></li> </ul> <ul style="list-style-type: none"> <li>Know the function of different parts of flowering plants and trees.</li> <li>The requirements of plants for life and growth</li> <li>Know how water is transported within plants.</li> <li>Know the plant life cycle and the importance of flowers.</li> </ul>	
Y4	<b>Sound</b> <ul style="list-style-type: none"> <li><i>How sounds are made</i></li> <li><i>Sound vibrations</i></li> <li><i>Pitch and Volume</i></li> </ul> <ul style="list-style-type: none"> <li>Know how sound is made, associating some of them with vibrating.</li> <li>Know how sound travels from a source to our ears.</li> <li>Know the correlations between the volume of a sound and the strength of the vibrations that produce it.</li> <li>Know what happens to a sound as it travels away from its source.</li> </ul>	<b>Electricity</b> <ul style="list-style-type: none"> <li><i>Uses of electricity</i></li> <li><i>Simple circuits and switches</i></li> <li><i>Conductors and Insulators</i></li> </ul> <ul style="list-style-type: none"> <li>Identify and name appliances the require electricity to function</li> <li>Construct a series circuit</li> <li>Identify and name the components in a series circuit (cells, wires, bulbs, switches and buzzers).</li> <li>Predict and test whether a lamp will light within a circuit.</li> <li>Know the function of a switch</li> <li>Know the difference between a conductor and an insulator; giving examples of each.</li> </ul>	<b>Animals</b> <ul style="list-style-type: none"> <li><i>Digestive system</i></li> <li><i>Teeth</i></li> <li><i>Food chains</i></li> </ul> <ul style="list-style-type: none"> <li>Identify and name the parts of the human digestive system.</li> <li>Know the functions of the organs in the human digestive system.</li> <li>Identify and know the different types of human teeth.</li> <li>Use and construct food chains to identify producers, predators and prey.</li> </ul>	<b>Living things and their habitats</b> <ul style="list-style-type: none"> <li><i>Grouping living things</i></li> <li><i>Classification keys</i></li> <li><i>Adaptation of living things</i></li> </ul> <ul style="list-style-type: none"> <li>Use classification keys to group, identify and name living things.</li> <li>Know how changes to an environment could endanger living things.</li> </ul>	<b>States of matter</b> <ul style="list-style-type: none"> <li><i>Compare and group materials</i></li> <li><i>Solids, liquids and gases.</i></li> <li><i>Changing state</i></li> <li><i>Water cycle.</i></li> </ul> <ul style="list-style-type: none"> <li>Group materials based on their states of matter</li> <li>Know the temperature at which materials change state</li> <li>Know about and explore how some materials can change state.</li> <li>Know the part played by evaporation and condensation in the water cycle.</li> </ul>	

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Y5	Skills based open-ended investigation: Natural Dyes	<p><b>Space</b></p> <ul style="list-style-type: none"> <li><i>Movement of the Earth and the planets</i></li> <li><i>Movement of the moon</i></li> <li><i>Night and day and seasons</i></li> </ul> <ul style="list-style-type: none"> <li>Know about and explain the movement of the Earth and other planets relative to the Sun.</li> <li>Know about and explain the movement of the Moon relative to the Earth</li> <li>Know and demonstrate how night and days are created.</li> <li>Describe the Sun, Moon and planets as spherical bodies</li> </ul>	<p><b>Life cycles and reproduction</b></p> <ul style="list-style-type: none"> <li><i>Life cycles – plants and animals</i></li> <li><i>Reproductive processes</i></li> <li><i>Famous naturalists</i></li> </ul> <ul style="list-style-type: none"> <li>Know the life cycle of different living things E.g. Mammal, amphibian, insect and bird</li> <li>Know the differences between different life cycles.</li> <li>Know the processes of reproduction in plants</li> <li>Know the process of reproduction in animals</li> <li>Understand the different stages of the human life cycle</li> </ul>	<p><b>Forces</b></p> <ul style="list-style-type: none"> <li><i>Gravity</i></li> <li><i>Friction</i></li> <li><i>Forces of motion and mechanical devices</i></li> </ul> <ul style="list-style-type: none"> <li>Know what gravity is and its impact on our lives.</li> <li>Identify and know the effect of air and water resistance.</li> <li>Identify and know the effect of friction.</li> <li>Explain how levers, pulleys and gears allow a smaller force to have a greater effect. (DT)</li> </ul>	<p><b>Properties and changes in materials</b></p> <ul style="list-style-type: none"> <li><i>Compare properties of everyday materials</i></li> <li><i>Investigate the suitability of materials for different jobs</i></li> <li><i>Soluble/ dissolving</i></li> <li><i>Reversible and irreversible substances</i></li> </ul> <ul style="list-style-type: none"> <li>Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, (electrical and thermal), and response to magnets.</li> <li>Know and explain how a materials dissolves to form a solution.</li> <li>Know and show how to recover a substance from solution.</li> <li>Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) using knowledge of solids, liquids and gases</li> <li>Know and demonstrate that some changes are reversible (dissolving) and some are not.</li> <li>Know how some changes result in the formation of a new material and that this is usually irreversible.</li> </ul>	
Y6	Skills based open-ended investigation: Natural Dyes	<p><b>Light</b></p> <ul style="list-style-type: none"> <li><i>How light travels</i></li> <li><i>Reflection</i></li> <li><i>Ray models of light</i></li> </ul> <ul style="list-style-type: none"> <li>Know how light travels in a straight line</li> <li>Know and demonstrate how we see objects by reflection.</li> <li>Know why shadows have the same shape as the object that casts them.</li> <li>Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.</li> <li>Know how shadows change at different times of day.</li> </ul>	<p><b>Classification</b></p> <ul style="list-style-type: none"> <li><i>Classification of living things and the reasons for it.</i></li> </ul> <ul style="list-style-type: none"> <li>Classify living things into broad groups according to observable characteristics and based on similarities and differences.</li> <li>Know how living things have been classified.</li> <li>Give reasons for classifying plants and animals in a specific way</li> </ul>	<p><b>Evolution and Inheritance</b></p> <ul style="list-style-type: none"> <li><i>Identical and non-identical offspring.</i></li> <li><i>Fossil evidence and evolution</i></li> <li><i>Adaptation and evolution</i></li> </ul> <ul style="list-style-type: none"> <li>Know how the Earth and living things have changed over time.</li> <li>Know how fossils can be used to find out about the past.</li> <li>Know about reproduction and offspring (recognizing that offspring normally vary and are not identical to their parents)</li> <li>Know how animals and plants are adapted to suit their environment.</li> <li>Link adaptation over time to evolution.</li> <li>Know about evolution and can explain what it is</li> </ul>	<p><b>Bodily systems</b></p> <ul style="list-style-type: none"> <li><i>The circulatory system</i></li> <li><i>The digestive system</i></li> <li><i>Impact of exercise on the body</i></li> </ul> <ul style="list-style-type: none"> <li>Identify and name the main parts of the human circulatory system.</li> <li>Know the function of the heart, blood vessels and blood.</li> <li>Know the impact of diet, exercise, drugs and lifestyle on health</li> <li>Know the way in which nutrients and water are transported in animals. Including humans</li> </ul>	<p><b>Electricity</b></p> <ul style="list-style-type: none"> <li><i>Electrical components</i></li> <li><i>Simple circuits</i></li> <li><i>Fuses and voltage</i></li> </ul> <ul style="list-style-type: none"> <li>Compare and give reasons for why components work and do not work in a circuit.</li> <li>Draw circuit diagrams using the correct symbols.</li> <li>Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.</li> </ul>