

Progression in Scientific Knowledge – Years FS1 – 6 – Hillsborough Primary School

Progression in Scientific knowledge		FS1	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biology	B1 Animals including Humans	Take part in first hand scientific exploration of animals and life cycles.	Explore and understand the natural world around them.	<p>Identify and label a variety of common animals (fish, amphibians, reptiles, birds, mammals)</p> <p>Know carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and link to senses</p>	<p>Know that animals have offspring that grow to be adults</p> <p>Know what animals and humans need to survive</p> <p>Describe the importance for humans of exercise, eating the right amount of different types of food and hygiene</p>	<p>Know that animals including humans need the right types and amounts of nutrition which comes from what they eat</p> <p>Know that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>Construct and interpret food chains (identifying producers, predators and prey)</p> <p>Know the simple functions of the basic parts of the digestive system in humans</p> <p>Know types and simple functions of teeth in humans.</p>	Know the changes as humans develop to old age	<p>Know the main parts of the human circulatory system</p> <p>Describe the functions of the heart, blood vessels and blood</p> <p>Know the impact of diet, exercise and drugs on the body</p>

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	<p>B2 Living things and their habitats.</p>	<p>Can care for animals and take part in first hand scientific exploration of animal life cycles.</p>	<p>Draw pictures of the natural world, including animals and plants.</p>		<p>Explore and compare the difference between things that are living, dead, and things 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 the basic needs of different kinds of animals and plants, and how they depend on each other.</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>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p>
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	<p>Plants (Biology)</p>	<p>Can plant seeds and know how to care for them to ensure they grow.</p>	<p>Draw pictures of the natural world, including animals and plants.</p>	<p>Name a variety of common, wild and green plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants including trees</p>	<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and suitable temperature to grow and stay healthy</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/ trunk, leaves and flowers</p> <p>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</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>			
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	Evolution and Inheritance (Biology)								<p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
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	Strand 1 Light					<p>Recognise that we need light to see and dark is the absence of light</p> <p>Know that light is reflected from surfaces</p> <p>Know the dangers of the sun (Protecting eyes)</p> <p>Know that shadows are formed when light from a light source is blocked by a solid object and find patterns in shadow sizes</p>			<p>Know how light travels (straight lines)</p> <p>Know that objects are seen because they give out or reflect light into the eye.</p> <p>Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Know why shadows have the same shape as the object that cast them</p>
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	<p style="text-align: center;">Strand 2 Forces and Magnets</p>	<p>Explore and talk about the different forces they can feel</p>				<p>Compare how things move on different surfaces (friction)</p> <p>Know how magnets attract/repel some materials (two pole +/-) and make predictions</p> <p>Know that some forces need contact whereas magnetic forces can act at a distance</p> <p>Compare and group magnetic/non-magnetic materials</p>		<p>Know that unsupported objects fall towards the earth because of the force of gravity.</p> <p>Identify the effects of air resistance, water resistance and friction</p> <p>Recognise that some mechanisms (gears, leavers, pulleys and springs) allow a smaller force to have a greater effect</p>	
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	Strand 3 Electricity						<p>Identify common appliances that run on electricity</p> <p>Construct a simple circuits naming basic parts</p> <p>Identify whether or not a lamp will light in a simple, series circuit based on understanding of a complete loop.</p> <p>Identify common conductors and insulators</p> <p>Recognise the function of a switch in a circuit and associate this with whether or not a lamp lights up.</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit</p> <p>Compare and give reasons for how components function (brightness of bulbs, loudness of buzzers)</p> <p>Know and use correct circuit symbols</p>
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	<p>Strand 4 Sound</p>						<p>Identify how sounds are made (Vibrations)</p> <p>Find patterns between volume of a sound and the strength of the vibrations that produced it</p> <p>Know how vibrations travel to the ear</p> <p>Find patterns between the pitch of a sound and the object that produced it</p> <p>Recognise that sounds get fainter as the distance increases</p>		
	<p>Strand 5 Seasonal Changes</p>		<p>Understand processes and changes in the natural world them, including the seasons.</p>	<p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies (temperatures during the day and night)</p>					

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	Strand 6 Earth and Space			<p>Name the planets in our solar system and identify key information about them.</p> <p>Know the sun is a star and that it enables the earth to be warm and have light.</p> <p>Know that humans have explored space and the solar system.</p>				<p>Describe movement of the Earth and other planets, relative to the sun</p> <p>Describe movement of the moon relative to the Earth</p> <p>Know the relationship between the Sun, Earth and Moon (spherical bodies)</p> <p>Know how the Earth's rotation affects day and night and the apparent movement of the sun across the sky.</p>	
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	<p>Materials and States of Matter</p>	<p>Use all their senses in hands on exploration of natural material.</p> <p>Talk about different materials and how they change. For example, melting ice, baking.</p>	<p>Understand processes and changes in the natural world them, including changing states of matter.</p>	<p>Identify and name a range of materials (wood, plastic, glass, metal, water and rock)</p> <p>Know the physical properties of everyday materials</p> <p>Compare and group materials according to a range of physical properties</p> <p>Distinguish between an object and the material it is made of.</p>	<p>Identify and compare different everyday materials (wood, metal, plastic, glass, rock, brick, paper, cardboard)</p> <p>Know that solid objects can be changed by squashing, bending, twisting and stretching</p>		<p>Compare and group solids, liquids and gases</p> <p>Know that some materials change state (heating and cooling; no baking) and measure or research the temperature at which this happens in degrees Celsius (°C)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>Compare and group everyday materials based on their properties including their hardness, solubility, transparency, conductivity (<i>electrical and thermal</i>) and response to magnets</p> <p>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</p> <p>Demonstrate that some changes of state are reversible including dissolving and mixing.</p> <p>Know that some changes result in the formation of new materials</p>	
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	Rocks					<p>Compare and group different types of rocks (appearance and simple physical properties)</p> <p>Describe how rocks and fossils are formed when things that have lived are trapped.</p> <p>Know that soils are made from rocks and organic matter</p>			
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