

## Science - End Points

### EYFS Working Scientifically:

- Know how to explore the environment with the five senses
- Know how to explore how things work and how things change
- Know how to choose resources needed to explore
- Know how to make observations and create simple drawings
- Know how to make simple recordings e.g. weather symbols

	Animals inc. Humans	Seasonal Change	Plants	Materials	Light	Wider Curriculum
<b>Nursery</b>	<ul style="list-style-type: none"> <li>- Know the names of some common animals in the local environment and wider world. E.g dog, bird, zebra, shark (Down on the Farm)</li> <li>- Know the names where some animals will live e.g farm, ocean, jungle (Down on the Farm)</li> <li>- Know some names for animals and their young. E.g piglets, calf, lamb (Down on the Farm)</li> <li>- Know vocabulary associated with animal life cycles e.g. a duckling - egg, duckling (baby), feathers, warmth, food, water, die (Down on the Farm)</li> </ul>	<ul style="list-style-type: none"> <li>- Identify appropriate clothes to go outside in different types of weather</li> <li>- Know names to describe the weather e.g. windy, snowy, sunny</li> </ul>	<ul style="list-style-type: none"> <li>- Know plants need water and light to grow. (Watch Me Grow)</li> <li>- Know vocabulary associated with plants and life cycles e.g. seed, seedling, flower, leaf, soil, grow, water, die. (Watch Me Grow)</li> </ul>	<ul style="list-style-type: none"> <li>- Know vocabulary associated with changes of materials when they heat or cool e.g. melt, warm, hot, freeze, cold, cool, hard (solid), runny (liquid) (People Who Help Us)</li> <li>- Know the terms float and sink (People Who Help Us)</li> <li>- Know vocabulary associated with properties of materials: e.g. twist, stretch, bend, snap, move</li> </ul>	<ul style="list-style-type: none"> <li>- Know the terms 'light', 'dark' and shadow. (The Dark)</li> </ul>	<ul style="list-style-type: none"> <li>- Know some animals, like bears, hibernate in the winter. (Spring 1- Links to literacy- We're Going on a Bear Hunt)</li> <li>- Know how to feel, hear, smell and see natural materials of grass, mud, water, rock and sand. (Outdoor Provision/ Forest School)</li> <li>- Know we need to mix materials in the right amount to bake a tasty cake. (Literacy Link- The Very Hungry Caterpillar- Summer 1)</li> </ul>
	Animals inc. Humans	Seasonal Change	Plants	Materials	Light	Wider Curriculum
<b>Reception</b>	<ul style="list-style-type: none"> <li>- Know names of specific animals and that they live in different environments (e.g. fish, octopus and sharks live in the ocean, polar bears and walrus live in the Arctic, worms live in the soil)</li> </ul>	<ul style="list-style-type: none"> <li>- Know the names of the seasons: Spring, Summer, Autumn, Winter</li> <li>- Know the effect of changing seasons on the natural world and associated vocabulary e.g leaves changing colour (Seasonal inputs)</li> <li>- Use a widening vocabulary linked with the weather e.g. stormy, foggy, icy, wet, dry (Daily)</li> </ul>	<ul style="list-style-type: none"> <li>- Know the names of some common animals and plants in the local environment.(In the Garden)</li> <li>- Know the importance of caring for the environment (Me and My World)</li> </ul>	<ul style="list-style-type: none"> <li>- Know that some materials are magnetic and some materials are non-magnetic. (It's Cold Outside)</li> <li>- Know that the state of a material can change e.g water can become ice (It's Cold Outside)</li> <li>- Know the name of some materials e.g plastic, wood, and fabric. ( It's Cold Outside)</li> </ul>		<ul style="list-style-type: none"> <li>- Know it is important to wear sun cream and sun hats when it is sunny. (PSHCE - Summer 2)</li> </ul>

### KS1 Working Scientifically

#### Plan:

- Know how to ask simple questions
- Know that questions can be answered in different ways

**Do:**

- Know how to use simple equipment to observe closely
- Know how to perform simple tests
- Know how to identify and classify

**Record:**

- Know how to gather and record data to help answer questions

**Review:**

- Know how observations and ideas can be used to answer questions

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Plants (Biology)	Seasonal Changes (Biology)	Everyday Materials (Chemistry)	Animals (Biology)	Humans (Biology)	Consolidation & Review
	<ul style="list-style-type: none"> <li>- Know that a plant (including trees) is a living thing</li> <li>- Know the difference between deciduous and coniferous trees</li> </ul>	<ul style="list-style-type: none"> <li>- Know different types of weather and that weather types can change within a day</li> <li>- Know the names of the seasons in order</li> <li>- Know changes that occur across seasons</li> <li>- Know how to explain the difference between day and night</li> </ul>	<ul style="list-style-type: none"> <li>- Know that an object can be seen, touched, have a name and a purpose</li> <li>- Know that a material is what an object is made of (e.g. wood, paper, metal, glass, plastic, water, rock, rubber and cotton)</li> <li>- Know the difference between natural and artificial (man-made) materials</li> <li>- Know that materials have different physical properties</li> </ul>	<ul style="list-style-type: none"> <li>- Know the difference between carnivores, herbivores and omnivores</li> <li>- Know that some animals can be grouped into fish, amphibians, reptiles, birds and mammals</li> <li>- Know that animals have different features</li> <li>- Know that animals are different to plants</li> </ul>	<ul style="list-style-type: none"> <li>- Know that humans are omnivores (but some choose to eat only plants)</li> <li>- Know that humans are made of many different body parts</li> <li>- Know that humans have five senses: smell, taste, touch, sight and hearing</li> <li>- Know that the five senses are associated with different body parts</li> </ul>	
Year 2	Plant Growth (Biology)	Needs of Animals (Biology)	Uses of Materials (Chemistry)	Living Things & Habitats (Biology)	Solids, Liquids & Gases (Chemistry)	Consolidation & Review
	<ul style="list-style-type: none"> <li>- Know that a seed is living and is made up of different parts</li> <li>- Know that germination is the development of a plant from a seed</li> <li>- Know that some plants can grow from bulbs</li> <li>- Know that all plants need</li> </ul>	<ul style="list-style-type: none"> <li>- Know that food and water are natural resources</li> <li>- Know what animals, including humans, need to survive</li> <li>- Know the importance of diet, exercise and hygiene for humans</li> <li>- Know that animals,</li> </ul>	<ul style="list-style-type: none"> <li>- Know that matter is all the 'stuff' we experience in everyday life</li> <li>- Know that materials have different physical properties</li> <li>- Know that different combinations of materials can be used to create different objects</li> </ul>	<ul style="list-style-type: none"> <li>- Know the seven characteristics of a living thing</li> <li>- Know that everything in the world is either alive, used to be alive or has never been alive</li> <li>- Know that habitats vary and living things are</li> </ul>	<ul style="list-style-type: none"> <li>- Know that materials can be a single substance or mixture of substances</li> <li>- Know that matter is what all 'stuff' is made from</li> <li>- Know there are three states of matter (solids, liquids, gases) and they have different properties</li> </ul>	

	water, light and suitable temperature to grow	including humans, produce offspring that grow into adults	<ul style="list-style-type: none"> <li>- Know that the shape of some solid objects can be changed by squashing, bending, twisting or stretching</li> <li>- Know that one way to use materials more sustainably is to reduce, reuse and recycle</li> </ul>	adapted to different ones <ul style="list-style-type: none"> <li>- Know the meaning of 'microhabitat'</li> <li>- Know that living things are called organisms</li> <li>- Know that flora describes plant life; fauna describes animal life</li> <li>- Know the structure of a simple food chain</li> </ul>		
<b>Year 3</b>	<b>Rocks (Chemistry)</b>	<b>Light (Physics)</b>	<b>Organisms (Biology)</b>	<b>Plants (Biology)</b>	<b>Forces &amp; Motion (Physics)</b>	<b>Magnetism (Physics)</b>
	<ul style="list-style-type: none"> <li>- Know that rocks and soil differ in their appearance and properties</li> <li>- Know that there are different types of rocks and how they are formed</li> <li>- Know that fossils are evidence of life and how they are formed</li> </ul>	<ul style="list-style-type: none"> <li>- Know how shadows are formed and why they can vary in size and direction</li> <li>- Know that the light from the sun can be damaging</li> <li>- Know that light is needed to see things and that dark is the absence of light</li> <li>- Know that some materials reflect more light than others</li> </ul>	<ul style="list-style-type: none"> <li>- Know what the main food groups are</li> <li>- Know that humans need a balanced diet</li> <li>- Know the function of a skeleton</li> <li>- Know key organs in the human body</li> <li>- Know that some organisms have endoskeletons, exoskeletons or neither</li> </ul>	<ul style="list-style-type: none"> <li>- Know that oxygen and carbon dioxide are found in the air</li> <li>- Know the four main stages of the plant's life cycle (germination, pollination, fertilisation, seed dispersal)</li> <li>- Know the function of different parts of a plant</li> </ul>	<ul style="list-style-type: none"> <li>- Know that forces are pushes or pulls</li> <li>- Know that forces arise when objects interact with each other</li> <li>- Know the different between opposing and balanced forces</li> <li>- Know that friction is a force between two surfaces (friction can increase or decrease depending on the surface)</li> </ul>	<ul style="list-style-type: none"> <li>- Know the difference between contact (friction) and non-contact (magnetism) forces</li> <li>- Know what a magnet is and how they work</li> </ul>
<b>Year 4</b>	<b>Classifying Organisms (Biology)</b>	<b>Food &amp; Digestion (Biology)</b>	<b>Particle Model &amp; States of Matter (Chemistry)</b>	<b>Sounds (Physics)</b>	<b>Electricity (Physics)</b>	<b>Properties of Materials (Chemistry)</b>
	<ul style="list-style-type: none"> <li>- Know what classification is and how we use it</li> <li>- Know that we use classification keys to group different types of animals and plants</li> <li>- Know what a species is</li> <li>- Know dangers posed to animals based on environment change</li> </ul>	<ul style="list-style-type: none"> <li>- Know how to construct and interpret a food chain that identifies producers, consumers, predators and prey</li> <li>- Know the different types of teeth and describe their functions</li> <li>- Know the processes of the digestive system and what the function of each organ is</li> </ul>	<ul style="list-style-type: none"> <li>- Know that substances are made of particles</li> <li>- Know why substances are classified as solids, liquids and gasses</li> <li>- Know that a substance can change state and how this happens</li> <li>- Know how evaporation and condensation form part of the water cycle</li> </ul>	<ul style="list-style-type: none"> <li>- Know the link between vibrations and sound</li> <li>- Know the difference between pitch and volume</li> <li>- Know that sound cannot travel in a vacuum</li> </ul>	<ul style="list-style-type: none"> <li>- Know that some common appliances run on electricity</li> <li>- Know how to create a simple circuit</li> <li>- Know that materials can be electrical conductors or insulators</li> <li>- Know why a lamp may not light (e.g. incomplete circuit)</li> </ul>	<ul style="list-style-type: none"> <li>- Know that physical properties are properties can be measured or observed in the classroom</li> <li>- Know that chemical properties are properties that scientists need specialist equipment to measure</li> <li>- Know the difference between thermal conductors and thermal insulators</li> </ul>
<b>Year 5</b>	<b>Separating Mixtures (Chemistry)</b>	<b>Energy (Physics)</b>	<b>Life Cycles (Biology)</b>	<b>Human Development (Biology)</b>	<b>Forces (Physics)</b>	<b>Earth &amp; Space (Physics)</b>

	<ul style="list-style-type: none"> <li>- Know that mixtures and pure substances are formed of different particle structures, including solids, liquids and gasses</li> <li>- Know the difference between a solution, solvent, solute and identify substances that are soluble and insoluble</li> <li>- Know how materials and solutions can be separated (filtration, evaporation, sieving and magnetism)</li> <li>- Know how to explain reversible and irreversible changes</li> </ul>	<ul style="list-style-type: none"> <li>- Know that energy is needed by living and nonliving things and that it can be transferred but never used up</li> <li>- Know that there are different types of energy stores and that resources for these stores can be used up</li> <li>- Know that energy is transferred in a food chain</li> <li>- Know what the energy store is within a circuit and how this energy is then transferred and changed by devices</li> </ul>	<ul style="list-style-type: none"> <li>- Know that a cell is the smallest building block of living things. All organisms are made of cells</li> <li>- Know differences in the life cycle of an amphibian, bird, insect and mammal</li> <li>- Know differences between sexual &amp; asexual reproduction in plants and animals</li> </ul>	<ul style="list-style-type: none"> <li>- Know the stages of the human life cycle</li> <li>- Know that the gestation period for humans is 40 weeks</li> <li>- Know the difference between primary aging and secondary ageing</li> </ul>	<ul style="list-style-type: none"> <li>- Know that force is measured in newtons (N)</li> <li>- Know the difference between mass (kg/g) and weight (N)</li> <li>- Know that pulleys, levers and gears allow a smaller force to have a greater effect</li> <li>- Know how forces such as air resistance, water resistance and upthrust act between moving surfaces</li> </ul>	<ul style="list-style-type: none"> <li>- Know that the universe is made up of many galaxies and ours is called the Milky Way</li> <li>- Know the movement of the Earth and other planets, relative to the Sun in the Solar System</li> <li>- Know the phases of the moon</li> <li>- Know that the Earth's rotation has an impact on night and day</li> </ul>
Year 6	Electricity (Physics)	Evolution (Biology)	Light (Physics)	Further Classification (Biology)	Functions of the Human Body (Biology)	Physical & Chemical Changes (Chemistry)
	<ul style="list-style-type: none"> <li>- Know that each component in a circuit can be represented by a recognised symbol</li> <li>- Know the difference between series and parallel circuits</li> <li>- Know that mains electricity is generated by power stations and provides energy for many home appliances</li> <li>- Know the difference between renewable and non-renewable energy</li> </ul>	<ul style="list-style-type: none"> <li>- Know that there are different reasons why variation occurs between species and that they can sometimes be advantageous</li> <li>- Know that natural selection occurs when advantageous traits are passed on to the next generation and that this can lead to the evolution of a whole species</li> <li>- Know that homo sapiens originated from many parts of Africa</li> <li>- Know that fossils provide evidence of evolution</li> <li>- Know some key scientists who contributed to the development of evolutionary biology</li> </ul>	<ul style="list-style-type: none"> <li>- Know that when light meets an opaque object, some of the light is reflected and some of it is absorbed</li> <li>- Know that objects emit (give out) or reflect light into the eye.</li> <li>- Know that the eye is made of many parts and this is how we see</li> </ul>	<ul style="list-style-type: none"> <li>- Know that invertebrates can be grouped based on their characteristics</li> <li>- Know that arthropods can be grouped into four sub-groups (spiders, insects, crustaceans, myriapods)</li> <li>- Know that fungi are different plants and animals</li> <li>- Know a variety of different microorganisms</li> </ul>	<ul style="list-style-type: none"> <li>- Know the names and functions of the main parts of the human circulatory system</li> <li>- Know that respiration provides the energy needed for organisms to function</li> <li>- Know that diet and exercise can have a positive effect on our bodies and our lifestyle choices impact our health</li> </ul>	<ul style="list-style-type: none"> <li>- Know that a mixture is two or more substances that are mixed but not chemically joined together</li> <li>- Know that distillation and chromatography can be used to separate substances</li> <li>- Know that a chemical change is a change where a new substance is formed</li> <li>- Know that changes can be reversible or irreversible</li> </ul>