



**Year Three/Four**

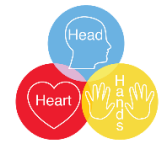
**Autumn**

Crucial Knowledge (Rocks) – Autumn	Expanded Knowledge	Intent/Prove
<p><i>Background knowledge:</i></p> <ul style="list-style-type: none"> <li>- Science is the study of the natural world through observation and experiment.</li> <li>- Scientists study science, setting up investigations and experiments to prove their scientific ideas.</li> <li>- Rocks are a natural material found in the Earth.</li> </ul> <ul style="list-style-type: none"> <li>• Different rocks look different.</li> <li>• Different rocks have different properties, such as hard, soft, rough, smooth, porous, non-porous etc.</li> <li>• There are 3 different types of naturally occurring rocks: igneous, sedimentary and metamorphic</li> <li>• Igneous rocks have been formed when magma or lava cools.</li> <li>• Sedimentary rocks are formed by layers of sediment (tiny pieces of rocks and animal skeletons) pressed down on top of each other</li> <li>• Metamorphic rocks started as igneous or sedimentary but changed as a result of extreme heat or pressure</li> <li>• Fossils are formed when things that have lived are trapped within rock.</li> <li>• Soil is made from rocks and organic matter (minerals, air, water and organic matter)</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils can name some different types of rocks that make up soil.</li> <li>• Pupils can explain why specific rocks are used for different purposes.</li> <li>• Pupils can explain how rocks change over time due to corrosion and erosion.</li> <li>• Rocks are altered to create items of use for people e.g. bricks for buildings and salt for cooking.</li> <li>• Paleontology is the scientific study of life in the past that involves the analysis of plant and animal fossils.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils will demonstrate their understanding of the topic through their own investigations., e.g. investigating the properties of rocks.</li> <li>• Pupils will use systematic and careful observation skills to discover differences and similarities between rocks, e.g. observing crystals in rocks.</li> <li>• Pupils will gather, classify, record and present data in a variety of ways, e.g. classifying rocks or recording and presenting information from investigations.</li> <li>• Report findings from enquiries, e.g. reporting findings from investigations.</li> </ul>

Crucial Knowledge (animals including Humans)- Autumn	Expanded Knowledge	Intent/Prove
<p><i>Background knowledge:</i></p> <ul style="list-style-type: none"> <li>• Science is the study of the natural world through observation and experiment.</li> <li>• Scientists study science, setting up investigations and experiments to prove their scientific ideas.</li> <li>• Animals are living things that feed themselves</li> <li>• Nutrition is giving your body the food it needs for it to grow and be healthy.</li> </ul> <ul style="list-style-type: none"> <li>• Animals including humans need the right type of nutrition.</li> <li>• Animals including humans need the right amount of nutrition.</li> <li>• Animals including humans cannot make their own food, they have to hunt, prepare and eat food.</li> <li>• Humans and some animals have skeletons and muscles.</li> <li>• Humans and animals have muscles and skeletons for support, protection and movement.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils can identify animals without skeletons.</li> <li>• Pupils can group animals based on diet, e.g. herbivores, omnivores and carnivores.</li> <li>• Pupils can name specific bones and muscles.</li> <li>• Pupils can explain how these bones and muscles support, protect and aid movement for our bodies.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils will gather, classify, record and present data in a variety of ways, e.g. gathering information about animals' skeletons.</li> <li>• Use scientific evidence to answer questions, e.g. looking at the evidence behind muscles, diet or skeletons.</li> <li>• Identify differences, similarities or changes related to scientific ideas, e.g. looking at different skeletons or diets.</li> <li>• Ask relevant questions to answer scientific enquiries.</li> </ul>

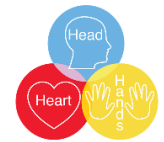
**Spring**

Crucial Knowledge Spring (Forces)	Expanded Knowledge	Intent/Prove
<p><i>Background knowledge:</i></p>	<ul style="list-style-type: none"> <li>• Magnets are used in everyday life, e.g. a compass or an MRI scanner.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils will use systematic and careful observation skills, e.g. to observe what materials are</li> </ul>



<ul style="list-style-type: none"> <li>• Science is the study of the natural world through observation and experiment.</li> <li>• Scientists study science, setting up investigations and experiments to prove their scientific ideas.</li> <li>• Forces are a push or a pull in a particular direction.</li> <li>• Friction is the force that's created when 2 surfaces make contact with each other.</li> <li>• Friction slows objects down.</li> <li>• Different objects and surfaces create different amounts of friction.</li> <li>• Most forces need contact between 2 objects.</li> <li>• Magnetic forces do not need contact but can act from a distance.</li> <li>• Some materials are magnetic but some are not.</li> <li>• Magnets can attract or repel each other.</li> <li>• Magnets have 2 poles (North and South).</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils can explain why some objects are purposefully made magnetic and others are not.</li> <li>• Pupils can group how different objects move.</li> <li>• Pupils can suggest creative uses for different magnets.</li> </ul>	<p>magnetic or how objects move across surfaces.</p> <ul style="list-style-type: none"> <li>• Setting up simple, practical enquiries and fair tests, e.g. pushes and pulls, magnetism</li> <li>• Record and report findings from enquiries in different ways, e.g. reporting findings from investigations.</li> <li>• Use results to draw simple conclusions and make new predictions, e.g. from investigations/tests</li> </ul>
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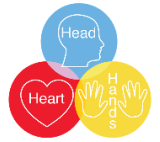
Crucial Knowledge (Plants) - Spring	Expanded Knowledge	Intent/Prove
<p><i>Background knowledge:</i></p> <ul style="list-style-type: none"> <li>• Science is the study of the natural world through observation and experiment.</li> <li>• Scientists study science, setting up investigations and experiments to prove their scientific ideas.</li> <li>• Plants are living things found on the Earth, which produce their own food.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils can explain how each part of a plant has a different function.</li> <li>• Pupils can explain how each part of a plant has a different purpose.</li> <li>• Pupils can explain how if a requirement is missing, it will affect the plant in certain ways, e.g. no light means a plant will be frail.</li> <li>• Plants have adaptations in order to grow in certain environments.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils will use systematic and careful observation skills to discover differences and similarities between plants, e.g. the life cycle of plants or water transportation in plants.</li> <li>• Identify differences, similarities or changes related to scientific ideas, e.g. looking at different plants and how they need different amounts of light/water/nutrition etc.</li> </ul>



<ul style="list-style-type: none"> <li>Plants have roots, stems, leaves and a flower (made up from petals and pollen).</li> <li>Roots anchor the plant and suck up water and absorb nutrients from the soil.</li> <li>Stems hold up the flower and transports the water and nutrients.</li> <li>Leaves produce food for plants, which is known as photosynthesis.</li> <li>Petals attract bees to pollinate the flowers.</li> <li>Pollen is passed on from bees to create more flowers.</li> <li>Plants need light, water, space, CO<sub>2</sub> and nutrients to grow and need different amounts of these requirements to grow.</li> <li>Plants have a life cycle: the seed, germination, growth, reproduction, pollination, and seed spreading.</li> </ul>		<ul style="list-style-type: none"> <li>Setting up simple, practical enquiries and fair tests, e.g. water transportation.</li> <li>Report findings from enquiries, e.g. reporting findings from investigations.</li> <li>Use results to draw simple conclusions and make new predictions, e.g. from investigations/tests.</li> </ul>
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**Summer**

Crucial Knowledge Summer (Light)	Expanded Knowledge	Intent/Prove
<p><i>Background knowledge:</i></p> <ul style="list-style-type: none"> <li>Science is the study of the natural world through observation and experiment.</li> <li>Scientists study science, setting up investigations and experiments to prove their scientific ideas.</li> <li>Light is a type of energy that makes it possible for us to see the world around us.</li> </ul> <ul style="list-style-type: none"> <li>We need light to see.</li> </ul>	<ul style="list-style-type: none"> <li>Pupils can explain what happens when light reflects off a mirror or another reflective surface.</li> <li>Pupils can explain the term reflective, opaque, transparent and translucent.</li> <li>Pupils know that light travels in straight lines.</li> </ul>	<ul style="list-style-type: none"> <li>Pupils will use systematic and careful observation skills, e.g. to observe shadows and how they change.</li> <li>Record and report findings from enquiries in different ways, e.g. reporting findings from investigations.</li> <li>Use results to draw simple conclusions and make new predictions, e.g. from investigations/tests.</li> </ul>



<ul style="list-style-type: none"><li>• Darkness is the absence of light.</li><li>• Light comes from light sources, e.g. the sun.</li><li>• Light can be reflected from surfaces.</li><li>• The light from the sun can be dangerous.</li><li>• We should protect our eyes from the sun.</li><li>• Shadows are formed when light is blocked by an opaque object.</li><li>• Shadows change based on distance from the light source.</li><li>• Shadows change based on the strength of the light source.</li></ul>		<ul style="list-style-type: none"><li>• Setting up simple, practical enquiries and fair tests, e.g. shadows.</li></ul>
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