

Year 3 Knowledge Objectives and Knowledge Goals – SCIENCE

	The Human Body	Cycles in Nature	Light	Plants	Rocks	Forces and Magnets
Week 1	<p>To know that we can control our voluntary muscles, but we do not control our involuntary muscles</p> <p>Muscles help us move and keep us alive</p> <p>Some of our muscles are voluntary muscles that we control, such as our biceps</p> <p>Some of our muscles are involuntary muscles that we do not control, such as our heart</p>	<p>To know that our natural environment changes as the seasons change</p> <p>Cycles are processes that repeat again and again</p> <p>We have four seasons: spring, summer, autumn and winter</p> <p>We have seasons because the Earth is tilted as it makes its journey around the sun</p>	<p>To understand that we need light in order to see things</p> <p>Light allows us to see things</p> <p>Darkness is the absence of light</p> <p>The sun is the most important source of light for life on Earth</p>	<p>Flowering plants all have roots, a stem or trunk, but not all flowering plants look the same</p> <p>A botanist is a scientist who studies plants</p> <p>Botanists look closely at plants and study their features</p> <p>Flowering plants have roots, a stem or trunk, leaves and flowers</p>	<p>To know there are many different types of rocks</p> <p>There are many different types of rocks</p> <p>Different rocks have names and can be sorted into groups according to their properties</p>	<p>A force is a push or a pull</p> <p>Gravity is a force that makes objects fall to the ground</p> <p>The effect of a force is to make something move, or change speed or direction, or change shape</p> <p>We can change the amount of force we use when we push and pull things</p>
Week 2	<p>To know our bones help us to move and protect some parts of our bodies</p> <p>Our bones give us shape, allow us to move and protect our bodies</p> <p>Humans have a skeleton inside our bodies This is called an endoskeleton</p> <p>A joint is the place where our bones come together, connected by tissue called ligament</p>	<p>To understand how plants can change through the seasons</p> <p>During the spring, plants begin to grow</p> <p>During the summer, plants grow and fruit ripens</p> <p>During the autumn, plants drop their seeds and begin to die</p> <p>During winter, seeds are dormant in the ground, they wait for spring</p>	<p>To know that transparent materials let light through and opaque materials block light from passing through</p> <p>Light travels in straight lines</p> <p>Transparent materials allow light to pass through them</p> <p>Opaque materials block light from passing through them</p>	<p>Different plants need different things in order to thrive</p> <p>Around the world, there are many different types of plant</p> <p>Some plants need lots of water to grow, others only need a little</p> <p>Some plants thrive in the shade, others need a lot of sunlight</p>	<p>To know that geologists sort rocks into three main groups</p> <p>To know that the three main groups of rock are called sedimentary, igneous and Metamorphic</p> <p>To know that sedimentary rocks are formed by layers of sediment under the sea</p> <p>To know that metamorphic rocks are formed under immense heat and pressure and igneous rocks are formed by volcanoes</p>	<p>Friction is the force between two surfaces</p> <p>When a car rolls down a slope, the force of friction can slow it down</p> <p>Rough surfaces create greater friction</p> <p>Smooth surfaces create less friction</p>

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<p style="text-align: center;">Week 3</p>	<p><i>To know that the brain is the centre of the nervous system</i></p> <p>The brain sends messages around our bodies through our nervous system</p> <p>The brain is divided into different parts; each one has a different job to do</p> <p>Our brain is connected to our spinal cord which passes messages to nerves in our arms, fingers, legs and toes</p>	<p><i>To know that plants grow, live and reproduce</i></p> <p>Flowering plants produce pollen</p> <p>When fertilised, pollen can join with the ovule and grow into a seed</p> <p>In the right conditions, seeds grow into new plants</p>	<p><i>Mirrors can reflect light in different ways, depending on their shape</i></p> <p>Mirrors reflect light</p> <p>Convex mirrors are arched</p> <p>Concave mirrors have a hollow</p> <p>Mirrors of different shapes reflect light differently</p>	<p><i>Water moves from the roots of a plant, upwards via the stem</i></p> <p>Plants absorb water from the soil to help them to live and grow</p> <p>Water moves around the plant via the stem. with large root systems can take more water from the soil.</p>	<p><i>To understand that some rocks allow water to pass through, but others do not</i></p> <p>Rocks can have small air spaces in them allowing water to pass through them</p> <p>If a rock type allows water to pass through it is called permeable rock</p> <p>Rocks that are permeable will give off air bubbles when put in water</p>	<p><i>Magnets have an invisible push or pull force</i></p> <p>Magnetic force is an invisible push or pull force</p> <p>When a magnet pushes an object away, we say it repels it</p> <p>If a magnet pulls an object towards it, we say it attracts it</p> <p>A lodestone is a naturally occurring rock that has magnetic properties</p>
<p style="text-align: center;">Week 4</p>	<p><i>To understand how the brain and mouth start the digestive process</i></p> <p>When we see food, a signal is sent from the eyes to the brain</p> <p>Our brain tells our mouth to prepare to eat</p> <p>Our brain tells our stomach to prepare for food.</p>	<p><i>To know that some animals migrate</i></p> <p>Our winter is too cold for some animals, so they make a long journey to a warmer place</p> <p>During our winter, some animals migrate south to find warmer weather</p> <p>Some migrating animals include: Arctic Tern, Painted Lady butterflies, Cuckoos</p>	<p><i>Our shadows change size throughout the day</i></p> <p>shadow is created when an object blocks the path of light</p> <p>The Sun appears to move across the sky as our planet revolves on its axis</p> <p>Our shadows change in size and shape throughout the day</p>	<p><i>To know that pollination is needed for flowering plants to reproduce</i></p> <p>Flowering plants create seeds</p> <p>Flowering plants can only produce seeds if pollen is transferred from the anther to the stigma</p> <p>Insects, like bees and butterflies are essential for pollination</p>	<p><i>To know that some rocks contain fossils which can tell us about life millions of years ago</i></p> <p>Fossils are formed when rock forms around things that once lived</p> <p>Fossils are rare and take thousands of years to form</p> <p>Scientists who study fossils are called palaeontologists</p>	<p><i>To know that magnets have poles and a magnetic field</i></p> <p>A magnet has two opposite poles, the north and south pole</p> <p>A magnetic field is the space around a magnet where the magnetic force can be felt</p>
<p style="text-align: center;">Week 5</p>	<p><i>To describe the simple functions of the basic parts of the digestive system in humans</i></p> <p>To know that the purpose of digestion is to break down food enough that it can be processed in the body</p> <p>To know the basic parts of the digestive system</p> <p>To understand the function of each basic part of the digestive system</p>	<p><i>To recognise the different stages in the life cycle of a frog</i></p> <p>Female frogs lay eggs that are grouped together</p> <p>These eggs are called frogspawn</p> <p>Tadpoles with tails but no legs hatch from frogspawn</p> <p>Tadpoles grow legs and lose their tails as they become frogs</p>		<p><i>To understand that plants spread their seeds in many different ways to reproduce</i></p> <p>Plants spread their seeds in order to reproduce</p> <p>Some plants rely on the wind to spread their seeds</p> <p>Some plants rely on animals to spread their seeds</p>	<p><i>To recognise that soils are made from rocks and organic matter</i></p> <p>Soil is made from rocks and organic matter</p> <p>Organic matter is made from the decaying remains of living things</p>	<p><i>To know that magnetic forces are not all the same strength</i></p> <p>Larger magnets are often, but not always the strongest</p> <p>The strength of magnetic force can be tested</p> <p>Magnetic strength can be weakened over time</p>

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ASSESSMENT	<p><i>To be able to describe one of the many systems in our body</i></p> <p>Scientific knowledge and understanding:</p> <ul style="list-style-type: none"> • Our body contains different systems that enable us to grow, move and respond to the world around us • Our digestive system breaks down food into energy and nutrients • The brain sends messages around our bodies through our nervous system • The skeletal system support and protects our bodies • The muscular system enables us to move our bodies 	<p><i>To understand that there are cycles in nature</i></p> <p>Scientific knowledge and understanding:</p> <ul style="list-style-type: none"> • I know that our natural environment changes as the seasons change • I understand how plants can change through the seasons • I know that some animals migrate and can give examples • I can recognise the different stages in the life cycle of a frog. 	<p><i>To know that light is essential for life on Earth</i></p> <p>Scientific understanding:</p> <ul style="list-style-type: none"> • We need light in order to see things and that dark is the absence of light • Light is essential for life on Earth • Light is reflected from some surfaces, such as mirrors • Sometimes light from the sun can be dangerous and we can protect ourselves from this 	<p><i>Flowering plants are living things that reproduce</i></p> <p>Scientific understanding:</p> <ul style="list-style-type: none"> • Flowering plants all have roots, a stem or trunk, leaves and flowers but not all flowering plants look the same • Flowering plants create seeds. Flowering plants can only produce seeds if pollen is transferred • Conditions, including moisture and warmth, must be right for a seed to germinate and grow into a new plant. 	<p><i>To explain rocks and what they can tell us about our planet</i></p> <p>Scientific understanding:</p> <ul style="list-style-type: none"> • Rocks are classified by how they are formed: sedimentary, igneous and metamorphic. • Rocks can also be classified by their properties such as whether they are hard or whether they are permeable • Fossils are formed over a long period of time from the remains of plants and animals that have died. • Soil is a mixture of small pieces of rock with dead organic matter. 	<p><i>To be able to explain that we cannot see forces, but we can see the impact they have, using examples of gravity, friction and magnetism</i></p> <p>Scientific understanding:</p> <ul style="list-style-type: none"> • Gravity is a force that causes things to fall to the ground when dropped • Friction is a force between two objects that slows down the moving object • Magnets have two poles and like poles repel whereas unlike poles attract • Magnets have different strengths
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