

Excellence and Enjoyment, Everyone and Everything. "God created you to be amazing" Ephesians 2:10

Year 3	Science Long Term Overview					
	Autumn 1 Plants	Autumn 2 Animals including humans	Spring 1 Rocks and soils	Spring 2 Forces and magnets	Summer 1 Forces and magnets	Summer 2 Light
Unit of work Driving Question	How do flowers reproduce?	Why do animals and humans have skeletons?	What are the properties of rocks?	What are different forces and how do magnets work?		How are shadows formed?
Values	Friendship and Love		Respect and responsibility		Perseverance and Hope	
Link to NC programme of study	<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>	<p>identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>recognise that soils are made from rocks and organic matter.</p>	<p>compare how things move on different surfaces</p> <p>notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>observe how magnets attract or repel each other and attract some materials and not others</p> <p>compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p> <p>describe magnets as having two poles</p> <p>predict whether two magnets will attract or repel each other, depending on which poles are facing</p>		<p>recognise that they need light in order to see things and that dark is the absence of light</p> <p>notice that light is reflected from surfaces</p> <p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>find patterns in the way that the size of shadows change.</p>
What we need to know Red Hill Riches	<p>The job of the root is to give the plant stability</p> <p>The job of the stem is to hold the plant strong.</p> <p>Requirements of plants for life and growth are air, light, water, nutrients from soil, and room to grow.</p> <p>Water is transported within plants through the stem.</p>	<p>Humans, need the right types and amount of nutrition.</p> <p>Humans cannot make their own food and get nutrition from what they eat.</p> <p>Humans and some animals have skeletons and muscles for support, protection and movement.</p>	<p>Rocks can be grouped on the basis of their appearance and simple physical properties</p> <p>There are three types of rocks: igneous, sedimentary and metamorphic.</p> <p>Igneous, metamorphic and sedimentary rocks have different properties</p>	<p>Friction causes different objects to move on different surfaces</p> <p>Objects resist movement more on rough surfaces because there is higher friction as the object moves.</p> <p>Force can be thought of as a push or a pull.</p> <p>Magnets have two poles (north and south)</p> <p>Magnets attract or repel each other and attract some materials and not others.</p> <p>Magnetic forces can act at a distance.</p>	<p>Light is needed in order to see things and dark is the absence of light.</p> <p>Objects can be opaque, translucent or transparent.</p> <p>Light is reflected from a surface.</p> <p>Light from the sun can be dangerous and that there are ways to protect their eyes</p>	

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	<p>Flowers reproduce and disperse their seeds in different ways. Pollination, seed formation and seed dispersal all play a part in the flowers life cycle</p>	<p>Skeletons provide support for muscles and protect the body. Muscles work in pairs. Vertebrates have a back bone and invertebrates do not. A nutritious diet can be achieved in a variety of ways.</p>	<p>Fossils are formed when things that have lived are trapped within rock. Fossils can help us learn about things that lived long ago. Soils are made from rocks and organic matter.</p>		<p>Shadows are formed when light from the light source is blocked by an opaque object. Shadows can change shape based on the height and direction of the light source</p>
<p><b>Links to prior knowledge (footprints)</b></p>	<p><i>Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants)</i></p> <ul style="list-style-type: none"> <li>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants)</li> </ul>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals, including humans)</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)</li> <li>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 - Animals, including humans)</li> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans)</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)</li> </ul>	<p>Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)</li> <li>• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)</li> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)</li> </ul>	<p>Explore the natural world around them. (Reception – Forces)</p> <ul style="list-style-type: none"> <li>• Describe what they see, hear and feel whilst outside. (Reception – Forces)</li> <li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)</li> </ul>	<ul style="list-style-type: none"> <li>• Describe what they see, hear and feel whilst outside. (Reception – Light)</li> <li>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)</li> <li>• Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)</li> </ul>

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<b>Vocabulary</b>	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, soil, types of soil (e.g. peaty, sandy, chalk, clay)	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, bolt magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	light, light source, Sun, sunlight, dangerous
<b>Common Misconceptions</b>	Some children may think: <ul style="list-style-type: none"> <li>plants eat food</li> <li>food comes from the soil via the roots</li> <li>flowers are merely decorative rather than a vital part of the life cycle in reproduction</li> <li>plants only need sunlight to keep them warm</li> <li>roots suck in water which is then sucked up the stem.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>certain whole food groups like fats are 'bad' for you</li> <li>certain specific foods, like cheese are also 'bad' for you</li> <li>diet and fruit drinks are 'good' for you</li> <li>snakes are similar to worms, so they must also be invertebrates</li> <li>invertebrates have no form of skeleton.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>rocks are all hard in nature</li> <li>rock-like, man-made substances such as concrete or brick are rocks</li> <li>materials which have been polished or shaped for use, such as a granite worktop, are not rocks as they are no longer 'natural'</li> <li>certain found artefacts, like old bits of pottery or coins, are fossils</li> <li>a fossil is an actual piece of the extinct animal or plant</li> <li>soil and compost are the same thing.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>the bigger the magnet the stronger it is</li> <li>all metals are magnetic</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>we can still see even where there is an absence of any light</li> <li>our eyes 'get used to' the dark</li> <li>the moon and reflective surfaces are light sources</li> <li>a transparent object is a light source</li> <li>shadows contain details of the object, such as facial features on their own shadow</li> <li>shadows result from objects giving off darkness.</li> </ul>
<b>Excellence</b>  <b>Enjoyment</b>  <b>Everyone</b>  <b>Everything</b>	Excellence-Recognise the significance of flower pollination and how God's creatures contribute this cycle  Enjoyment-Enjoy dissecting a flower to see the reproductive features  Everyone-Everyone needs flower reproduction to provide us with food  Everything-Know how flower reproduction works	Excellence-Recognise the significance of the human body and how incredible it is. God created you to be amazing  Enjoyment-Enjoy looking at the human skeleton and understanding what is within us internally  Everyone-Everyone have similar and different bodies, All deserve equality	Excellence-Recognise how incredible God's earth is and the importance that each rock plays in the earth's formation  Enjoyment-Enjoy observing a wide range of rocks and fossils first hand  Everyone-Everyone lives on an earth where different rocks are needed	Excellence- Appreciate the excellence of scientists who have discovered friction and magnetism throughout history  Enjoyment- Enjoy first hand experiences with magnetism and forces  Everyone-Everyone is affected by forces within God's earth. We learn to appreciate the forces and to use them successfully  Everything-Know the impact of push, pull and magnetism	Excellence- Appreciate God's earth and the impact that light has upon it  Enjoyment-Enjoy first hand experiences of forming shadows and exploring forms of light  Everyone-Everyone forms a shadow. Enjoy the impact of these on God's earth

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		Everything-Know why the human body has a skeleton	Everything-Know the difference between different rocks		Everything-Know the different forms of light and how shadows are formed
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