

	Autumn Term		Spring Term		Summer Term
Year 3	Rocks and fossils	Light	Humans and Digestion Healthy Eating inc. teeth	Forces and Magnets	Plants
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>Compare and group together different kinds of rocks based on their appearance and simple physical properties</li> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>Recognise that soils are made from rocks and organic matter</li> </ul>	<ul style="list-style-type: none"> <li>Recognise that they need light in order to see things and that dark is the absence of light.</li> <li>Notice that light is reflected from surfaces.</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</li> <li>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</li> <li>Find patterns in the way that the sizes of shadows change.</li> </ul>	<ul style="list-style-type: none"> <li>Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.</li> <li>Know how nutrients, water and oxygen are transported within animals and humans.</li> <li>Know about the importance of a nutritious, balanced diet.</li> </ul>	<ul style="list-style-type: none"> <li>Compare how things move on different surfaces.</li> <li>Know how a simple pulley works and use making lifting an object simpler</li> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</li> <li>Observe how magnets attract and repel each other and attract some materials and not others.</li> <li>Compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials.</li> <li>Describe magnets as having two poles.</li> <li>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers</li> <li>Explore the part flowers play in a flowering plants life cycle, including pollination, seed formation and seed dispersal</li> <li>Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants</li> <li>Know the way in which water is transported between plants</li> </ul>
<b>Working Scientifically Skills</b>	<ul style="list-style-type: none"> <li>Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>Setting up simple practical enquiries, comparative and fair tests</li> <li>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>Reporting on findings from enquiries, including oral and written explanations, displays or</li> </ul>	<ul style="list-style-type: none"> <li>Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>Setting up simple practical enquiries, comparative and fair tests</li> <li>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>Reporting on findings from enquiries, including oral and written explanations, displays or</li> </ul>	<ul style="list-style-type: none"> <li>Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>Setting up simple practical enquiries, comparative and fair tests</li> <li>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> </ul>	<ul style="list-style-type: none"> <li>Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>Setting up simple practical enquiries, comparative and fair tests</li> <li>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>	<ul style="list-style-type: none"> <li>Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>Setting up simple practical enquiries, comparative and fair tests</li> <li>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>Reporting on findings from enquiries, including oral and written explanations, displays or</li> </ul>

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<b>Enquiry</b>	<ul style="list-style-type: none"> <li>Classifying</li> <li>Fair test</li> </ul>	<ul style="list-style-type: none"> <li>Classifying</li> <li>Fair test</li> <li>Observation over time</li> </ul>	<ul style="list-style-type: none"> <li>Research</li> <li>Observation over time</li> </ul>	<ul style="list-style-type: none"> <li>Research</li> <li>Fair test</li> </ul>	<ul style="list-style-type: none"> <li>Research</li> <li>Classifying</li> <li>Fair test</li> <li>Observation over time</li> </ul>
<b>Scientist</b>	Mary Anning (Discovery of Fossils)	James Clerk Maxwell (Visible and Invisible Waves of Light)	Adelle Davis (20th Century Nutritionist)	William Gilbert (Theories on Magnetism)	Joseph Banks (Botanist)
<b>Vocabulary</b>	Rocks, igneous, metamorphic, sedimentary, anthropic, permeable, impermeable, chemical fossil, body fossil, trace fossil, Mary Anning, cast fossil, mould fossil, replacement fossil, extinct, organic matter, topsoil, sub soil, base rock.	Light source, dark, reflect, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent.	Nutrients, nutrition, carbohydrates, protein, fats, vitamins, minerals, water, fibre, Digestive system, tongue, mouth, teeth, oesophagus, stomach, gall bladder, small intestine, pancreas, large intestine, liver, tooth, canine, incisor, molar, premolar	Force, push, pull, friction, surface, magnet, magnetic, magnetic field, pole, north, south, attract, repel, compass	Air, light, water, nutrients, soil, support, anchor, reproduction, pollination, dispersal, transportation, flower, energy, growth, seedling, carbon dioxide, oxygen, sugar, material, photosynthesis, chlorophyll
<b>Sticky Knowledge</b>	<ul style="list-style-type: none"> <li>There are different types of rock.</li> <li>There are different types of soil.</li> <li>Soils change over time.</li> <li>Different plants grow in different soils.</li> <li>Fossils tell us what has happened before. • Fossils provide evidence.</li> <li>Palaeontologists use Fossils to find out about the past.</li> <li>Fossils provide evidence that living things have changed over time.</li> </ul>	<ul style="list-style-type: none"> <li>There must be light for us to see. Without light it is dark.</li> <li>We need light to see things even shiny things.</li> <li>Transparent materials let light travel through them, and opaque materials don't let light through.</li> <li>Beams of light bounce off some materials (reflection).</li> <li>Shiny materials reflect light beams better than non-shiny materials.</li> <li>Light comes from a source</li> </ul>	<ul style="list-style-type: none"> <li>Different animals are adapted to eat different foods.</li> <li>Animals have teeth to help them eat.</li> <li>Different types of teeth do different jobs.</li> <li>Food is broken down by the teeth and further in the stomach and intestines where nutrients go into the blood.</li> <li>The blood takes nutrients around the body.</li> </ul>	<ul style="list-style-type: none"> <li>Magnets exert attractive and repulsive forces on each other.</li> <li>Magnets exert non-contact forces, which work through some materials.</li> <li>Magnets exert attractive forces on some materials.</li> <li>Magnet forces are affected by magnet strength, object mass, distance from object and object material.</li> </ul>	<ul style="list-style-type: none"> <li>Plants are producers, they make their own food.</li> <li>Their leaves absorb sunlight and carbon dioxide</li> <li>Plants have roots, which provide support and draw water from the soil</li> <li>Flowering plants have specific adaptations which help it to carry out pollination, fertilisation and seed production</li> <li>Seed dispersal improves a plants chances of successful reproduction</li> <li>Seeds/bulbs require the right conditions to germinate and grow.</li> <li>Seeds contain enough food for the plant's initial growth</li> </ul>

<p style="text-align: center;"><b>Key questions</b></p>	<ul style="list-style-type: none"> <li>• How are the soils different?</li> <li>• Which do you think has best drainage?</li> <li>• Which is more likely to lead to flooding?</li> <li>• How many soil types have we found?</li> <li>• Where might you find more?</li> <li>• How might the soil be different in different countries?</li> <li>• What rock is best for a kitchen chopping board? What might be the issues with various materials and what they must withstand?</li> <li>• What types of rocks are there?</li> <li>• How do rocks change?</li> <li>• What would grow best in your soil?</li> <li>• Why do you think worms are important to the creation of soil?</li> <li>• How can we use composting to make our own soil?</li> <li>• Does it currently look like real soil?</li> <li>• How long do you think this process will take and why?</li> <li>• How are fossils created?</li> <li>• Why do fossils help us find out about historical events?</li> <li>• If you could fossilise an object what would it be?</li> </ul>	<ul style="list-style-type: none"> <li>• A coin is lost, what would be the best way to find it? (Turn the lights out and see it shine? Use a torch to see it reflect?)</li> <li>• How does distance from a light source affect how bright it looks?</li> <li>• How does being in darkness affect your sense of hearing?</li> <li>• What colour would be the best to make a safety jacket from?</li> <li>• How does the colour of a material affect how reflective it is?</li> <li>• What would be the best material to make a blind for a baby's room?</li> <li>• How does thickness of a material affect how much light can pass through it?</li> <li>• How many pieces of tracing paper are as translucent as a single piece of white paper?</li> <li>• How does the shape of a mirror affect how the light reflects?</li> <li>• How can we change the darkness, size and shape of a shadow?</li> </ul>	<ul style="list-style-type: none"> <li>• What different types of food are there?</li> <li>• Why do we need a variety of different foods?</li> <li>• Why do some people need different diets? (weightlifter vs marathon runner)</li> <li>• Why are teeth important?</li> <li>• What happens to our food?</li> <li>• What is our digestive system?</li> <li>• How does our food turn into poo and wee?</li> </ul>	<ul style="list-style-type: none"> <li>• What are magnetic materials? How can we find out?</li> <li>• Can I make a magnetic material non-magnetic?</li> <li>• How far away does a magnet have to be before it attracts a magnetic material?</li> <li>• How far away can the magnetic attraction between two magnets be experienced?</li> <li>• Is the repulsive force the same size?</li> <li>• How is the magnetic attraction of repulsion force affected by putting materials between the magnets?</li> <li>• Are bigger magnets stronger?</li> <li>• How could you use magnets to measure the number of pages in a book?</li> </ul>	<ul style="list-style-type: none"> <li>• How do plants reproduce?</li> <li>• Do all flowers look the same?</li> <li>• How do insects know which flowers to pollinate?</li> <li>• Why do flowers smell?</li> <li>• What do seeds do?</li> <li>• Can a plant live without its leaves?</li> <li>• Do grass/trees make flowers?</li> <li>• What conditions are perfect for a seed to grow?</li> <li>• Where do weeds come from?</li> <li>• How does the space between seeds affect how well they grow?</li> <li>• Does seed size match plant size?</li> <li>• Do plants take in water through their roots?</li> <li>• How does water move through the plant?</li> <li>• How do plants make their food?</li> <li>• How does light affect plant growth?</li> <li>• How does a plant get carbon dioxide?</li> </ul>
<p style="text-align: center;"><b>Prior Learning</b></p>	<p><b>In Year 2 children should:</b></p> <ul style="list-style-type: none"> <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.</li> <li>• Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Children may:</li> <li>• May have some understanding of a variety of different rocks in the natural world.</li> <li>• Some understanding of what soil is. (how to identify soil etc)</li> <li>• May have some knowledge of what a fossil is.</li> </ul>	<p><b>In Year 1 children should have:</b></p> <ul style="list-style-type: none"> <li>• Observed changes across the four seasons</li> <li>• Observed and describe weather associated with the seasons and how day length varies.</li> </ul> <p><b>Children</b> may have some knowledge of where light comes from.</p> <ul style="list-style-type: none"> <li>• have seen their shadows and may know they appear when it is sunny.</li> <li>• Have some understanding of a reflection.</li> <li>• May understand they need light to be able to see things.</li> </ul>	<p><b>In Year 2 children should:</b></p> <ul style="list-style-type: none"> <li>• Know that animals, including humans, have offspring which grow into adults</li> <li>• Know the basic stages in a life cycle for animals, including humans.</li> <li>• Find out and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	<p><b>In Year 2 children:</b></p> <ul style="list-style-type: none"> <li>• May have an awareness of how to make things stop and start, using simple pushes and pulls.</li> <li>• They may know about floating and sinking</li> </ul>	<p><b>In Year 2 Children should:</b></p> <ul style="list-style-type: none"> <li>• Observe and describe how seeds and bulbs grow into mature plants.</li> <li>• Find out and describe how plants need water, light and warmth to grow and stay healthy.</li> </ul>
<p style="text-align: center;"><b>Future Learning</b></p>	<p><b>In Year 4 children will:</b></p>	<p><b>In Year 6 children will:</b></p> <ul style="list-style-type: none"> <li>• Recognise that light appears to travel in straight lines.</li> </ul>	<p><b>In Year 4 children will:</b></p> <ul style="list-style-type: none"> <li>• Construct and interpret a variety of food chains,</li> </ul>	<p><b>In Year 5 children will:</b></p> <ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of</li> </ul>	<p><b>In Year 6 Children will:</b></p> <ul style="list-style-type: none"> <li>• Recognise that living things have changed over time and that fossils</li> </ul>

	<ul style="list-style-type: none"> <li>• Compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>• Observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius.</li> <li>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. In Year 6 children will:</li> <li>• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> </ul>	<ul style="list-style-type: none"> <li>• Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li> <li>• Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li> <li>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.</li> </ul>	<p>identifying producers, predators and prey</p>	<p>gravity acting between the Earth and the falling object and the impact of gravity on our lives.</p> <ul style="list-style-type: none"> <li>• Identify the effects of air resistance, water resistance and friction, which act between moving surfaces.</li> <li>• Recognise that some mechanisms, including levers, pulleys, and gears, allow a smaller force to have a greater effect.</li> <li>• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>• Describe the movement of the Moon relative to the Earth</li> <li>• Describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• Describe the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<p>provide information about living things</p> <ul style="list-style-type: none"> <li>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• Identify how animals and plants are adapted to suit their environment in different ways, and that adaptation can lead to evolution.</li> </ul>
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