

KFJS
Science Curriculum Map

In each project children will: build excitement and curiosity about natural phenomena by using science to explain, predict and analyse the way things behave.

Year 4

Project	States of matter (Geog link - water cycle)	There She Blows (Geog link – volcanoes, mountains and earthquakes)	Living things and their habitats Animals including humans	Buzz! Electricity
Key Question	How do materials change state?	What do rocks tell us about the way the Earth was formed?	Why can we move?	How does electricity light a bulb?
Essential understanding	<p>Materials can change state when heated or cooled. When water is heated, it evaporates and when water vapour is cooled, it condenses.</p>	<p>Igneous, sedimentary, and metamorphic rocks make up the world around us. Fossils are formed when things that were once living are trapped in rock.</p>	<p>Animals cannot make their own nutrition and must take their nutrients from plants or meat to survive. Some animals have skeletons and muscles, which protect organs and allow them to move. Humans have three main types of teeth canines, incisors and molars. Humans take their nutrition from food, which travels through the digestive system – the mouth, stomach, and intestines all play an important role.</p>	<p>A circuit must be complete for electricity to flow. Materials can be sorted into conductors (allow electricity to flow) and insulators (do not allow electricity to flow).</p>
Objectives	<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p>	<p>Animals including humans, need the right types and amount of nutrition and that they cannot</p>	<p>Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its</p>

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	<p>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.</p>	<p>make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions</p>	<p>basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamplight in a simple series circuit Recognise some common conductors and insulators, and associate metal with being good conductors.</p>

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			Construct and interpret a variety of food chains, identifying producers, predators and prey.	
Working scientifically	Ask relevant questions and use scientific enquiries to answer them. Make systematic and careful observations and take accurate measurements using standard units, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Use results to draw simple conclusions, make predictions for new vales, suggest improvements and raise further questions.	Identify differences, similarities or changes related to simple scientific ideas or processes.	Set up simple practical enquiries, comparative and fair tests. Report on findings from enquiries, including oral and written explanations, displays or presentations of results or conclusions.	Make systematic and careful observations and take accurate measurements using standard units including with data loggers where appropriate.

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Skills	Explain what happens when materials, including water, are heated or cooled.	Identify igneous, sedimentary, and metamorphic rocks and know how fossils are formed. With help, select from a small range equipment and use these to take measurements. Begin to use simple scientific language when communicating their ideas with others. Begin to give reasons for similarities and differences. Use prior understanding and given secondary sources to support own findings.	Understand that animals cannot make their own nutrition and must take their nutrients from plants or meat to survive. Explain the purpose of skeletons and muscles. Identify three main types of human teeth canines, incisors and molars. Understand how the human digestive system works. Understand how the human digestive system works. Choose own equipment and use this to set up an investigation. Form a conclusion using own data and then use this to make a prediction for a related investigation. Share results and simple patterns verbally with others and through a range of written methods using an increasing range of technical language and a growing clarity.	Create a complete circuit. Sort materials into conductors and insulators.

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Assessment	Give children a range of materials (can be pictures) to sort according to state and then identify what would happen to them if they are heated/ cooled.	Give children a picture to label that contains a cross section of layers of the Earth's surface e.g. Cliffs and a volcano for them to identify different rock types.	Give children the resources (e.g. Outer body, muscle layer, skeleton and internal organs) so that they can create a layered lift the flap style booklet of the human body to explain why and how we move. Could be presented as something they're making to teach younger children.	Give children pictures of closed and open circuits that include a range of switches for them to judge if the bulb will light
WTS	Able to sort different materials into liquids, solids and gases but may need support with trickier materials e.g. Salt (it pours).	Sort and identify where we might find igneous, sedimentary and metamorphic.	Identify that bones help us stand up and muscles help us move and that food is digested by internal organs	Can identify that a bulb will light in a simple circuit and a closed circuit that includes a switch.
EXS	Able to sort a range of materials and identify some materials that will change state when heated/ cooled e.g. Water and chocolate.	Identify three types of rocks and give some extra details such as where fossils may be likely to be discovered.	Skeleton and muscles keeps up right, movement and for protection; label key processes in digestive system	Identify if a bulb will light with increasing accuracy may make a few mistakes if there is more than switch or the circuit is overloaded (e.g. Too many bulbs).
GDS	Confidently sorts a range of materials and identifies both those that change state and those that do not.	More confidence and competence as demonstrate where different rock types occur and where and types of fossils that can be found.	As above with increasing detail.	As above with few/ no mistakes including recognising if a circuit is overloaded and may give extra detail as to why a bulb may not light.