



Science at Beckford



We believe that Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

- THIS CURRICULUM MAP IS TO BE USED IN CONJUNCTION WITH THE A.S.E. PLANNING MATRICES AND OGDEN TRUST RESOURCES

Aim to ensure all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

YEAR 3	Autumn 1	Autumn 2	Spring	Summer 1	Summer 2	YEAR 3
Topic Title	FIELD TO FORK	VICTORIAN SCHOOLS	STONE AGE/CHANGING PLANET	BRITAIN FROM THE AIR	BRITAIN FROM THE AIR	Topic Title
Science Unit	Animals Light including humans	Light	Rocks	Plants	Forces and magnets	Science Unit
Knowledge	<p>Pupils should be taught to: 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 animals have skeletons and muscles for support, protection and movement.</p>	<p>Pupils should be taught to: 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 a solid object</p> <p>Find patterns in the way that the sizes of shadows change.</p>	<p>Pupils should be taught to: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe 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>Pupils should be taught to: Identify and describe the functions of different parts of plants; roots, stem, leaves and flowers.</p> <p>Explore the requirements of plants for life and growth (air, light, nutrients from soil and room to grow) and how they vary from plant to plant.</p> <p>Investigate the ways in which water is transported within plants.</p> <p>Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>	<p>Pupils should be taught to: 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</p>	Knowledge

					having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.	
Plants	I recognise that plants need light, warmth and water to grow and that plants need healthy leaves, roots and stems to grow well.	I know that different plants need different conditions to grow well.	I can explain why plants need healthy roots and stems by investigating how water is transported in a plant.	I can name the parts of a flower and the part these play in the life cycle of the plant.	I can explain how pollen and seeds are dispersed and how seeds develop.	
Animals, including humans	I can describe a healthy and varied diet.	I know that humans and some other animals have a skeleton and can describe the main functions of my skeleton.	I can name some of the bones in my skeleton and compare these with the skeletons of other animals.	I know that I use my muscles and skeleton to move. I know that when one muscle contracts another relaxes and can use a model to show how this happens.	I can research different food groups and how they keep us healthy. I can use my research to design menus for different people.	
Rocks	I know that rocks are found under the ground we walk on and can name some common rocks.	By observing and testing different rocks, I can group them by their properties and appearance. I know that the different properties of rocks make them suitable for different purposes.	I can group rocks according to the way they were formed, using the vocabulary, igneous, sedimentary and metamorphic.	I can explain how fossils are formed, and can research more about the living things whose fossils have been found.	I can identify similarities and differences between different types of soil.	

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Light	I know that I cannot see in the dark. Dark is the absence of light and we need light to see. I can explain why it is dangerous to look at the sun and can tell you what to do to protect your eyes.	I can explain that I cannot see shiny objects in the dark because they are not light sources. I know that to see something light must reflect off it.	I know that shadows are similar in shape to the objects forming them and that the shadows caused by the sun change over the course of the day.	I can explain that shadows are formed when light is blocked. I can investigate how the size of shadows change depending on the position of the object blocking the light.	I can explain why there are changes in shadows caused by the sun over the course of a day and can predict changes by observing patterns.	
Forces and Magnets	I can compare how things move on	I know that some forces need contact	I can compare and group together a			

	different surfaces	<p>between two objects, but magnetic forces can act at a distance</p> <p>I can observe how magnets attract or repel each other and attract some materials and not others</p>	<p>variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p>			
Skills	<p>Raising Questions. They should be given a range of scientific experiences to enable them to raise their own questions about the world around them.</p> <p>Choosing a suitable scientific enquiry. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions</p> <p>Observations. They should help to make decisions about what observations to make, how long to make them for. They should make systematic and careful observations.</p> <p>Fair testing. Recognise when a fair test is necessary.</p> <p>Sorting and classifying. Talk about the criteria for grouping, sorting and classifying and use simple keys.</p> <p>Secondary sources. They should recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.</p> <p>Choosing equipment. They should help to make decisions about the type of simple equipment that might be used. They should learn how to use new equipment, such as a data loggers and thermometers, appropriately.</p> <p>Collecting data. They should collect data from their own observations and measurements.</p> <p>Measuring. They should use standard units.</p> <p>Recording. They should make decisions as to how to record. They should record in notes, drawings, labelled diagrams, bar charts and simple tables. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.</p> <p>Analysing data. They should make decisions as to how to analyse the data. They should begin to look for patterns and decide what data to collect to identify them. Pupils should look for changes, patterns, similarities and differences in their data in order to draw conclusions</p>					
Working	I can ask	I can ask relevant	I can use models to			

Scientifically Ideas and evidence	questions and recognising that they can be answered in different ways.	questions and using different types of scientific enquiries to answer them.	describe scientific ideas..			
W S Planning Experimental Work	I can identify and classify. I can perform tests using equipment, observing closely.	I can set up practical enquiries, comparative and fair tests making accurate and careful observations.	I can take accurate measurements using standard unit.			
W S Obtaining and Presenting Evidence	I can gather and record data to help in answering questions.	I can gather, record, classify and present data in a variety of ways to help in answering questions.	I can record findings using scientific language, drawings, labelled diagrams, keys, bar charts, and tables			
W S Considering Evidence and Evaluating	I can use my observations and ideas to suggest answers to questions	I can use results to draw conclusions and suggest improvements	I can suggest new questions and predictions for new values in my results. I can identify differences, similarities or changes using my knowledge of scientific ideas and processes. .			