

Pudsey Bolton Royd Primary School Science Long-Term Plan

Year 3

<u>Autumn 1</u>	<u>Autumn 2</u>	<u>Spring 1</u>
Enquiry Questions		
Aren't all rocks the same?		
Outcomes		
Can you create a classification key to identify each of the rocks in your collection? (Identifying and classifying) Pupils use a variety of investigations to distinguish between rocks and produce a classification key.	Do male humans have larger skulls than female humans? Pattern seeking Written conclusion of their results from enquiry.	
Linked Texts		
Dinosaur Lady: The daring discoveries of Mary Anning, the first paleontologist	The brilliant book of animal bones	
Linked Experiences		
Rocks, fossils and soils (Skelton Grange visit or National Coal Mining Museum)s	N/A	
Overview		
In this unit, pupils will use careful observations as well as accurate scientific enquiries to distinguish between a variety of rock types. They will study the work of Mary Anning in order to understand how fossils are formed. Pupils will learn to categorise types of soils through practical, hands-on activities and recognise how soils are formed. Through their main enquiry type of identifying and classifying, pupils will categorise rocks based on their appearance, hardness and porosity, using accurate scientific vocabulary to describe their properties.	Building on their understanding of what humans need to survive from Year 2, pupils will classify different foods into the main food groups. They will investigate the role of each food group in the body and how it keeps us healthy. Through the main enquiry type of pattern seeking, pupils will investigate the relationship between the size of a human skull and the gender. They will learn to write scientific conclusions based on their results, commenting on what their results show. From this, pupils will then ask follow-up questions to form their basis of their own investigations.	
Knowledge and/or Skills Covered		
Independently select and use sources to satisfy their curiosity about science. Start categorising (i.e. suggesting umbrella terms). Start to comment on scientific changes, including suggestions about cause and effect. Start to link results to scientific language and subject knowledge.	Start to frame predictions in scientific language & concepts. Show understanding of 'fair testing'. Start to take accurate measurements (e.g. nearest mm, gram, degree). Start to frame questions/ answers in scientifically valid ways (e.g. about change, difference). Explain observations, results and conclusions verbally and in writing, and in age-appropriate graphic form (e.g. bar charts instead of blocks) Use IT to create more complex graphs (e.g. line graph, pie chart).	
National Curriculum Attainment Targets		

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Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that lived are trapped within a rock. Recognise that soils are made from rocks and organic matter.	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, using thermometers and data loggers. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 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.	
Important Vocabulary		
Sand, silt, clay, porous, (im)permeable, igneous, metamorphic, sedimentary.	In)vertebrates, spine/backbone, joints, bones, muscles, contraction, tendons, protection, nutrition, food groups, protein, carbohydrate.	

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<u>Spring 2</u>	<u>Summer 1</u>	<u>Summer 2</u>
Enquiry Questions		
What causes objects to move?	Why is water so important to plants?	How is a shadow formed?
Outcomes		
Does the size and shape of a magnet affect how strong it is? (pattern seeking)	What happens to celery when it is left in a glass of coloured water? (observing over time)	How does the distance between the shadow puppet and the screen affect the size of the shadow? (fair test)
Written prediction and linked conclusion with possible further enquiry questions.	Labelled scientific diagram with simple notes explaining what is happening.	Table of results showing relationship between size of shadow and distance from light source.
Linked Texts		
Why doesn't the moon fall down?	How can a plant eat a fly?	Why does a mirror show things back to front?
Linked Experiences		
Overview		
During this unit, pupils will explore magnetic forces and explain how they act as a distance. Pupils will investigate magnetic materials and begin to make links between them. As well as this, pupils will investigate what happens when two magnets are placed near each other, commenting on the two poles and how then interact. Pupils will then investigate the force of different types of, forming their own methodology to test their magnetism before writing a clear conclusion of their results. Finally, pupils will explore the impact of friction. They will use a friction ramp to investigate how the surface can affect the amount of friction.	Building on their knowledge from Year 1 and Year 2, pupils will name the functions of different parts of flowering plants as well as describe their functions. Pupils will explore the requirements for plant life through practical investigations, comparing and contracting the impact on the plant (eg. Plant grown in the dark and plant grown without water). Pupils will then explore how water is transported through a plant, using coloured water to show how water moves from the roots and out of the leaves of a plant. Finally, pupils will look at the function of flowers in the life cycle of a plant, looking at the necessity of pollinators in the reproduction of plants.	In this unit, pupils will explore how shadows are formed by an object blocking light. They will investigate how the size, shape and opacity of an object will affect a shadow, using shadow puppets in order to explore this. Pupils will be able to explain how we need light in order to see as light is reflected off objects and into our eye. Pupils will use a dark box to support this, allowing more light in each time they look in. Pupils will then design their own sunglasses, choosing the most suitable material in order to block out the most light. Pupils will investigate this using a light meter and explain why some light passing through is necessary.
Knowledge and/or Skills Covered		
Verbally explain their plans, in a context given to them, using technical vocabulary and starting to link to different types of scientific enquiry Using technical vocabulary, make basic evaluations about their prediction (e.g. was it reasonable?) and methodology (e.g. was it difficult to measure?) Start to suggest further enquiry questions	Start choosing simple scientific vocabulary instead of everyday words Take simple notes (i.e. abbreviations, simplified grammar) but start to include scientific language. Use jotted tables and diagrams, subdivided lists etc.	Use a range of observation equipment, e.g. microscope, data logging Start to take accurate measurements (e.g. nearest mm, gram, degree) Use simple data-logging equipment
National Curriculum Attainment Targets		
Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance.	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.	Recognise they need light in order to see things and that dark is the absence of light. Notice that light is reflected on surfaces.

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Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Set up simple practical enquiries, comparative and fair tests.	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. Investigate the way in which water is transported in plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Use straightforward scientific evidence to answer questions or to support their findings.	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change. Gather, record, classify and present data in a variety of ways to help in answering questions.
Important Vocabulary		
Force, Gravity, Friction, Magnet(ic), Attract, Repel, North/South pole, Bar/ring/button/horse-shoe magnet, Iron, Copper, Aluminium, Steel, Brass, Nickel	Deciduous, Evergreen, Absorb, Fertiliser, Transported, Pollination, Pollen, Hypothesis, Observe	Light source (and names e.g. torch), Light wave, Reflect(ive), Mirror, Block/absorb, Opaque, Emit, Data logger