

Year Group 3

Term 1

Forces and Magnets



Plants



Forces and Magnets



Light




Rocks



Animals Including Humans



Enquiry Question	What are the forces that help us on earth?		
Scientific Enquiry	<ul style="list-style-type: none"> To be able to make systematic and careful observations. To be able to ask relevant questions and use different scientific enquiry to answer them. To be able to identify differences and similarities. 		
NC Objectives	<ul style="list-style-type: none"> Compare how things move on different surfaces. Notice that some forces need contact between 2 objects. Magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together materials on the basis of whether they are attracted to a magnet and magnetic materials. Describe that magnets have 2 poles and will attract or repel each other, depending on which poles are facing. 		
Curriculum Coherence	Prior Knowledge Early Years curriculum – Forces <ul style="list-style-type: none"> What happens when you push or pull something Sinking and floating 		Future Learning Explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and falling object. (Y5) Identify the effects of air resistance, water resistance and friction. Recognise the some mechanisms including levers, pulleys and gears, allow a smaller force to have greater effect. (Y5)
	Vocabulary Force, friction, motion, texture, magnet, attract, repel, magnetic field, magnetism, compass.	High Quality Text Story: The Giant Turnip 	Misconceptions A force is always visible. All forces cause motion.

Year Group 3

Term 1

Forces and Magnets



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Rocks



Animals including Humans



Unit Summary: This unit 'Forces and magnets' takes children through six lessons where they learn how to: **compare how things move on different surfaces; notice that some forces need contact between 2 objects, but magnetic forces can act at a distance; and observe how magnets attract or repel each other and attract some materials and not others.** Children learn how to **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; describe magnets as having 2 poles** and they learn how to **predict whether 2 magnets will attract or repel each other, depending on which poles are facing.**

Knowledge Sequence	Lesson 1 – What is a force? During the lesson the children are identifying the difference between contact and non-contact forces. During this they explore the idea of pushing and pulling object and the impacts they have. The children explore the different forces that are enacting when throwing, catching, sliding, kicking, sanding, cutting. DE Lesson 1
	Lesson 2 – How does friction impact how things move? Within this lesson the children are encouraged to think about how objects move across surfaces and the role friction plays in slowing objects down. The children that the rougher the surface, the stronger the force of friction will be and therefore the slower the object will move. Consider ways in which friction helps us in real life. DE lesson 2
	Lesson 3 – Why are there 2 poles on a magnet? During this lesson the focus shifts to look at magnets and explains that all magnets have a north pole and a south pole. Magnetism is a non-contact force which means it can cause objects to move without touching them. Surrounding magnets are a magnetic field and the different poles of the magnet will attract or repel certain objects. DE lesson 3
	Lesson 4 – Are all materials magnetic? This lesson progresses the children's learning to think about the learning from the previous lesson where they explore items that are magnetic and non-magnetic. They will consider that magnets have a magnetic field and that poles attract and repel. From this, they begin to explore what these items have in common. DE Lesson 4
	Lesson 5 – Which has the strongest pull? Next up the children begin to look at how magnetism is a force that can act at a distance. Show how magnets can be useful in separating magnetic materials and non-magnetic materials for recycling purposes. The children will then begin to explore the distance at which the magnetic pull will cause the paper clip to move. DE Lesson 5
	Lesson 6 – Is the earth magnetic? During this final lesson in the sequence, the children will explores how magnets are used in everyday life, including how a compass works. The children will learn that the Earth has a magnetic north and south pole which the needle of a compass is attracted to. Explore other household objects that use magnets. DE Lesson 6
Aspiration	Your key knowledge will help you to be one of the following: railway engineer, software engineer, rail track maintenance worker.
Scientist/Historical figure	william Gilbert - William Gilbert Biography & Facts Britannica – Developed the theory of magnetism.

Year Group 3

Term 2

Rocks



Plants



Forces and Magnets



Light

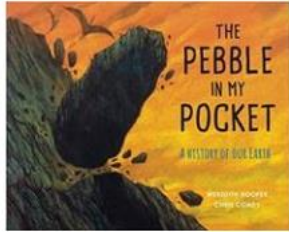


Rocks



Animals including Humans



Enquiry Question	How were different rocks formed and what can they tell us?		
Scientific Enquiry	<p>To ask relevant questions and use different types of scientific enquiry.</p> <p>To make systematic and careful observations using a range of equipment.</p> <p>To be able to identify differences, similarities or changes related to simple scientific ideas and processes.</p>		
NC Objectives	<p>Compare different types of rocks based on their appearance and similar physical properties.</p> <p>Describe how fossils are formed when living things have been trapped. Know that soils are made from rocks and organic matter.</p>		
Curriculum Coherence	Prior Knowledge:		Future Learning
	<p>Vocabulary</p> <p>Igneous, magma, sedimentary, metamorphic, weathering, acid rain, erosion, fossil, decompose, fragments.</p>	<p>High Quality Text</p> 	<p>Misconceptions</p> <p>Rocks are static. Rocks are all the same.</p> <p>Rocks are only found on land.</p> <p>All fossils are dinosaur bones</p>

Year Group 3

Term 2

Rocks



Plants



Forces and Magnets



Light



Rocks



Animals including Humans



Unit Summary: This unit on '**Rocks**' takes children through six lessons where they learn how to **compare and group together different kinds of rocks on the basis of their appearance and simple physical properties**. They learn how to **describe in simple terms how fossils are formed when things that have lived are trapped within rock** and finally they learn how to **recognise that soils are made from rocks and organic matter**.


Knowledge Sequence	<p>Lesson 1 – How are igneous rocks formed? Links made to Geography, the structure of the earth and its different layers. Explore with the children that there are 3 main types of rock and igneous is one of these that is formed from the solidification of magma or lava which are molten rocks which occur from melting pre-existing rocks deep in the earth's core. As the molten rock cools it forms an igneous rock. The lesson will use a practical observation to allow them to observe the structure of the 2 different types of igneous rock. DE Lesson 1</p>
	<p>Lesson 2 – How do metamorphic and sedimentary rocks form? Within this lesson the children will revisit the concept that there are two different types of igneous rock, how their structure differs and how they are formed. Following this the children will look at the process involved in the metamorphic and sedimentary rocks are formed. Using a range of rocks the children will investigate and identify the different types of rock but also characterise them using the headings: durability, permeability, density, crystals. They will link this back to the process of how the rocks have been formed. DE lesson 2</p>
	<p>Lesson 3 – Which rock is best used for....? During this lesson the focus shifts to go through the different types of weathering that rocks have to endure: chemical weathering, physical weathering and biological weathering. Explore the process but using different forms of acid and weathering to show the impact on different rocks. The children will then apply this to a real life situation to consider the best type of rock to be used for different projects. Pupils will need to rationalise with scientific knowledge and exploration. DE lesson 3</p>
	<p>Lesson 4 – What is the impact of weathering on rocks? This lesson progresses the children's learning to consider how the children will learn how rocks can be weathered and eroded by water. They will begin to understand why it is important to understand the effects water has on rocks when choosing the most appropriate rocks for outdoor structures. During the investigation the children will explore the impact of water on different rocks when water is added. Link to the impacts of coastal erosion in seaside towns/areas. DE Lesson 4</p>
	<p>Lesson 5 – How are fossils formed? This lesson provides the opportunity for children to consider that fossils are the preserved remains or traces of ancient organisms, which can provide valuable insights into the history of life on Earth. Fossils are formed through a series of steps that occur over a very long period of time. Link to history and Mary Anning DE Lesson 5</p>
	<p>Lesson 6 – How can we measure how much rain falls? During this final lesson, the children about different types of soil. They will learn that certain types of flowers and vegetables will grow better in different types of soil. They will also learn how it is important for farmers to understand this so they can grow crops more effectively. DE Lesson 6</p>
Aspiration	Your key knowledge will help you to be one of the following: Geologist, palaeontologist, Volcanologist, Nuclear Scientist.
Scientist/Historical figure	Florence Bascom - Florence Bascom - Trowelblazers – Geologist. Link to their History learning from Y2 – Mary Anning.

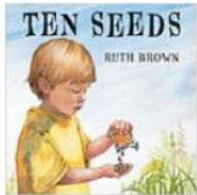


Year Group 3

Term 3

Plants

Plants  Forces and Magnets  Light  Rocks  Animals including Humans 

Enquiry Question	How do plants survive and thrive?		
Scientific Enquiry	Ask relevant scientific questions and answer them whilst making systematic observations using a range of equipment. Set up practical enquiries, comparative and fair tests. To gather and present relevant data to answer questions.		
NC Objectives	Identify and describe the functions of different parts of the flowering plant and the requirements of plants for life and growth. Investigate the way water is transported within plants. Explore the part that flowers play in the life cycle from pollination, seed formation to dispersal.		
Curriculum Coherence	Prior Knowledge Identify and name common wild and garden plants including the deciduous and evergreen trees. (Y1) Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y2)		Future Learning Recognise that living things have changed over time and fossils provide information on living things. (Y6) Identify how plants are adapted to suit their environment in different ways and adaption may lead to evolution. (Y6)
	Vocabulary Fertiliser, Potassium, Chlorophyll, photosynthesis, xylem, phloem, anther, filament, stomata, transpiration, pollen, nectar.	High Quality Text 	Misconceptions Plants obtain their food from the soil: All seeds are dispersed by wind.

Year Group 3

Term 3

Plants



Plants



Forces and Magnets



Light



Rocks



Animals Including Humans



Unit Summary: This unit 'Plants' takes children through six lessons where they learn how to: **identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.** They **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. They learn how to **investigate the way in which water is transported within plants** and finally they **learn how to explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**

Knowledge Sequence	<p>Lesson 1 – How do plants grow? During the lesson the children explore what the effects are on a plant when the different requirements are impacted. At the start of this lesson, it will be essential to go through and check that all children can recall the Y2 information on plants requirements. The children will set up an experiment that will explore the impacts of reducing certain key requirements for plant growth, comparing them with a control plant. Predictions will be collected and review at the end of the unit. DE Lesson 1</p>
	<p>Lesson 2 – What is photosynthesis and which parts of the plant are responsible? Within this lesson the children will be recapping on the previous learning from KS1, ask the children to identify the basic part of a plant (roots, stem/trunk, leaves and flowers). In this lesson, the children will learn more about the functions of these parts and how they are used in photosynthesis. Discuss how the roots absorb nutrients and water from the soil. Sap carries these nutrients through the stem and into other parts of the plant. Pupils will identify the parts responsible and the byproducts of the process. DE lesson 2</p>
	<p>Lesson 3 – How is water transported through a plant? During this lesson the children will initially recap the learning around the process of photosynthesis. They will review the onion experiment to see how the roots have grown. The children will begin by exploring Celery where they can look at the xylem and phloem. To allow the children to visualise the process of water moving up a plant, they will set up an experiment with cut plants and dye to see this process in action. DE lesson 3</p>
	<p>Lesson 4 – How do plants reproduce? This lesson progresses the children's learning to consider how the parts and functions of plants that have been taught in previous lessons. Explain that the children will be learning about the function of flowers and their role in the reproduction of the plant. Discuss what reproduction means and what the children already know about the role flowers play. Look at the key reproductive parts of the plant and the impact insects can have on that process. DE Lesson 4</p>
	<p>Lesson 5 – Do all plants reproduce in the same way? This lesson explores the idea that pollination is the process by which pollen from the male reproductive structure of a flower (stamen) is transferred to the female reproductive structure of another flower (pistil), leading to the fertilisation of the ovules in the pistil and the formation of seeds. The transfer of pollen can occur in a variety of ways including: Insects, wind, self-pollination, water, gravity. DE Lesson 5</p>
	<p>Lesson 6 – What factor has the greatest impact on plant growth and survival? During this final lesson in the sequence, we will refer back to the experiment from week 1 which investigated the impact of removing key requirements for plant growth. The children will compare their initial prediction to the actual outcome and use their newly acquired knowledge to explain why this has occurred. DE Lesson 6</p>
Aspiration	Your key knowledge will help you to be one of the following: landscaper, biologist, ecologist, famer worker/farmer.
Scientist/Historical figure	Jan Ingenhousz - Jan Ingenhousz - Scholars Britannica Kids Encyclopedia Discovered the process of photosynthesis.

Year Group 3

Term 4

Light



Plants



Forces and Magnets



Light




Rocks



Animals including Humans



Enquiry Question	Do I need light to see?		
Scientific Enquiry	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them. Record the findings with Scientific drawings, language and diagrams. Make systematic and careful observations using a range of equipment. 		
NC Objectives	<ul style="list-style-type: none"> Know that they need light to see things and that dark is the absence of light. Notice that light is reflected from surfaces. 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 the shadows change. 		
Curriculum Coherence	Prior Knowledge Year 1 curriculum – Animals including humans: All about me <ul style="list-style-type: none"> Learn about your eyes and sight 		Future Learning Recognise that light appears to travel in straight lines and that objects can be seen because they reflect or give out light. (Y6) Explain that we see things because light travels from light sources to our eyes. Understand shadows have the same shape as the object that cast them (Y6)
	Vocabulary Light, reflect, vitamin D, ultraviolet rays, fluorescent, shadow, ray, cast, position, shape, puppet.	High Quality Text 	Misconceptions The size of a shadow is equal to the size of the object. Light cannot pass through objects. Light is only emitted by a light source.

Year Group 3

Term 4

Light



Plants



Forces and Magnets



Light



Rocks



Animals including Humans



Unit Summary: This unit 'Light' takes children through six lessons where they learn how to: **recognise that they need light in order to see things and that dark is the absence of light;** **they notice that light is reflected from surfaces;** and **recognise that light from the sun can be dangerous and that there are ways to protect their eyes.** Children learn how to **recognise that shadows are formed when the light from a light source is blocked by an opaque object;** and **they find patterns in the way that the size of shadows change.**

Knowledge Sequence	<p>Lesson 1 – Is the sun the only source of light? During this lesson the children learn that there are light sources that make light; we see these because the light travels directly into our eyes. They will also discover that there are non-light sources that we can see because light reflects off them and into our eyes. Children will learn about natural and artificial light sources. They will then attempt to categorise them base on these headings. DE Lesson 1</p>
	<p>Lesson 2 – How can the sun hurt us and what can we do to help? Within this lesson the children will discover the importance of the sun as the ultimate energy source for all life on Earth. They will also learn about the various ways in which exposure to the sun can be dangerous for humans. There will be an opportunity to compare the positives and negatives of natural and artificial sunlight. DE lesson 2</p>
	<p>Lesson 3 – What is reflection and how does it affect what we can see? During this lesson the focus shifts to explore with the children the idea that while all objects reflect light so they can be seen, there are some objects that are better at reflecting light. These objects can be used to ensure we are seen and can therefore keep us safe, particularly at night time. They will carry out an investigation that explores the reflectiveness of materials including is it easier to see rough or smooth objects? DE lesson 3</p>
	<p>Lesson 4 – How are shadows formed? This lesson starts by recapping on the children’s previous learning by asking - how are reflective materials used to keep us safe? Turn the lights on and off and ask the children to discuss any shadows they see as they look around the room. The children will discover that shadows are formed when an opaque object blocks the path of light, which travels in straight lines. They will learn that the size of shadows change with the seasons. DE Lesson 4</p>
	<p>Lesson 5 – Do shadow sizes change throughout the day? Next up the children will review the experiment that recorded throughout the week. The children will consider how the shadows might change as we move through the day and the reasons for this. They will make predictions and we will compare these to the outcomes and explore why. The children will then produce charts to compare and display the data collected summarising using their science knowledge. DE Lesson 5</p>
	<p>Lesson 6 – Can I make the size of my shadow change? During this final lesson in the sequence, the children will explore how moving the light source closer or further away from an object will change the size of the shadow. They will also consider whether they can change the shape of the shadow and how. Why does this occur? DE Lesson 6</p>
Aspiration	Your key knowledge will help you to be one of the following: Agriculture (working on a farm), Vet or caring for animals, Dog trainer, Beekeeper.
Scientist	Percy Shaw - Percy Shaw Calderdale Museums – Inventor of the cats eyes

Year Group 3

Term 5

Animals including Humans



Plants



Forces and Magnets



Light




Rocks



Animals including Humans



Enquiry Question	What would happen if I had no skeleton and how do I keep it strong?		
Scientific Enquiry	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them. Record the findings with Scientific drawings, language and diagrams. Make systematic and careful observations using a range of equipment. 		
NC Objectives	<ul style="list-style-type: none"> Pupils should continue to learn about the importance of nutrition. Identify that humans have muscles and skeletons for support movement and protection. Know the functions of different parts of the skeleton and their special functions. 		
Curriculum Coherence	<p>Prior Knowledge</p> <p>Year 2 curriculum – Animals including humans: Growth</p> <ul style="list-style-type: none"> The needs of humans for survival The importance of eating the right food What a healthy, balanced diet looks like 		<p>Future Learning</p> <p>Describe the simple functions of the digestive system and the types of teeth. (Y4)</p> <p>Describe changes in humans from birth to old age. (Y5)</p> <p>Identify the mains parts of the circulatory system. (Y6)</p>
	<p>Vocabulary</p> <p>Vitamins, minerals, nutrition, endoskeleton, exoskeleton, radius, tibia, ulna, fibula, rib cage, spine, hamstring, biceps.</p>	<p>High Quality Text</p> 	<p>Misconceptions</p> <p>All fats are bad and fruit and veg gives you a healthy diet</p> <p>Only humans have skeletons</p>

Year Group 3

Term 5

Animals including Humans



Plants



Forces and Magnets



Light



Rocks



Animals including Humans



Unit Summary: This unit 'Animals including humans' takes children through six lessons where they learn how 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.** They also learn how to **identify that humans and some other animals have skeletons and muscles for support, protection and movement.**

Knowledge Sequence	<p>Lesson 1 – What are the 5 key food groups? During the lesson the children explore how a healthy and well-balanced diet is one that includes all 5 key food groups. Emphasise the importance of eating fruit, vegetables, protein and wholegrains every day, but acknowledge how foods such as cake, chocolate and fast food also have their place in a balanced lifestyle. Continue to identify foods that fall into the different groups. DE Lesson 1</p>
	<p>Lesson 2 – How nutritional is the food we eat? Within this lesson the children will teach the children about how food labels show the nutrients in foods. Ask them how these relate to eating a healthy, balanced diet. Model how to use the colour coded food label on the front of supermarket packaging to identify whether the product would be a healthy choice or an occasional treat. DE lesson 2</p>
	<p>Lesson 3 – Do we all have skeletons inside our bodies? During this lesson the children will start by recapping their knowledge previous covered in Y1 & Y2 around vertebrates and invertebrates. Their thinking will then be extended by looking at Which animals had an exoskeleton, endoskeleton or a hydrostatic skeleton? What other interesting facts did the children find out? DE lesson 3</p>
	<p>Lesson 4 – How important is the human skeleton? This lesson progresses the children's learning to consider the importance of the human skeleton teach the children about the three main functions of the human endoskeleton - to protect, to support and to allow movement. They will learn the names and locations of major bones, including the skull, humerus, radius, ulna, spine, femur, tibia and fibula. DE Lesson 4</p>
	<p>Lesson 5 – How have animal skeletons adapted? This lesson provides the opportunity for children to explore the importance of the skeleton in different animals and how these have been adapted over time to provide the animal with protection, support and allow them to move in certain ways. They will need to identify and label the major bones, such as the skull, rib cage, tusk, pelvis and spine. Discuss the similarities and differences between the skeletons. Ask the children to write a sentence about how their skeletons help them to move in their environment. DE Lesson 5</p>
	<p>Lesson 6 – Do all muscles move when we tell them? During this final lesson in the sequence, the children explore the importance of muscles in helping the body to move. They will find out that muscles always pull and never push and that they work in pairs. They will also explore how some of the bodies 639 muscles move involuntarily and what happens if they don't. DE Lesson 6</p>
Aspiration	Your key knowledge will help you to be one of the following: dietician, Doctor, Vet, Care worker, Ambulance worker/paramedic.
Scientist/Historical figure	Marie Curie – nurse - How Marie Curie Brought X-Ray Machines To the Battlefield History Smithsonian Magazine and Adelle Davis – nutritionist Davis, Adelle (1904–1974) Encyclopedia.com