

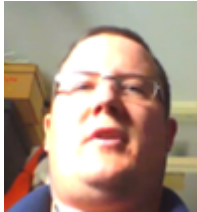

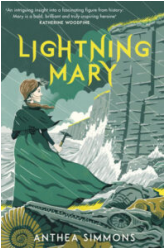
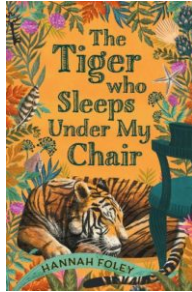
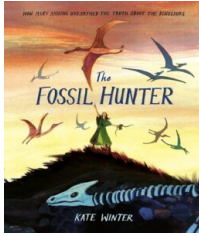
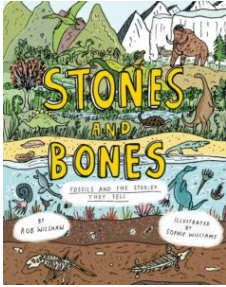
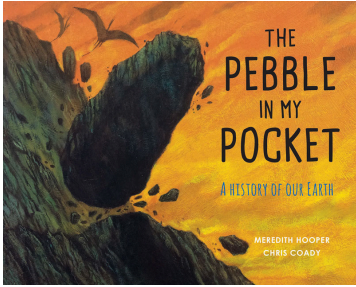
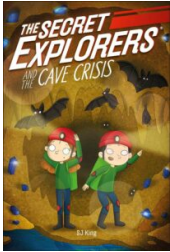
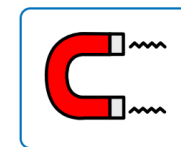






Enquiry Question	What are fossils and how are they formed?	
	Required Prior Knowledge	Knowledge to be taught
<b>Substantive Knowledge</b>	Know conditions for plant growth. Order parts of the plant life cycle. Know all parts of the plant and their function. (Y2 Plants)	Compare and group types of rock and give physical features of each. Explain how a fossil is formed. Explain that soils are made from rocks and also contain living/dead matter. Classify rocks in a variety of ways using scientific vocabulary. Test properties of rocks. Describe materials using transparent, translucent and opaque.
Disciplinary Knowledge		
Asking Questions	Ask questions to deepen my learning about rock formation.	
Making Predictions		
Setting up tests	Set up tests to answer questions.	
Observing & Measuring	Make careful observations and identify similarities and differences.	
Recording Data	Record classifications in a table, Venn or Carroll diagram. Record my results in a table.	
Interpreting & Communicating results	Interpret the process of fossilisation using models and pictures.	
Evaluating		
<b>Vocabulary</b>	<b>rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</b>	

<b>Science Capital</b>	  						
<b>Recommended Reading</b>							
<b>Teaching Sequence</b>	<p><i>INTRODUCTION</i></p> <ul style="list-style-type: none"> <li>Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic.</li> <li>Review or revisit related concepts.</li> </ul>	<p><i>INVESTIGATE AND RECORD</i></p> <ul style="list-style-type: none"> <li>Introduce new scientific ideas or concepts through hands-on activities, experiments or observations.</li> <li>Guide pupils to understand the scientific concepts behind their exploration.</li> </ul>					<p><i>ASSESSMENT</i></p> <ul style="list-style-type: none"> <li>Reflect on learning</li> <li>Demonstrate their understanding</li> </ul>
<b>Learning Questions</b>	<b>What is rock?</b>	<b>What are the properties of rocks?</b>	<b>How can we classify rocks?</b>	<b>What are fossils?</b>	<b>What is the process of fossilisation?</b>	<b>How is rock made?</b>	<b>End of Topic Test</b>
<b>Mastery Keys</b>	<ul style="list-style-type: none"> <li>Can name some types of rock and give physical features of each.</li> <li>Can explain how a fossil is formed.</li> <li>Can explain that soils are made from rocks and also contain living/dead matter.</li> <li>Classify rocks in a range of ways using scientific vocabulary.</li> </ul>						




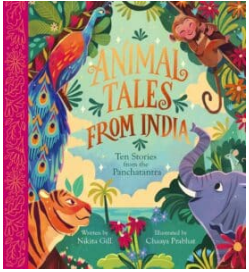
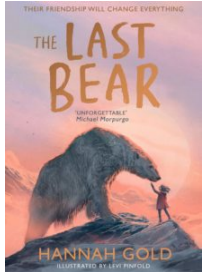
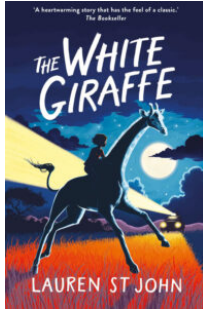
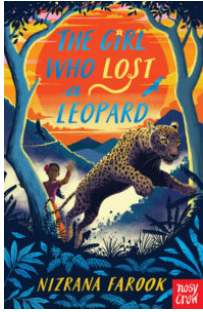
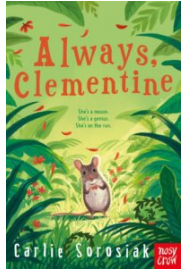
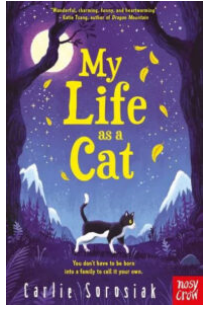

Enquiry Question	What are forces and how can they be useful?	
Substantive Knowledge	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	<p>Understand push and pull (EYFS)</p> <p>Know you can move objects by applying a force such as pushing a car (Y1)</p> <p>Know how different materials can be changed by applying a force such as squashing, bending, twisting and stretching (Y2)</p>	<p>Compare how things move on different surfaces. Give examples of forces in everyday life. Name a range of magnets. Know that magnets have a north and south pole. Show how the poles attract and repel. Draw diagrams to show the attraction and repulsion between poles of magnets. Name magnetic and non-magnetic materials.</p>
Disciplinary Knowledge		
Asking Questions		
Making Predictions	Predict whether materials are magnetic or not.	
Planning Enquiries	Plan a fair test.	
Observing & Measuring	Observe different forces.	
Recording Data	Record my results using scientific drawings.	
Interpreting & Communicating results	Use models to explain findings.	
Evaluation	Evaluate my choices and suggest further improvements.	
Vocabulary	<p><b>force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel. Magnetic material, metal, iron, steel, poles, north pole, south pole.</b></p>	

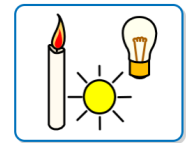
<b>Science Capital</b>	 <p style="text-align: center;"> <span>John McAdam</span> <span>Isaac Newton</span> <span>Albert Einstein</span> </p>				
<b>Recommended Reading</b>					
<b>Teaching Sequence</b>	<p><i>INTRODUCTION</i></p> <ul style="list-style-type: none"> <li>• Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic.</li> <li>• Review or revisit related concepts.</li> </ul>		<p><i>INVESTIGATE AND RECORD</i></p> <ul style="list-style-type: none"> <li>• Introduce new scientific ideas or concepts through hands-on activities, experiments or observations.</li> <li>• Guide pupils to understand the scientific concepts behind their exploration.</li> </ul>		<p><i>ASSESSMENT</i></p> <ul style="list-style-type: none"> <li>• Reflect on learning</li> <li>• Demonstrate their understanding</li> </ul>
<b>Learning Questions</b>	<b>What is a force?</b>	<b>How do things move on different surfaces?</b>	<b>What is a magnet?</b>	<b>How are magnets useful?</b>	<b>End of Topic Test</b>
<b>Mastery Keys</b>	<ul style="list-style-type: none"> <li>➤ Give examples of forces in everyday life.</li> <li>➤ Give examples of objects moving differently on different surfaces.</li> <li>➤ Name a range of magnets and show how the poles attract and repel.</li> <li>➤ Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets.</li> </ul>				



Enquiry Question	How does the human body protect itself?	
Substantive Knowledge	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	Describe how animals change as they get older. Know names of animals and their offspring e.g. goat- Kid. Order the lifecycle of different animals e.g. butterfly. Explain what humans and animals need to survive e.g. food, sleep, exercise, water, shelter. Understand the term balanced , hygiene, microorganism, germs. diet and can identify some food groups. Understand the effects of exercise on the body. (Y2 Animals incl. Humans)	Name the main bones in the skeletal system such as skull, ribs, humerus, vertebrae, pelvis, ulna, carpals, radius, femur, phalanges, patella, tibia, tarsals, fibula, metatarsals. Know the function of the skeletal system. Describe how muscles and joints help to move. See similarities and differences in skeletons and classify into endoskeleton, exoskeleton and hydrostatic skeleton. Name different nutrients found in food, the different food groups and why we need to eat a balanced diet.
Disciplinary Knowledge		
Asking Questions	Answer questions about the uses of our bones.	
Making Predictions	Make predictions from questions raised.	
Planning Enquiries		
Observation & Measuring	Make careful observations to sort animals into groups.	
Recording Data	Locate and label the bones in the body. Record using labelled drawings and scientific language. Record my results in a table and a bar chart.	
Interpreting & Conclusions	Use scientific language to discuss ideas.	
Evaluation	Evaluate my learning using scientific language. Evaluate my design and suggest improvements.	
Vocabulary	<b>nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints.</b>	



<b>Science Capital</b>	 <p style="text-align: center;"><b>Physiotherapist</b></p>							
<b>Recommended Reading</b>								
<b>Teaching Sequence</b>	<p><i>INTRODUCTION</i></p> <ul style="list-style-type: none"> <li>Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic.</li> <li>Review or revisit related concepts.</li> </ul>		<p><i>INVESTIGATE AND RECORD</i></p> <ul style="list-style-type: none"> <li>Introduce new scientific ideas or concepts through hands-on activities, experiments or observations.</li> <li>Guide pupils to understand the scientific concepts behind their exploration.</li> </ul>			<p><i>ASSESSMENT</i></p> <ul style="list-style-type: none"> <li>Reflect on learning</li> <li>Demonstrate their understanding</li> </ul>		
<b>Learning Questions</b>	<b>What do we already know?</b>	<b>Why do we have a skeleton?</b>	<b>How does a hand work?</b>	<b>What is an invertebrate?</b>	<b>What parts of the body need to be protected?</b>	<b>Why is nutrition important?</b>	<b>End of Topic Test</b>	
<b>Mastery Keys</b>	<ul style="list-style-type: none"> <li>➤ Can name the nutrients found in food.</li> <li>➤ Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients.</li> <li>➤ Name some bones that make up the skeleton giving examples that support, help them move or provide protection.</li> <li>➤ Give similarities and differences between skeletons.</li> <li>➤ Can describe how muscles and joints help them to move.</li> </ul>							



Enquiry Question	How does light work?	
	Required Prior Knowledge	Knowledge to be taught
<b>Substantive Knowledge</b>	<p>Describe similarities and differences of materials. (Y2 Everyday Materials)</p> <p>Describe materials using transparent, translucent and opaque. (Y3 Rocks and Soils)</p>	<p>Describe how we see objects in light and describe dark as the absence of light. Know it is dangerous to look at the sun. Understand the term ultra violet.</p> <p>Know the terms transparent, translucent and opaque. Describe how shadows are formed. Predict which materials will be more/less visible. Know the term reflective and why reflective materials are useful.</p>
<b>Disciplinary Knowledge</b>		
Asking Questions	Raise questions when exploring materials and light.	
Making Predictions	Make predictions based on scientific questions.	
Planning Enquiries	Set up practical comparative tests using my own ideas.	
Observation & Measuring	Observe what happens when an object is moved closer to a light source.	
Recording Data	Record my results in a table.	
Interpreting & Conclusions	Interpret my results and report on patterns found.	
Evaluation	Evaluate my test and suggest improvements.	
<b>Vocabulary</b>	<b>light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</b>	

<b>Science Capital</b>							
<b>Recommended Reading</b>							
<b>Teaching Sequence</b>	<p><b>INTRODUCTION</b></p> <ul style="list-style-type: none"> <li>Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic.</li> <li>Review or revisit related concepts.</li> </ul>	<p><b>INVESTIGATE AND RECORD</b></p> <ul style="list-style-type: none"> <li>Introduce new scientific ideas or concepts through hands-on activities, experiments or observations.</li> <li>Guide pupils to understand the scientific concepts behind their exploration.</li> </ul>				<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>Reflect on learning</li> <li>Demonstrate their understanding</li> </ul>	
<b>Learning Questions</b>	<b>How do we see things?</b>	<b>What is light?</b>	<b>Why is the sun dangerous?</b>	<b>What are shadows and why do they change?</b>	<b>Which materials are best at blocking out light?</b>	<b>End of Topic Test</b>	
<b>Mastery Keys</b>	<ul style="list-style-type: none"> <li>➤ Can describe how we see objects in lights and can describe dark as the absence of light.</li> <li>➤ Know it is dangerous to look at the sun.</li> <li>➤ Define transparent, translucent, and opaque.</li> <li>➤ Can describe how shadows are formed.</li> <li>➤ Predict what materials will be more/less visible.</li> </ul>						





Enquiry Question	What is the lifecycle of a plant?	
	Required Prior Knowledge	Knowledge to be taught
<b>Substantive Knowledge</b>	Describe how plants have grown from seeds and bulbs and how they have developed over time. Know conditions for plant growth. Spot similarities and differences in bulbs and seeds. Order parts of the plant life cycle. Know all parts of the plant and their function. Know terms: light, shade, sun, warm, grow, healthy, growth, germinate (Y2 Plants)	Explain the function of the parts of a flowering plant. Explain the life cycle of a flowering plant lifecycle including pollination, seed formation, seed dispersal and germination. Know different methods of seed dispersal. Know the requirements of plant growth and how water is transported through the plant. Know how the sun helps plants photosynthesis. Know terms: photosynthesis, pollen, pollination, absorb, nutrients, reproduce, germination, stamen and style.
Disciplinary Knowledge		
Asking Questions		
Making Predictions		
Planning Enquiries	Plan a comparative test.	
Observation & Measuring	Look carefully at seeds.	
Recording Data	Can record my findings using scientific diagrams.	
Interpreting & Conclusions	Interpret my findings using scientific knowledge.	
Evaluation	Evaluate my seed spinner	
Vocabulary		

**Science Capital**



**Carl Linnaeus**



**George Washington Carver**

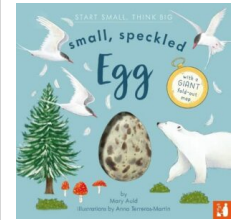
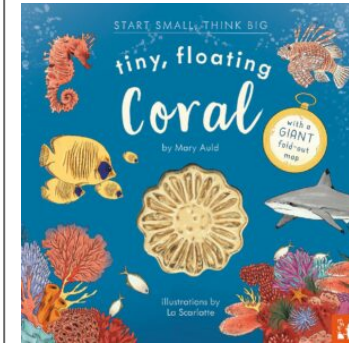
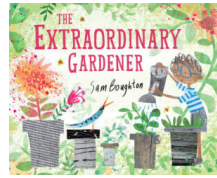


**Alexander Humboldt**



**Oliver Rackham**

**Recommended Reading**



**Teaching Sequence**

**INTRODUCTION**

- Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic.
- Review or revisit related concepts.

**INVESTIGATE AND RECORD**

- Introduce new scientific ideas or concepts through hands-on activities, experiments or observations.
- Guide pupils to understand the scientific concepts behind their exploration.

**ASSESSMENT**

- Reflect on learning
- Demonstrate their understanding

**Learning Questions**

**What are the different parts of a flowering plant?**

**What do plants need to grow?**

**How is water transported within plants?**

**What is pollination?**

**How do seeds disperse?**

**End of Topic Test**

**Mastery Keys**

- Can explain the function of the parts of a flowering plant.
- Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination.
- Can give different methods of pollination and seed dispersal, including examples.
- Can explain observations made during investigations.
- Can look at features of seeds to decide on method of dispersal.