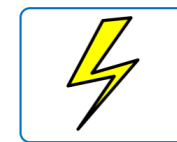


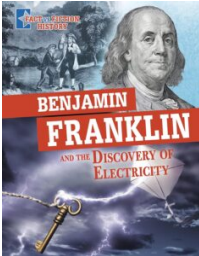
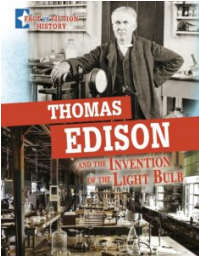
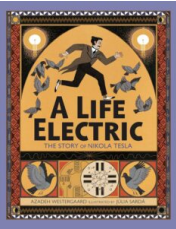

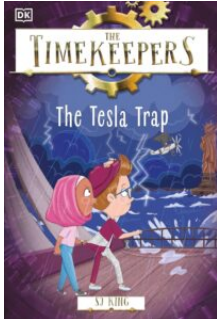
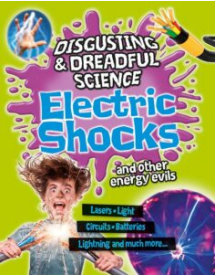


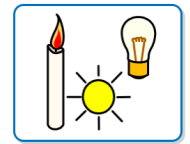
Enquiry Question	How do diet, exercise, drugs and lifestyles impact our bodies?	
Substantive Knowledge	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	Identify and label and draw main parts of the digestive system and explain the process. Identify animals and classify based on their teeth whether they are herbivore, omnivore and carnivore. Identify the producer, predators and prey. (Y4 Animals incl. humans) Know the importance of physical and mental health. (Y5 Animals incl. humans)	Identify, label and draw parts of the circulatory system e.g. heart, blood vessels, capillaries, arteries, blood. Understand the function of the different parts. Understand how nutrients are transported around the body within animals and humans. Know the impact of a balanced diet, exercise and lifestyle on the way their body's function. Recognise the impact on all body systems learned so far.
Disciplinary Knowledge		
Asking Questions		
Making Predictions		
Planning Enquiries	Plan investigation and record results.	
Observation & Measuring	Take accurate measurements. Observe what happens using a model.	
Recording Data	Use scientific diagrams.	
Interpreting & Conclusions	Use labelled diagrams to explain. Use models to explain my thinking.	
Evaluation		
Vocabulary	heart, pulse, rate, pumps, blood, blood vessel, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle.	

Science Capital							
Recommended Reading							
Teaching Sequence	INTRODUCTION <ul style="list-style-type: none"> Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic. Review or revisit related concepts. 		INVESTIGATION AND RECORD <ul style="list-style-type: none"> Introduce new scientific ideas or concepts through hands-on activities, experiments or observations. Guide pupils to understand the scientific concepts behind their exploration. 			ASSESSMENT <ul style="list-style-type: none"> Reflect on learning Demonstrate their understanding 	
Learning Questions	What is the human circulatory system?	What is the function of the heart, blood vessels and blood?	What is blood?	How are nutrients and water transported within animals including humans?	How does diet, exercise, drugs and lifestyle impact the way our bodies function?	Why is drug testing important in sport?	End of Topic Test
Mastery Keys	<ul style="list-style-type: none"> ➤ Can draw a diagram of the circulatory system, label the parts and annotate it to show what the parts do. ➤ Can explain the positive and negative effects on diet, exercise, drugs and lifestyle on the body. 						

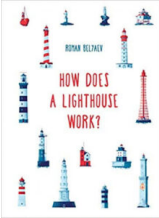
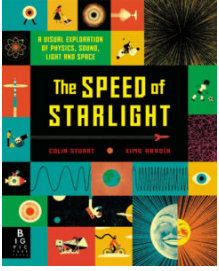
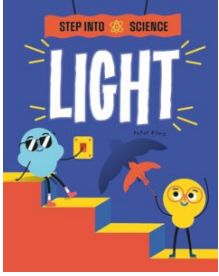
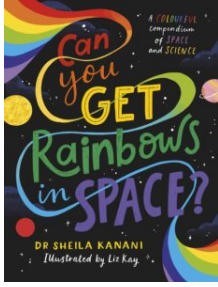

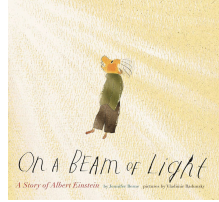
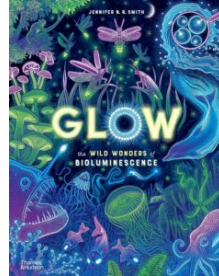


Enquiry Question	What can we make using an electrical circuit?	
	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	Name the components in a circuit. Make a simple circuit. Control a circuit using a switch. Name some conductors and insulators. Use drawings to represent their circuits. Describe how a circuit works. Name some appliances that run on battery/mains. Know how to make a bulb brighter. (Y3 Electricity)	Understand voltage and amps. Know how to make bulbs brighter, buzzers louder. Label and name components in a circuit. Draw circuits using symbols. Make circuits to solve particular problems such as a quiet and a loud burglar alarm.
Disciplinary Knowledge		
Asking Questions	Answer questions by investigating.	
Making Predictions	Develop predictions.	
Planning Enquiries		
Observation & Measuring	Take accurate measurements.	
Recording Data	Present results in a line graph.	
Interpreting & Conclusions	Use diagrams to support explanation.	
Evaluation		
Vocabulary	circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor,	

Science Capital								
Recommended Reading								
Teaching Sequence	<p><i>INTRODUCTION</i></p> <ul style="list-style-type: none"> Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic. Review or revisit related concepts. 		<p><i>INVESTIGATION AND RECORD</i></p> <ul style="list-style-type: none"> Introduce new scientific ideas or concepts through hands-on activities, experiments or observations. Guide pupils to understand the scientific concepts behind their exploration. 			<p><i>ASSESSMENT</i></p> <ul style="list-style-type: none"> Reflect on learning Demonstrate their understanding 		
Learning Questions	<p>What do we already know about electricity?</p>	<p>How can we use symbols in a diagram to represent a circuit?</p>	<p>How can we create a circuit without using batteries?</p>	<p>How can we vary the volume of a buzzer?</p>	<p>How can we apply our electronic knowledge?</p>	<p>End of Topic Test</p>		
Mastery Keys	<ul style="list-style-type: none"> ➤ Make circuits to solve particular problems e.g. how to make the door bell louder. ➤ Make circuits that can be controlled. ➤ Understand electricity symbols and draw circuits. 							




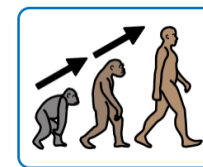
Enquiry Question	How do we see rainbows?	
	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	Describe how we see objects in light and describe dark as the absence of light. Know it is dangerous to look at the sun. Understand the term ultra violet. Know the terms transparent, translucent 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. (Y3, Light)	Describe using diagrams how light travels in straight lines, either from sources or reflected from other objects into our eyes. Explain how we see things and can label basic parts of the eye and explain their function. Describe with diagrams how light travels past translucent or opaque objects to form shadows of the same shape. Know how to change the size of shadows by moving objects closer/further from light source.
Disciplinary Knowledge		
Asking Questions		
Making Predictions	Make predictions based on scientific knowledge and use tests to gather evidence to support my predictions.	
Planning Enquiries		
Observation & Measuring	Make careful observations.	
Recording Data	Use scientific models and labelled diagrams. Draw diagrams with accuracy.	
Interpreting & Conclusions	Use diagrams to support explanation.	
Evaluation	Evaluate using scientific language how my enquiry answers the question.	
Vocabulary	light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense	

Science Capital							
Recommended Reading							
Teaching Sequence	<p><i>INTRODUCTION</i></p> <ul style="list-style-type: none"> • Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic. • Review or revisit related concepts. 	<p><i>INVESTIGATION AND RECORD</i></p> <ul style="list-style-type: none"> • Introduce new scientific ideas or concepts through hands-on activities, experiments or observations. • Guide pupils to understand the scientific concepts behind their exploration. 				<p><i>ASSESSMENT</i></p> <ul style="list-style-type: none"> • Reflect on learning • Demonstrate their understanding 	
Learning Questions	How does light travel?	How do we see objects?	How does the eye work?	How can we create a coloured shadow?	What happens to light in water?	How are rainbows formed?	End of Topic Test
Mastery Keys	<ul style="list-style-type: none"> ➤ Can describe with diagrams how light travels in straight lines, either from sources or reflected from other objects into our eyes. ➤ Can describe with diagrams how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape. 						



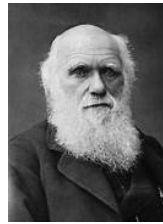
Enquiry Question	Why is classification useful?	
Substantive Knowledge	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	Can name living things in a range of habitats, giving key features that helped identify them. Explain how changes in the environment can be dangerous to animals and lead to extinction (Y5 Living things and their habitats)	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. Identify unknown plants using ID and classification charts. Explain why animals belong to groups. Know that Carl Linnaeus classify plants and animals.
Disciplinary Knowledge		
Asking Questions	Raise questions about animals to group.	
Making Predictions	Predict how microorganisms will decay food.	
Planning Enquiries		
Observation & Measuring	Observe and raise questions.	
Recording Data	Record in a table. Answer own questions. Use classification keys.	
Interpreting & Conclusions		
Evaluation	Evaluate effects of yeast.	
Vocabulary	vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering	

Science Capital							
Reading Recommendations							
Teaching Sequence	<p>INTRODUCTION</p> <ul style="list-style-type: none"> Begin with a question, demonstration or real-world example to spark curiosity and connect to the topic. Review or revisit related concepts. 	<p>INVESTIGATION AND RECORD</p> <ul style="list-style-type: none"> Introduce new scientific ideas or concepts through hands-on activities, experiments or observations. Guide pupils to understand the scientific concepts behind their exploration. 					<p>ASSESSMENT</p> <ul style="list-style-type: none"> Reflect on learning Demonstrate their understanding
Learning Questions	What do we already know?	What is a classification key?	Why do scientists classify things?	How does the Linnaeus classification system work?	What is a micro-organism?	Are bacteria good or bad?	End of Topic Test
Mastery Keys	<ul style="list-style-type: none"> ➤ Can give examples of animals in the five vertebrate groups and some of the invertebrate groups. ➤ Can give key characteristics of the five vertebrate groups and some invertebrate groups. ➤ Can give examples of flowering and non-flowering plants. ➤ Can use classification keys to identify unknown plants and animals. ➤ Can give a number of characteristics that explain why an animal belongs to a particular group. 						



Enquiry Question	What are evolution and inheritance?	
	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	<p>Explain how a fossil is formed.</p> <p>Explain that soils are made from rocks and also contain living/dead matter. Classify rocks in a variety of ways using scientific vocabulary. (Y3 Rocks and soils)</p> <p>Explain how changes in the environment can be dangerous to animals and lead to extinction (Y5 Living things and their habitats)</p>	<p>Explain the process of evolution and give examples of how plants and animals are suited/adapted to their environment.</p> <p>Give examples of how animals have evolved over time.</p> <p>Understand that fossils give us evidence of the past and know the process of fossilisation.</p>
Disciplinary Knowledge		
Asking Questions	Raise questions about a range of phenomena.	
Making Predictions	Develop predictions not based on results of a scientific enquiry but using their own ideas and subject knowledge.	
Planning Enquiries		
Observation & Measuring		
Recording Data	Use scientific diagrams and labels to explain abstract concepts.	
Interpreting & Conclusions	<p>Focus on scientific reasons for overall patterns rather than comparisons.</p> <p>Use ideas from secondary sources to support my ideas.</p>	
Evaluation	Describe and evaluate my own and other people's scientific ideas supported by evidence.	
Vocabulary	<p>offspring, sexual reproduction, vary, variation, characteristics, suited, adapted, environment, inherited, species, fossils, adaptation, acquired characteristic, inherited characteristic, gene, natural selection, artificial selection</p>	

Science Capital

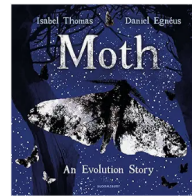
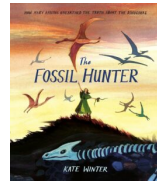
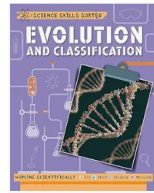


Charles Darwin



Palaeontologist

Reading Recommendations



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.

INVESTIGATION 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

How do we know about living things from millions of years ago?

What did Charles Darwin discover?

What is evolution?

What is adaptation?

What is inheritance?

End of Topic Test

Mastery Keys

- Can explain the process of evolution.
- Can give examples of how plants and animals are suited to their environment.
- Can give examples of how an animal or plant has evolved over time e.g. penguin, peppered moth.
- Give examples of things that lived millions of years ago and the fossil evidence to support this.