

Enquiry 1 - Cycle 1

Evolution and Inheritance

3.1-3.2

Science Skills	In this enquiry you will be:	
Please refer to the skills document and video for guidance on the science skills of Planning Investigations, Presenting and Analysing Data and Evaluation of Investigations, as well as pupil progression in each skill.	Observing Over Time	
	Pattern Seeking	X
	Identifying, Classifying and Grouping	X
	Comparative and Fair Testing (Controlled Investigations)	X
	Researching Using Secondary Resources	X

National Curriculum Knowledge	Key Questions
<ul style="list-style-type: none"> Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<ol style="list-style-type: none"> Can I explain why animals adapt to their environment? Can I give some examples of adaptations and how they benefit the species? Can I say why adaptations can lead to evolution?
<ul style="list-style-type: none"> Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. 	<ol style="list-style-type: none"> Can I say that species produce offspring that are the same as the parents? Can I explain why offspring are different from their parents? Can I explain why offspring are different from each other?
<ul style="list-style-type: none"> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. 	<ol style="list-style-type: none"> Can I describe the mechanism that results in evolution of species? Can I identify some things that the fossil record can tell us about extinct species?

Scientist Study on Charles Darwin

Previous Knowledge
<p>EYFS and KS1 – No requirement to learn adaptation at these stages but pupils may know that cacti grow in dry regions and giraffes have long necks so it can reach the highest leaves.</p> <p>Yr. 3 – Plants - 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.</p> <p>Yr. 4 – Living Things and their Habitats - Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Yr. 5 – Properties and Changes of Materials - Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p>

Enquiry 2 - Cycle 1

Animals, including Humans

6.1

Science Skills	In this enquiry you will be:	
Please refer to the skills document for guidance on the science skills of Planning Investigations, Presenting and Analysing Data and Evaluation of Investigations, as well as pupil progression in each skill.	Observing Over Time	X
	Pattern Seeking	X
	Identifying, Classifying and Grouping	X
	Comparative and Fair Testing (Controlled Investigations)	X
	Researching Using Secondary Resources	X

National Curriculum Knowledge	Key Questions
<p>The Heart and Circulatory System Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p>	<ol style="list-style-type: none"> Can I name and locate the main structures of the heart? Can I describe the simple functions of the heart, veins and arteries? Can I describe the function of the blood?
<p>Diet Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>	<ol style="list-style-type: none"> Can I explain the effects of overeating on the body? Can I identify food groups that should not make up a large part of my diet? Can I list some of the food groups I need to eat to maintain my health?
<p>Exercise, Drugs and Lifestyle Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>	<ol style="list-style-type: none"> Can I describe the effects of exercise on the body? Can I define the difference between a drug and medicine? Can I analyse and comment on individual lifestyles?
<p>The Transport of Water and Nutrients Describe the ways in which nutrients and water are transported within animals, including humans</p>	<ol style="list-style-type: none"> Can I describe in simple terms, the process of osmosis? Can I say that nutrients move into all parts of the body by osmosis? Can I describe the function of the kidneys in removing water from the body?

Scientist Study on Marie M Daly - cardiologist

Previous Knowledge
<p>EYFS – Pupils may be able to locate where the heart is in the body, and that blood moves around the body.</p> <p>Yr. 1 – Animals including Humans – Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).</p> <p>Yr. 1 – Animals including Humans – Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Yr. 2 – Animals including Humans – Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Yr. 2 – Animals including Humans – Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>

Enquiry 3 – Cycle 1

Electricity

6.5

Science Skills	In this enquiry you will be:	
Please refer to the skills document and video for guidance on the science skills of Planning Investigations, Presenting and Analysing Data and Evaluation of Investigations, as well as pupil progression in each skill.	Observing Over Time	X
	Pattern Seeking	X
	Identifying, Classifying and Grouping	X
	Comparative and Fair Testing (Controlled Investigations)	X
	Researching Using Secondary Resources	X

National Curriculum Knowledge	Key Questions
Circuits 1) Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 2) Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. 3) Use recognised symbols when representing a simple circuit in a diagram.	1) Can I link the way components work to the number of cells in the circuit? 2) Can I draw circuit diagrams from circuits I build? 3) Can I build circuit based on circuit diagrams? 4) Can I explain how a switch works?

Scientist Study on Nikola Tesla

Previous Knowledge

Yr. 4 – Electricity - Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.

- Identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery.

- Recognise that a switch opens and closes a circuit and associate this with whether a lamp lights in a simple series circuit.

Enquiry 4 Cycle 1 5.6-5.13

Properties and Changes of Materials

Irreversible and reversible changes

Science Skills	In this enquiry you will be:	
Please refer to the skills document and video for guidance on the science skills of Planning Investigations, Presenting and Analysing Data and Evaluation of Investigations, as well as pupil progression in each skill.	Observing Over Time	
	Pattern Seeking	X
	Identifying, Classifying and Grouping	X
	Comparative and Fair Testing (Controlled Investigations)	X
	Researching Using Secondary Resources	X
National Curriculum Knowledge	Key Questions	
<p>Burning Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<ol style="list-style-type: none"> 1) Can I name the 3 things needed to produce fire? 2) Can I name the new substances formed when fire occurs? 3) Do I know what irreversible change means? 4) Can I name some signs of chemical reactions? 	
<p>Acid and Bicarbonate of Soda Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<ol style="list-style-type: none"> 1. Can I describe some of the signs that tell a chemical reaction has occurred? 2. Can I identify some of the products of chemical reactions? 3. Can I classify substances as acids, alkalis or neutral? 	
<p>Dissolving, Mixtures and Changes of State Demonstrate that dissolving, mixing and changes of state are reversible changes. Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p>	<ol style="list-style-type: none"> 1. Can I identify the parts of a solution? 2. Can I identify a solution as a type of mixture? 3. Can I explain the process of dissolving? 4. Can I describe changes of state as a reversible process? 	
<p>Separation by Filtration and Sieving Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p>	<ol style="list-style-type: none"> 1. Can I explain how a solution is formed? 2. Can I analyse a solution and decide how best to separate the component parts? 	
<p>Separation By Evaporation Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p>	<ol style="list-style-type: none"> 1. Can I identify the solute and the solvent in a solution? 2. Can I identify the solute as the substance that is dissolved in the solvent? 3. Can I explain the process of evaporation and how it can be used to separate the solute from the solvent? 	

Scientist Study on Becky Schroeder

Previous Knowledge
<p>KS1 Everyday Materials – Identify and name a variety of everyday materials including wood, metal, plastic glass, water and rock. – Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Rocks - Recognise that soils are made from rocks and organic matter.</p> <p>States of Matter – Compare and group together materials according to whether they are solids, liquids or gases. – Observe that some materials change state when heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.</p>

Enquiry 5 – Cycle 1

Earth and Space 5.14

Science Skills	In this enquiry you will be:	
Please refer to the skills document and video for guidance on the science skills of Planning Investigations, Presenting and Analysing Data and Evaluation of Investigations, as well as pupil progression in each skill.	Observing Over Time	
	Pattern Seeking	X
	Identifying, Classifying and Grouping	X
	Comparative and Fair Testing (Controlled Investigations)	X
	Researching Using Secondary Resources	X

National Curriculum Knowledge	Key Questions
<ul style="list-style-type: none"> • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • Describe the Sun, Earth and Moon as approximately spherical bodies 	<ol style="list-style-type: none"> 1. Can I sort the planets in order of distance from the Sun? 2. Can I classify planets as either rocky or gas giant? 3. Can I describe the orbits of the planets as elliptical?
<ul style="list-style-type: none"> • Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. • Describe the movement of the Moon relative to the Earth. • Describe the Sun, Earth and Moon as approximately spherical bodies. 	<ol style="list-style-type: none"> 4. Can I explain why we have day and night on Earth and why this is cyclical? 5. Can I describe the Moon’s orbit around the Earth as elliptical? 6. Can I explain why the Sun, Moon and Earth are only roughly spherical?

Scientist Study on Mai Jemison

Previous Knowledge
<p>- No prior learning about Space in the National Curriculum, but pupils may know the names of some of the planets. They may also have learned that an asteroid caused the extinction of the dinosaurs.</p> <p>– Light - Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p>

Enquiry 6 – 3.11-3.12

Animals including humans 5.16

Science Skills	In this enquiry you will be:	
Please refer to the skills document and video for guidance on the science skills of Planning Investigations, Presenting and Analysing Data and Evaluation of Investigations, as well as pupil progression in each skill.	Observing Over Time	
	Pattern Seeking	X
	Identifying, Classifying and Grouping	X
	Comparative and Fair Testing (Controlled Investigations)	X
	Researching Using Secondary Resources	X

National Curriculum Knowledge	Key Questions
The Human Life Cycle Describe the changes as humans develop to old age.	<ol style="list-style-type: none">1) Can I explain some of the changes that occur in humans from when they are born?2) Can I describe some of the characteristics that occur as humans get older?

Scientist Study on Sigmund Freud

Previous Knowledge
<p>EYFS – pupils should be able to identify different parts of the body and understand growth and change.</p> <p>KS1 – Animals Including Humans – know that animals, including humans, have offspring that grow into adults.</p> <p>KS1 – Animals Including Humans – know the basic stages in the life cycles of animals including humans.</p> <p>LKS2 – Animals Including Humans – identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>