

# Year 6 Scheme of Work – Science

Unit	Time (Wks)	Activities	Outcomes	Differentiation	Assessment	NC Links	Other Subject Link
<b>Previous learning:</b> Y4 – mains/battery operated appliances; switch turns electric current on/off				<b>Next learning:</b> KS3 – electric current, measured in amperes, in circuits, series and parallel circuits; potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms			
6.1 Electricity	6-8	<p>L1 - Explain the importance of the major discoveries in electricity.</p> <p>L2 - Observe and explain the effects of differing volts in a circuit.</p> <p>L3 - Observe and explain the effects of differing volts in a circuit.</p> <p>L4 - Plan an investigation. Understand variations in how components function.</p> <p>L5 - Conduct an investigation. Record my data and report my findings.</p> <p>L6 - Investigate my results further.</p>	<ul style="list-style-type: none"> <li>- Explain how our understanding of electricity has changed over time;</li> <li>- Draw circuit diagrams using the correct symbols and label the voltage correctly;</li> <li>- Decide which variables to control while planning an investigation;</li> <li>- Decide how to report their findings;</li> <li>- Make new predictions based on the previous results;</li> <li>- Select an appropriate scientific enquiry.</li> </ul> <p><b>Working scientifically</b></p> <ul style="list-style-type: none"> <li>- Identify and label circuit symbols.</li> <li>- Carry out a test investigating how the voltage of a cell or battery affects a bulb, motor or buzzer in a circuit.</li> <li>- Plan and carry out a test of their choice, investigating how one component in a circuit may affect another.</li> </ul>	<ul style="list-style-type: none"> <li>- Modelling</li> <li>- Practical activities/ investigations.</li> <li>- Knowledge organiser</li> </ul>	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p>	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>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.</p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>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.</p> <p>Using test results to make predictions to set</p>	N/A

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						up further comparative and fair tests.	
<b>Previous learning:</b> Y5 – stages of human development; changes and hygiene during puberty				<b>Next learning:</b> See Y6 Animals including Humans unit			
6.2 Evolution and Inheritance	6-8	<p>L1 – Explain the scientific concept of inheritance.</p> <p>L2 – Demonstrate understanding of the scientific meaning of adaptation.</p> <p>L3 – Identify the key ideas of the theory of evolution.</p> <p>L4 - Identify evidence for evolution from fossil records.</p> <p>L5 – Understand the theory of how human beings may have evolved.</p> <p>L6 - Explain how adaptations can result in both advantages and disadvantages. Explain how human intervention affects evolution.</p>	<ul style="list-style-type: none"> <li>- Develop an understanding of the development of evolutionary ideas and theories over time.</li> <li>- Explain how human evolution has occurred and compare modern humans with those of the same genus and family.</li> <li>- Understand that adaptation and evolution is not a uniform process for all living things.</li> <li>- Give examples of selective and crossbreeding.</li> </ul> <p><b>Working scientifically</b></p> <ul style="list-style-type: none"> <li>- Sort characteristics of humans into groups of ‘inherited characteristics’ and ‘acquired characteristics’.</li> <li>- Classify living things along with their habitats and adaptive traits.</li> <li>- Sort a variety of evolutionary ideas into different categories.</li> <li>- Make comparisons between a modern-day human and fossil skeletons of those believed to be ancestors in human evolution.</li> <li>- Sort advantages and disadvantages of adaptive traits.</li> </ul>	<ul style="list-style-type: none"> <li>- Practical activities/investigations.</li> <li>- Modelling</li> <li>- Knowledge organiser</li> </ul>	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p> <p>Investigation.</p>	<p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments; Identify how adaptation may lead to evolution.</p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Identify how adaptation may lead to evolution.</p>	<p>Islamic Studies – how Allah created humans</p>
		<b>Previous learning:</b> Y3 – darkness=absence of light; surfaces reflect light; mirror reverses image; parts of eye; sun can damage eye; opaque, translucent, transparent objects; size of shadows				<b>Next learning:</b> KS3 - the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface colours and the different frequencies of light, white light and prisms	

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<p><b>6.3</b> Light</p>	<p>6-8</p>	<p>L1 – Explain that light travels in straight lines from light sources to our eyes, and from light source to objects and then to our eyes. L2 – Understand how mirrors reflect light, and how they can help us see objects. L3 – Investigate how refraction changes the direction in which light travels. L4 – Investigate how a prism changes a ray of light. L5 – Investigate how light enables us to see colours. L6 – Explain why shadows have the same shape as the object that casts them.</p>	<ul style="list-style-type: none"> <li>- Explain how light travels to enable us to see.</li> <li>- Understand that all objects reflect light.</li> <li>- Identify the angles of incidence and reflection.</li> <li>- Understand refraction as light bending or changing direction.</li> <li>- Explain how a prism allows us to see the visible spectrum.</li> <li>- Understand that colours are a result of light reflecting off an object.</li> <li>- Explain Isaac Newton’s experiments about light and colour.</li> <li>- Understand how shadows change size.</li> <li>- Understand that shadows are the same shape as the object that casts them.</li> <li>- Make observations and conclusions.</li> <li>- Be able to answer questions based on their learning.</li> </ul> <p><b>Working scientifically</b></p> <ul style="list-style-type: none"> <li>- Investigate whether there is a pattern between the angle that a light ray hits a plane mirror and the angle that it is reflected from the plane mirror.</li> </ul>	<ul style="list-style-type: none"> <li>- Modelling</li> <li>- Practical activities/investigations.</li> <li>- Knowledge organiser</li> </ul>	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions/debates.</p> <p>Investigation.</p>	<p>To recognise that light appears to travel in straight lines.</p> <p>To use that idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</p> <p>To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>To use that idea that light travels in straight lines to explain that shadows have the same shape as the objects that cast them.</p> <p>To identify scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Islamic Studies – Allah gave us sight</p> <p>Art - colours</p>
<p><b>Previous learning:</b> Y5 – function of parts of flower; sexual and asexual reproduction; insect/wind pollination; lifecycles of plants, mammals, birds, insects and amphibians</p>				<p><b>Next learning:</b> KS3 - reproduction in humans), including the structure and function of the male and female reproductive systems, fertilisation, gestation and birth; reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal</p>			
<p><b>6.4</b> Living Things and their Habitats</p>	<p>6-8</p>	<p>L1 – Give reasons for classifying animals based on their similarities and differences. L2 – Describe how living things are classified into groups. L3 - Identify the characteristics of different types of animals. Classify a creature based on its characteristics. L4 – Describe and investigate helpful and harmful micro-organisms. L5 – Identify the characteristics of different types of micro-organisms. L6 – Classify organisms found in my local habitat. Explain the classification of organisms found in my local habitat.</p>	<ul style="list-style-type: none"> <li>- Give reasons for the classification of animals, using examples as a guide.</li> <li>- Classify living things using the Linnaean system.</li> <li>- Match groups of animals to their characteristics.</li> <li>- Classify creatures based on their characteristics.</li> <li>- Design a creature that has a specific set of characteristics, using prompts.</li> <li>- Describe the useful and harmful effects of different microorganisms.</li> <li>- Identify the variables in an investigation into harmful microorganisms.</li> <li>- Draw conclusions based on their results.</li> <li>- Describe the characteristics of different microorganisms.</li> <li>- Describe the characteristics of groups or</li> </ul>	<ul style="list-style-type: none"> <li>- Practical activities/investigations.</li> <li>- Modelling.</li> <li>- Knowledge organiser</li> </ul>	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p> <p>Investigation.</p>	<p>To give reasons for classifying plants and animals based on specific characteristics.</p> <p>To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p>	<p>Islamic Studies – Allah created organisms</p>

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			<p>organisms, using images as prompts.</p> <p><b>Working scientifically</b></p> <ul style="list-style-type: none"> <li>- Observe mould growth over time whilst carrying out a test.</li> <li>- Classify a variety of animals using their own criteria.</li> <li>- Classify animals and plants based on Carl Linneaus’ system.</li> <li>- Identify the characteristics of each animal group and name examples of animals that fit into each group.</li> <li>- Classify organisms found in the local area to make a field guide.</li> <li>- Carry out a test investigating mould growth on bread under different conditions.</li> </ul>				
<p><b>Previous learning:</b> Y5 – stages of human development; changes and hygiene during puberty</p>				<p><b>Next learning:</b> KS3 - the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases; the effects of recreational drugs on behaviour, health and life processes</p>			
<p>6.5 Animals including Humans</p>	<p>6-8</p>	<p>L1 - Know the three main parts of the circulatory system and describe the job of the heart. L2 - Describe the important jobs of the blood vessels and blood. L3 - Describe the importance of exercise and how it affects the heart. Plan a scientific enquiry; record, report and present results appropriately. L4 - Understand that regular exercise is important for a healthy body. L5 - Explain how diet and exercise affect the body. L6 - Recognise the impact of drugs and alcohol on the way bodies function.</p>	<ul style="list-style-type: none"> <li>- State the three main parts of the circulatory system and describe the job of the heart.</li> <li>- Describe the important jobs of the blood vessels and blood.</li> <li>- Discuss how heart rate is affected by exercise.</li> <li>- Understand that regular exercise is important for a healthy body.</li> <li>- Discuss how diet and exercise affect the body.</li> <li>- Discuss the impact of drugs and lifestyle on the way bodies function.</li> </ul> <p><b>Working scientifically</b></p> <ul style="list-style-type: none"> <li>- Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; record data and results of increasing complexity using classification keys, tables, scatter graphs, bar and line graphs; report findings from enquiries, including conclusions and degree of trust in results, in written forms by reporting and presenting the findings of their enquiry.</li> <li>- Record data and results of increasing complexity using scientific diagrams and labels,</li> </ul>	<ul style="list-style-type: none"> <li>- Practical activities/investigations.</li> <li>- Modelling.</li> <li>- Knowledge organiser</li> </ul>	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p> <p>Investigation.</p>	<p>Identify and name the main parts of the human circulatory system, and describe the function of the heart, blood vessels and blood.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; record data and results of increasing complexity using classification keys, tables, scatter graphs, bar and line graphs; report findings from enquiries, including conclusions and degree of trust in results, in written forms by reporting and presenting the findings of their enquiry.</p>	<p>Islamic Studies – prohibition of intoxicants</p> <p>PSHCE – health, diet, exercise, drugs, smoking</p>

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			classification keys, tables, scatter graphs, bar and line graphs.				
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