

Science Year 6

Key Threshold Concepts	<u>Scientific attitudes</u>
<ul style="list-style-type: none"> Science is about working objectively, modifying explanations to take account of new evidence and ideas 	<ul style="list-style-type: none"> Understand the world scientifically by exploring, talking about, testing and developing ideas about everyday phenomena and the relationships functions and interactions between living things and familiar environments

Working Scientifically Key Skills		
Experimental skills and investigations	Analysis and Evaluation	Measurement
<ul style="list-style-type: none"> I can ask relevant questions and use different types of scientific enquiries to answer them I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary I can set up simple practical enquiries, comparative and fair tests I can make systematic and careful observations 	<ul style="list-style-type: none"> I can gather, record, classify and present data of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations I can use results to draw simple conclusions, make predictions for new values, suggest improvements and set up further comparative and fair tests I can identify scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> I can take measurements with increasing accuracy, using a range of equipment, including thermometers and data loggers

Scientific Enquiry Skills				
Observation over time	Pattern Seeking	Identifying, classifying and grouping	Comparative and Fair Testing	Research
<ul style="list-style-type: none"> I can recognise when observing changes over time will help to answer questions I can decide how detailed observations need to be and what equipment to use to make measurements as accurate as possible Draw valid conclusions from data about changes Recognise the significance of things changing over time Talk about and explain changes using scientific knowledge and understanding Evaluate how well they observed over time 	<ul style="list-style-type: none"> I can recognise when variables cannot be controlled and when pattern seeking will help to answer questions I can decide how detailed the data needs to be and which equipment to use to make measurements as accurate as possible I can record data appropriately and accurately I can present data in scatter graphs and frequency charts I can recognise patterns in results I can recognise the effect of sample size on reliability I can draw valid conclusions from data about patterns and recognise their limitations I can recognise the significance of relationships between sets of data I can talk about and explain cause and effect patterns using scientific knowledge and understanding 	<ul style="list-style-type: none"> I can recognise when identifying and classifying will be helpful to answer questions I can decide what equipment, tests and secondary sources of information to use to identify and classify things I can use a series of tests to sort and classify materials I can use secondary sources to identify, classify and evaluate things I can make my own keys and branching data bases with 4 or more items and evaluate their effectiveness. I can use more than one piece of scientific evidence to identify, classify and evaluate things I can use equipment accurately to collect observations 	<ul style="list-style-type: none"> I can recognise when variables need to be controlled and when a fair test is the best way to answer a question I can plan a fair test selecting the most suitable variables to measure change and keep the same I can decide what equipment to use to make measurements as accurate as possible I can use equipment accurately to collect observations I can record data appropriately and accurately I can present data in line graphs I can identify causal relationships I can talk about and explain causal relationships using scientific knowledge and understanding I can evaluate the effectiveness of fair testing, recognising variables that were difficult to control. 	<ul style="list-style-type: none"> I can recognise when research using secondary sources will help to answer questions I can decide what sources of information might answer questions I can use relevant information and data from a range of secondary sources I can recognise how data has been obtained I can notice when information or data is biased or based on opinions rather than facts I can present findings in suitable formats I can draw valid conclusions from own research I can talk about and explain research using scientific knowledge and understanding I can evaluate how well research has answered the question

Vocabulary						
<ul style="list-style-type: none"> comparative scientific accurate evidence 	<ul style="list-style-type: none"> scatter graph relationship quantitative measurements 	<ul style="list-style-type: none"> precise Conclusion Comparative 	<ul style="list-style-type: none"> Enquiry Reliable Causal effect 	<ul style="list-style-type: none"> variable control justify 	<ul style="list-style-type: none"> argue trust 	<ul style="list-style-type: none"> scientific enquiry secondary sources research

Key Knowledge

Y6

Biology			Physics	
Living things and their habitats	Animals including Humans	Evolution and Inheritance	Electricity	Light
<ul style="list-style-type: none"> I know 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 I know the reasons for classifying plants and animals based on specific characteristics 	<ul style="list-style-type: none"> I know the main parts of the human circulatory system, and the functions of the heart, blood vessels and blood. I know the impact of diet, exercise, drugs and lifestyle on the way human bodies function I know the ways in which nutrients and water are transported within animals, including humans 	<ul style="list-style-type: none"> I know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago I know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents I know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 	<ul style="list-style-type: none"> I know the brightness of a lamp or the volume of a buzzer is relative to the number and voltage of cells used in the circuit I know reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. I know the recognised symbols when representing a simple circuit in a diagram. 	<ul style="list-style-type: none"> I know that light appears to travel in straight lines I know that objects are seen because they give out or reflect light into the eye I know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes I know why shadows have the same shape as the objects that cast them.

Vocabulary

Organism Micro-organism Bacteria Microbes fungus vertebrates /invertebrates: arachnid, mollusc, insect and crustacean Carl Linnaeus	circulatory system heart blood blood vessels pumps oxygen carbon dioxide lungs Air sacs Ventricles Arteries Veins Red blood cells White blood cells Aorta Wind pipe Diaphragm Bronchi Pulmonary vein / artery nutrients water diet exercise drugs lifestyle Capillaries David Attenborough and Jane Goodall.	evolution suited/ suitable adapted/ adaptation offspring characteristics vary/ variation inherit/ inheritance fossils Natural selection Mary Anning, Charles Darwin and Alfred Wallace	Series circuit Terminal Voltage volume Current Resistance Circuit diagrams circuit diagram circuit symbol components cell battery positive/ negative terminal connection	Absorption Transmission Lenses Optics Prism Rainbow Refraction spectrum
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