



Class: Year 6	Topic Title: Living things and their habitats	Key Vocabulary
<p>NC Objectives:</p> <ul style="list-style-type: none"> 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 give reasons for classifying plants and animals based on specific characteristics 	<ul style="list-style-type: none"> know that vertebrates have a backbone while invertebrates have no backbone. Know that insects (ants, butterflies), arachnids (spiders, scorpions), molluscs (snails, octopus), crustaceans (crabs, woodlice), annelids (earthworms) and myriapods (centipedes) are examples of invertebrates. Know the distinctive characteristics of fish (fins, scales and breathe through gills), amphibians (cold-blooded, young breathe through gills and adults breathe through lungs) mammals (feed young milk and have hair), reptiles (lungs, scales and cold-blooded) and birds (feathers). Research different types of invertebrates and present findings. Use sorting diagrams (Venn or Carroll) to group plants, animals and micro-organisms based on similarities and differences. Use classification keys to identify plants and animals around the school grounds. Create classification keys. Conduct a local wildlife survey using a classification key. 	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering
<p>Working Scientifically Objectives:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests 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 identifying scientific evidence that has been used to support or refute ideas or arguments. <p><i>Objectives highlighted in yellow to be taught in this topic.</i></p>		
Possible Community Links	Future Learning Experiences:	
<ul style="list-style-type: none"> Links with the Tawd Valley park 	KS3:	



<ul style="list-style-type: none"> Links with the Beacon Country Park 	<ul style="list-style-type: none"> differences between species
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Class: Year 6	Topic Title: Animals including Humans	Key Vocabulary
<p>NC Objectives:</p> <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans 	<ul style="list-style-type: none"> Name the main parts of the human circulatory system (heart, arteries, capillaries, veins and blood) and describe their functions Know that it is called a double circulatory system as the blood passes through the heart twice per circuit. The right side of the heart pumps deoxygenated blood to the lungs to become oxygenated then the left side pumps the oxygenated blood around the body (model). Explore how nutrients and water are transported within animals including humans (activities) Carryout an investigation into the impact of exercise on the way the body functions. Research the impact of diet, exercise, drugs and lifestyle on the way their bodies function. 	Heart, arteries, capillaries, veins pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle
<p>Working Scientifically Objectives:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests 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 identifying scientific evidence that has been used to support or refute ideas or arguments. 		
Previous Learning Experiences:		
<p>Year 4:</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey. <p>Year 5:</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age. 		
Future Learning Experiences:		



<p><i>Objectives highlighted in yellow to be taught in this topic.</i></p>	<p>KS3:</p> <ul style="list-style-type: none"> the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases the effects of recreational drugs (including substance misuse) on behaviour, health and life processes. the structure and functions of the gas exchange system in humans, including adaptations to function the mechanism of breathing to move air in and out of the lungs the impact of exercise, asthma and smoking on the human gas exchange system
<p>Possible Community Links</p>	
<ul style="list-style-type: none"> School nurse 	

<p>Class: Year 6</p>	<p>Topic Title: Evolution and inheritance</p>	<p>Key Vocabulary</p>
<p>NC Objectives:</p> <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 recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify 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"> Know what fossils are and how they are formed (fossil resources). Know that Charles Darwin came up with his theory of evolution and natural selection after his visits to the Galapagos islands (finches activity). Use scientific evidence to support that living things have changed over time. Compare to identify similarities and differences between fossils of animals that lived thousands of years ago to animals from modern day (e.g. mammoths and elephants). Explore inheritance and how living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents (game). Research how plants and animals are adapted to suit their environment. Design an animal that has adaptations to suit an environment. Investigate egg strength to identify how they are adapted to their environment and review the reliability of the results. 	<p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>
<p>Working Scientifically Objectives:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 	<p>Previous Learning Experiences:</p>	



<ul style="list-style-type: none"> taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests 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 identifying scientific evidence that has been used to support or refute ideas or arguments. <p><i>Objectives highlighted in yellow to be taught in this topic.</i></p>	<p>Year 2:</p> <ul style="list-style-type: none"> identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other <p>Year 3:</p> <ul style="list-style-type: none"> describe in simple terms how fossils are formed when things that have lived are trapped within rocks <p>Year 4:</p> <p>recognise that environments can change and that this can sometimes pose dangers to living thing</p>
Possible Community Links/trips	Future Learning Experiences:
Liverpool World Museum	<p>KS3:</p> <ul style="list-style-type: none"> heredity as the process by which genetic information is transmitted from one generation to the next a simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model the variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction

Class: Year 6	Topic Title: Light	Key Vocabulary
<p>NC Objectives:</p> <ul style="list-style-type: none"> recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye 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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them 	<ul style="list-style-type: none"> Explore how light travels in straight lines (hosepipe and mirror activities) Identify and group light sources and non-light sources. Know that we see objects because light reflects off them and into our eyes (activity) Explore how light travels from light sources to objects and then to our eyes (https://www.optics4kids.org/classroom-activities/10-15/mirrors-and-images) 	<p>Light, Light source, Dark, Absence of light, Transparent, Translucent, Opaque, Shiny, Matt, Surface, Shadow, Reflect,</p>



<p>Working Scientifically Objectives:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests 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 identifying scientific evidence that has been used to support or refute ideas or arguments. <p><i>Objectives highlighted in yellow to be taught in this topic.</i></p>	<ul style="list-style-type: none"> Investigate the relationship between the size of a shadow and its distance from the light source. Can this be explained using the idea that light travels in straight lines? Know that light sources give off white light which is made up of different colours (colour wheel/ rainbow in a glass). Carryout an investigation into the shape of shadows formed by different objects. 	<p>Mirror, Sunlight, Dangerous Straight lines, Light rays,</p>
<p>Possible Community Links/trips</p>	<p>Previous Learning Experiences:</p>	
<p>Manchester Science museum</p>	<p>Year 3:</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change. 	
	<p>Future Learning Experiences:</p>	
	<p>KS3:</p> <ul style="list-style-type: none"> the similarities and differences between light waves and waves in matter light waves travelling through a vacuum; speed of light the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye light transferring energy from source to absorber leading to chemical and electrical effects; photo-sensitive material in the retina and in cameras colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection. 	

Class: Year 6	Topic Title: Electricity	Key Vocabulary
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<p>NC Objectives:</p> <ul style="list-style-type: none"> • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • 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 • use recognised symbols when representing a simple circuit in a diagram 	<ul style="list-style-type: none"> • Know symbols for wires, bulbs, batteries, switches, motors and buzzers. • Replicate circuits from diagrams and make predictions whether a circuit will work based on past knowledge. • Draw diagrams of circuits using scientific symbols for the components. • Plan an investigation to explore what effect different components have on the brightness of a bulb. • Compare circuits containing one, two and three batteries and give reasons for their impact on the brightness of bulbs or loudness of buzzers. • Compare circuits containing one or multiple bulbs/buzzers and give reasons for the outcome. • Explore series and parallel circuits. • Explore the impact of placing switches in different positions in series and parallel circuits and give reasons for the outcomes. 	<p>Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p> <p>circuit diagram, circuit symbol, voltage</p>
<p>Working Scientifically Objectives:</p> <ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • 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 • identifying scientific evidence that has been used to support or refute ideas or arguments. <p><i>Objectives highlighted in yellow to be taught in this topic.</i></p>	<p>Previous Learning Experiences:</p> <p>Year 4:</p> <ul style="list-style-type: none"> • identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not 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 or not a lamp lights in a simple series circuit • recognise some common conductors and insulators, and associate metals with being good conductors. <p>Future Learning Experiences:</p> <p>KS3:</p>	



Possible Community Links	<ul style="list-style-type: none">• electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge• potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current• differences in resistance between conducting and insulating components (quantitative).• Static electricity
Our Lady Queen of Peace (cross-curricular with DT)	