

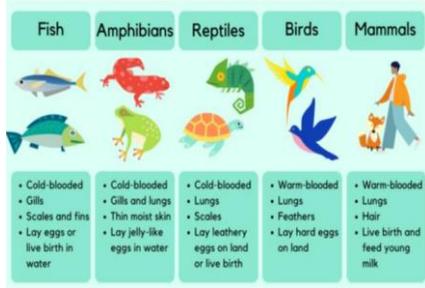
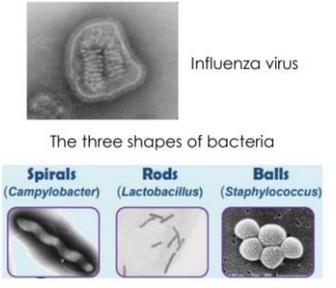
Year 6 Autumn: Science Knowledge Mat

Animals including humans - Circulatory system

Key Vocabulary		Images/ diagrams	Core Knowledge
ventricle	One of two large chambers towards the bottom of the heart.		<ul style="list-style-type: none"> ➤ I know the main parts of the human circulatory system: heart, ventricle, atrium, artery, vein. ➤ I know how the heart functions and how blood moves through the heart. □ I know the role of the heart, blood vessels and blood. ➤ I know how diet, exercise, drugs, and lifestyle impact on the way the human body functions. ➤ I know the ways in which nutrients and water are transported within animals, including humans. ➤ I know how to raise a scientific question that can be tested. ➤ I know how to present my data and my results. ➤ I know how the evidence I have collected supports or refutes my idea. ➤ I can make a prediction and explain my reasons using scientific knowledge. ➤ I know how to use more than one piece of evidence when forming a conclusion.
atrium	One of two smaller chambers towards the top of the heart.		
vein	Any of the tubes of the circulatory system that carry blood towards the heart. This blood, is in the main, oxygen depleted.		
artery	Any of the tubes of the circulatory system that carry blood away from the heart. This blood, is in the main, oxygen rich.		
calories	A unit of energy. In nutrition, calories refer to the energy people get from the food and drink they consume.		
analyse	To examine something methodically and in detail, in order to explain and it.		
interval	A period between 2 events or times.		
hypothesise	An idea for something		

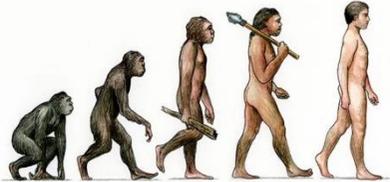
Year 6 Spring 1: Science Knowledge Mat

Living things and their habitats

Key Vocabulary		Vertebrates	Core Knowledge
vertebrate	An animal with a spine or backbone (mammals, reptiles, fish, amphibians, birds)	 <p>Fish • Cold-blooded • Gills • Scales and fins • Lay eggs or live birth in water</p> <p>Amphibians • Cold-blooded • Gills and lungs • Thin moist skin • Lay jelly-like eggs in water</p> <p>Reptiles • Cold-blooded • Lungs • Scales • Lay leathery eggs on land or live birth</p> <p>Birds • Warm-blooded • Lungs • Feathers • Lay hard eggs on land</p> <p>Mammals • Warm-blooded • Lungs • Hair • Live birth and feed young milk</p>	<ul style="list-style-type: none"> ➤ I can classify plants, animals and micro-organisms into broad groups according to observable characteristics. ➤ I can give reasons for classifying plants and animals based on observable characteristics. ➤ I can identify observable characteristics in living things. ➤ I can classify vertebrates and invertebrates into subcategories. ➤ I can ask a testable question which includes the change and measure variables. ➤ I can describe how the evidence I have collected supports or refutes my idea. ➤ I can make a prediction and explain my reasons using scientific knowledge. ➤ I can use more than one piece of evidence when forming a conclusion. ➤ I can describe how to improve planning to produce better results. ➤ I can suggest reasons for anomalies. ➤ I can select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.
virus (s) viruses (pl)	An infection or disease can be caused by a virus.		
bacterium (s) bacteria (pl)	A single-cell micro-organism. Some can make us ill. Micro-organisms Influenza virus. The three shapes of bacteria Fungi are the largest		
fungus (s) fungi (pl)	The largest of micro-organisms, they produce spores and feed on organic matter.		
Observable characteristic	A feature that can be seen.		
microbe/ microorganism	A living thing that is so small you need a microscope to see it.	Micro-organisms	
classify	To arrange items into different categories.	 <p style="text-align: center;">Influenza virus</p> <p style="text-align: center;">The three shapes of bacteria</p> <p>Spirals (Campylobacter) Rods (Lactobacillus) Balls (Staphylococcus)</p> <p style="text-align: center;">Fungi are the largest</p> <p>Penicillium Dermatophyte</p>	
invertebrate	An animal without a spine or backbone.		
refute	Prove something to be wrong. Your evidence might refute your prediction		
support	Suggest the truth of. Your evidence might support your prediction.		

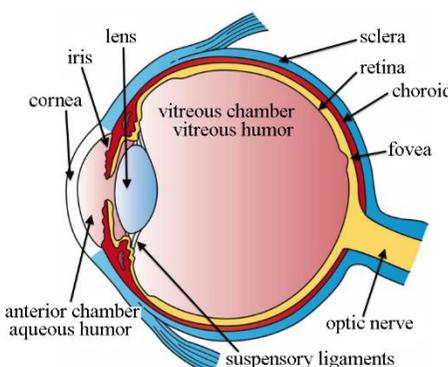
Year 6 Spring 2: Science Knowledge Mat

Evolution and inheritance

Key Vocabulary		Peppered moth	Core Knowledge
Adaptation	A special skill which helps an animal to survive and do everything it needs to do.		<ul style="list-style-type: none"> ➤ I know why animals adapt to their environment. ➤ I know how the peppered moth adapted due to pollution during the industrial revolution. ➤ I know that characteristics are passed from one generation to the next. ➤ I know that species produce offspring that are the same as the parents but are different in some ways. ➤ I know that fossils records provide evidence of evolutionary change in humans and can describe some of these changes. ➤ I know that Charles Darwin was a pioneer in the discovery of evolution through his work with mockingbirds. ➤ I can use scientific words and clear sentences to explain adaptations of animals. ➤ I can decide which is the best format to present my results and explain my choices. ➤ I can make a prediction to say which characteristics will be passed on to offspring and explain my reasons using scientific knowledge. ➤ I can use more than one piece of evidence to write a conclusion and explain what I understand about evolution.
Characteristic	A special quality or appearance that makes an individual or group different from others.		
Favourable	A characteristic which gives a species an advantage.		
Survival	To remain alive.		
Evolution	The theory that all the living things that exist today developed from earlier types.		
Inherited/ inheritance	The process by which genetic information is passed on from parent to child.	Human evolution	
Variation	Differences between individuals or groups.		
Heredity	The passing of a characteristic from parent to child.	Fossils	
Advantage	A characteristic which benefits an individual or group.		
Extinction	Extinction occurs when there are no more of that species left anywhere in the world.		

Year 6 Summer 1: Science Knowledge Mat

Light

Key Vocabulary		Eye	Core Knowledge	
Light wave	One of the characteristics of light is that it behaves like a wave. Light can be defined by its wavelength and frequency. The frequency is how fast the waves vibrate up and down.		<ul style="list-style-type: none"> ➤ I know light will travel in a completely straight line until it hits an object that will reflect it. ➤ I know space does not have any light. We can see things in space due to light bouncing off the objects in space. I can identify observable characteristics in living things. ➤ I know light doesn't travel as fast when it has to pass through mediums that are different, such as air, water or glass. ➤ I know the light that we see from the sun actually left the sun ten minutes before we see it. ➤ I know light can be controlled and produced in so many ways. A camera can control the amount of light that comes into the camera lens. We also use light in televisions, medical systems, copy machines, telescopes and satellites. ➤ I know light is used by plants to convert the light into energy as their 'food'. The process is called 'photosynthesis' and converts carbon dioxide through the energy of the light. 	
Light source	Light, or illumination, is a form of energy that travels in waves, like sound. You can find different sources of light, such as a candle or the sun.			
Concave	Is a lens that curves inwards and reflects light differently as a result.			
Convex	Is a lens that curves outwards and reflects light differently as a result.			
Filters	A filter is a transparent material that absorbs some colours and allows others to pass through.			<p style="text-align: center;">Important facts to know by the end of the topic:</p>
Lens	A lens is a curved piece of glass or plastic designed to refract light in a specific way.			
Retina	The retina is at the back of your eye and it has light-sensitive cells called rods and cones.			<ul style="list-style-type: none"> ➤ Know that light travels in straight lines. ➤ Understand that because light travels in straight lines objects are seen because they give out or reflect light into the eye. ➤ 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. ➤ Know that light travels in straight lines and therefore shadows have the same shape as the objects that cast them.
Cornea	The cornea is thin, clear and covers your eye. It's important because it helps you see by focusing light as it enters the eye.			
Iris	By opening and closing the pupil, the iris can control the amount of light that enters the eye.			
Pupil	The pupil can be compared with the shutter of a camera. It is surrounded by the iris which is the coloured part of the eye.			

Year 6 Summer 2: Science Knowledge Mat

Electricity

Key Vocabulary		Images and symbols	Core Knowledge														
Circuit	A complete path that an electric current can flow around. It flows from the battery, through wires and devices before returning to the battery. If the circuit is not complete the electric current cannot flow.	<table border="1"> <tr> <td>cell</td> <td></td> </tr> <tr> <td>battery</td> <td></td> </tr> <tr> <td>wire</td> <td></td> </tr> <tr> <td>bulb</td> <td></td> </tr> <tr> <td>buzzer</td> <td></td> </tr> <tr> <td>motor</td> <td></td> </tr> <tr> <td>switch</td> <td></td> </tr> </table> <p>Adding bulbs to a circuit will make each bulb dimmer</p> <p>Simple Electric Circuit</p>	cell		battery		wire		bulb		buzzer		motor		switch		<ul style="list-style-type: none"> ➤ I know how changing the voltage of cells in a circuit affects the brightness of a lamp. ➤ I know how changing the voltage of cells in a circuit affects the loudness of a buzzer. ➤ I know how parts of a circuit function. ➤ I can draw a diagram of a circuit and use symbols to represent cells, wire, lamps/bulbs, buzzers, switches and motors.
cell																	
battery																	
wire																	
bulb																	
buzzer																	
motor																	
switch																	
Circuit symbol	A symbol used to represent various electronic components or functions in a diagram of a circuit.																
Voltage	Voltage measures the energy that is transferred to a device in a circuit. It is measured in Volts. Mains electricity carries a voltage of 210-240 volts. A typical cell in school has 1.5 volts.																
Current	A stream of charged particles, moving through an electrical conductor or space.																
Circuit diagram	A visual representation of an electrical circuit using symbols to represent the electrical components.																
Anomaly	A result that is not normal or is unexpected.																
Retina	The retina is at the back of your eye and it has light-sensitive cells called rods and cones.																
Analyse	To examine something methodically and in detail, in order to explain and it.																
Interval	A period between 2 events or times.																
Hypothesis	An idea for something that has not yet been proved.																

Working Scientifically

- I can ask a testable question which includes the change and measure variables.
- I can describe how the evidence I have collected supports or refutes my idea.
- I can make a prediction and explain my reasons using scientific knowledge.
- I can use more than one piece of evidence when forming a conclusion.
- I can describe how to improve planning to produce better results.
- I can suggest reasons for anomalies.
- I can select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.