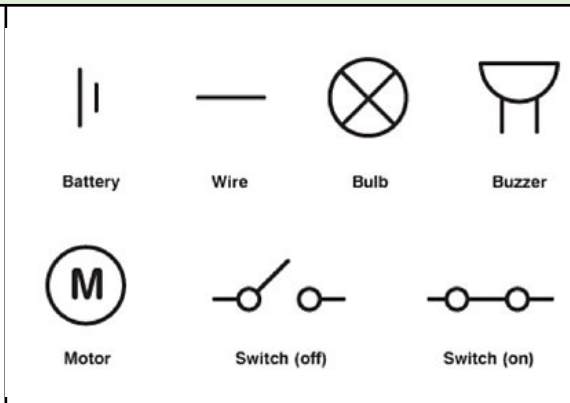
Stephenson Memorial Primary School - Science		
Topic: Electricty	Year: 6	Strand: Physics

What should I already know?

Electricity is a form of energy that can be carried by wires and is used for heating, lighting and to produce power for devices.
Which appliances need electricity
What a circuit is, the components of a circuit and how it works
What electrical conductors and insulators are
What happens when a switch is added to a circuit

What should I know by the end of this unit?

The correct symbols to use when drawing electrical circuits



What is voltage?

Voltage is the force that makes electricity move through a wire. It is measured in volts. Different batteries provide a different voltage.

Current is the amount of electricity flowing through the circuit. It is measured in amps.

The bigger the voltage, the bigger the current. Large electrical items need a higher electrical voltage and current than smaller items.

What will I investigate during this unit?

How the brightness of a bulb is affected by voltage (different numbers of batteries or strength of batteries)

Investigate how the loudness of a buzzer is affected by voltage

Compare the brightness of bulbs, the loudness of buzzers and the on/off position of switches in circuits. Give reasons for the differences.

Investigate how switches act on a circuit

Research the work of Michael Faraday

Vocabulary

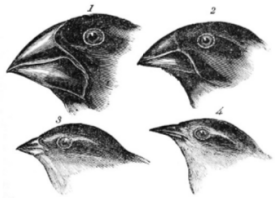
Appliances	A device that you use to do a job such as cooking or cleaning.
Battery	A small device which makes electricity
Bulb	The part of a lamp that gives out light when electricity passes through it.
Buzzer	An electrical device that makes a buzzing sound.
Cell	Synonym for battery
Circuit	A complete route around which an electrical current can flow.
Component	The parts something is made of
Conductor	A substance that electrical current can pass through
Current	The flow of electricity
Electricity	Energy that can be carried by wires and is used for heating, lighting and power.
Insulator	A substance that electrical current can't pass through.
Mains	The electricity supply to a building.
Motor	A device that uses electricity to produce movement
Resistance	A force which slows down a moving object
Source	Where something comes from
Switch	A small control for an electrical device to turn it on or off
Voltage	The force of an electrical current. Measured in volts.
Wires	A long thin piece of metal to carry electrical current.

Stephenson Memorial Primary School - Science		
Topic: Evolution	Year: 6	Strand: Biology

What should I already know?

Which things are living and which are not.
Animals have offspring which grow into adults.
The basic needs of animals for survival.
Physical characteristics of different types of animals.
Sometimes environments can change and this has an affect on the plants and animals that live there.
Living things reproduce.
How fossils are formed.

What should I know by the end of this unit?

What is inheritance?	Living things have offspring which are not identical to their parents Offspring may inherit some characteristics from each parent New characteristics may appear that are not inherited. These are called mutations.
What is adaptation?	Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes, animals and plants with variations that are best suited, survive in greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population.   Charles Darwin, an evolutionary scientist, studied different animal and plant **species**, which allowed him to see how **adaptations** could come about. His work on the finches was some of his most famous.
What is evolution?	Evolution is when adaptation happens over a very long period of time. The new characteristics may be so different to how they were originally that a new species is created.
How do we know about evolution?	1. Palaeontologists study fossils to learn about evolution 2. We can compare living things to find common ancestors 3. Some animals have not changed overtime and are called living fossils (e,g. crocodile)

Vocabulary

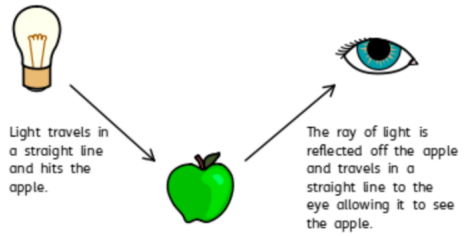
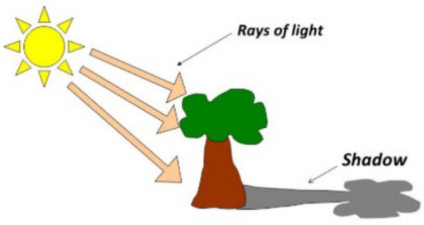
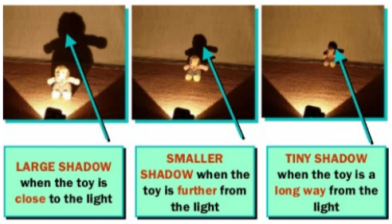
Adaptation	A change in structure or function that improves the chance of survival for an animal or plant in a specific environment
Characteristics	The qualities or features that belong to living things and make them recognisable
Environment	All the circumstances, people, things and events around them that influence their life
Evolution	A process of change that takes place over many generations, during which species of animals or plants slowly change some of their physical characteristics
Extinct	No longer has any living members in the world or in a particular place
Fossil	The remains of a prehistoric animal or plant that are found inside a rock
Inherit	To be born with a characteristic because your parents also had it
Maladaptation	The failure to adapt properly to a new environment
Mutation	New characteristics that are not inherited from the parents
Natural selection	A process by which species that are best adapted to their environment survive and reproduce, while those that are less well adapted die out
Palaeontology	The study of fossils as a guide to the history of life
Reproduction	When an animal or plant produces one or more individuals similar to itself
Species	Plants and animals whose members have the same main characteristics and are able to breed with each other
Variation	A change or slight difference

Stephenson Memorial Primary School - Science		
Topic: Light	Year: 6	Strand: Physics

What should I already know?

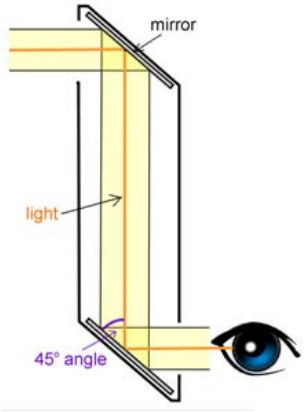
We need light in order to see things
Dark is the absence of light.
Light is reflected from surfaces.
Dark shadows are formed when light is blocked by an opaque object.
The further away the light source is, the smaller the shadow is. The closer the source of the light, the bigger the shadow.

What should I know by the end of this unit?

How does light travel?	Light travels in a straight line. Reflection is when light bounces off a surface - this changes the direction in which the light travels.
How do we see?	 All objects reflect some light, or we would not be able to see them.
How are shadows formed?	Shadows are created when objects block the light. The shadow will be the same shape as the object because light travels in straight lines. Shadows are always on the opposite side of the object to the light source. 
How do shadows change?	The size of shadows change as the light source moves. 

Vocabulary

Dark	Absence of light
Dim	Light that is not bright
Mirror	A piece of glass that reflects light, so that you can see your reflection
Opaque	Not see through - does not let light pass through.
Optical instrument	A device which uses light to provide an image
Periscope	Optical instrument that lets you see round corners
Reflects	Sent back from the surface and does not pass through
Shadow	A dark shape made when light is blocked
Source	Where something comes from
Translucent	Lets some light through
Transparent	See through - let's light pass through.

How does a periscope work?	A simple periscope is a long tube with a mirror at each end. The mirrors are fitted at an angle of exactly 45°so that they face each other. Light hits the top mirror and reflects away at the same angle. The light then bounces down to the bottom mirror and is reflected right into your eye. 

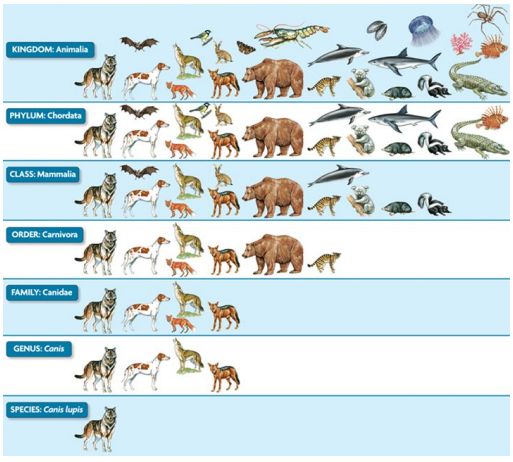
Stephenson Memorial Primary School - Science

Topic: Living things	Year: 6	Strand: Biology

What should I already know?

Recognise that living things can be grouped in a variety of ways.
Use classification keys
Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
Describe the life process of reproduction in some plants and animals.

What should I know by the end of this unit?

What is classification?	Classification is grouping living things according to characteristics.
How are living things classified?	Living things can be classified into two main groups - plants and animals. Microorganisms such as bacteria and yeast do not fit into either group. Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms. Plants can be divided broadly into two main groups: flowering plants and non-flowering plants.
Why do we classify?	To help us understand and organise living things.
Who was Carl Linnaeus?	Carl Linnaeus invented the Linnaean system of classification. It has different levels where the number of living things in each group gets smaller and smaller, until there will just be one type of animal in the species group. 

Vocabulary

Animals	Living things that cannot make their own food. They move around to find food.
Bacteria	Single-celled organisms. Can be helpful or harmful
Cell	The building blocks of living things
Characteristic	The qualities or features that belong to them and make them recognisable
Classification key	A system which divides things into groups
Criteria	A factor on which something is judged
Fungus	A simple living thing that is not a plant or animal
Invertebrate	An animal with no backbone
Microorganism	A very small living thing that can only be seen under the microscope
Organism	A living thing
Plants	Living things that make their own food
Species	A group of plants or animals that have the same characteristics and are able to breed with each other.
Vertebrate	An animal with a backbone

What are micro-organisms?	Microorganisms are not plants or animals They are very tiny organisms that can only be seen under a microscope They include bacteria, dust mites and fungi such as mould. Some microorganisms are helpful and some are harmful. They need to be controlled.

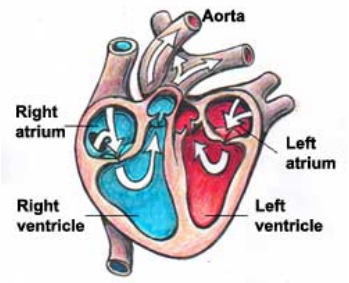
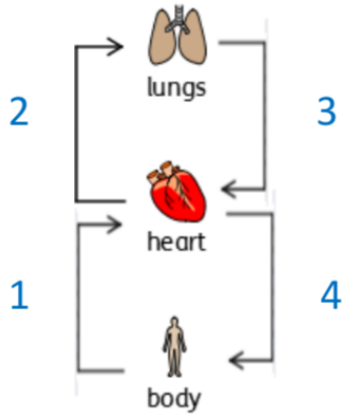
Stephenson Memorial Primary School - Science

Topic: Animals including humans	Year: 6	Strand: Biology

What should I already know?

The basic needs of animals for survival.
The importance of exercise, hygiene and balanced diet
Animals get nutrition from what they eat
Some animals have skeletons for support and protection, and muscles for movement.
The basic parts and functions of the digestive system
The different types of teeth in humans
Respiration is one of seven life processes

What should I know by the end of this unit?

What is the circulatory system?	The circulatory system is made of the heart, lungs and the blood vessels: - the heart is a pump, which keeps all the blood in your circulatory system flowing. - blood vessels carry blood all around the body - the blood carries useful materials like oxygen, water and nutrients and removes waste products like carbon dioxide.
What is the heart?	The heart is a pump, which pumps blood around the circulatory system. It has four chambers; the right atrium, the right ventricle, the left atrium and the left ventricle. How often your heart pumps is called your pulse.
How does the heart work?	1. The right atrium collects the deoxygenated blood from the body, via the vena cava. It sends the blood to the right ventricle. 2. The right ventricle pumps the deoxygenated blood to the lungs. Here the blood picks up oxygen and disposes of carbon dioxide. 3. The lungs send oxygenated blood back to the left atrium which pumps it to the left ventricle. 4. The left ventricle pumps the blood to the rest of the body, via the aorta. 
What are the blood vessels?	- Arteries carry oxygenated blood from the heart to the rest of the body. - Veins carry deoxygenated blood from the body to the heart. - Nutrients, oxygen and carbon dioxide are exchanged via the capillaries.
What is the double loop circulatory system?	1. Deoxygenated blood is sent to the heart from the rest of the body. 2. This is then sent from the heart to the lungs. Here, the blood picks up oxygen and disposes of carbon dioxide. 3. Oxygenated blood is then sent back to the heart. 4. The heart sends the oxygenated blood back to the rest of the body. 
What is the blood?	Blood contains different things which help it to transport oxygen, water and nutrients around the body. - Red blood cells transport oxygen - White blood cells protect against disease - Platelets repair cuts and clot blood - Plasma - liquid that carries cells and dissolved nutrients. Plasma contains water.
What choices can harm the circulatory system?	- Tobacco can cause short-term effects such as shortness of breath, difficulty sleeping and loss of taste. Long-term effects include lung disease, cancer and death. - Alcohol can cause short-term effects such as addiction and loss of control. Long-term effects include organ damage, cancer and death - Lack of exercise weakens the heart and lungs

Vocabulary		
Aorta	The main artery through which blood leaves your heart before it flows through the rest of your body	
Arteries	A tube in your body that carries oxygenated blood away from your heart to the rest of the body	
Blood vessels	The narrow tubes through which your blood flows. Includes arteries, capillaries and veins.	
Capillaries	Tiny blood vessels	
Carbon dioxide	A gas that is breathed out	
Circulatory system	The system that circulates blood around the body.	
Deoxygenated	Blood that doesn't contain oxygen	
Heart	The organ in your chest that pumps blood around the body	
Lungs	Two organs in your chest that fill with air when you breathe in. They provide oxygen to the blood and remove carbon dioxide from it.	
Oxygen	A colourless gas that plants and animals need to survive	
Oxygenated	Blood that contains oxygen	
Plasma	The liquid part of blood	
Platelets	A small fragment of cell found in the blood	
Pulse	The regular beating of blood through your body	
Red blood cells	Cells in blood that carry oxygen	
Vein	A tube in your body that carries deoxygenated blood to your heart from the rest of the body.	
Vena cava	A large vein through which deoxygenated blood reaches your heart from the body	
White blood cells	Cells in blood that protect against disease.	