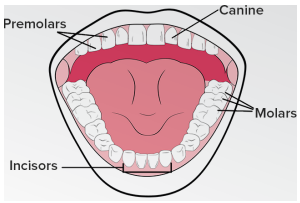
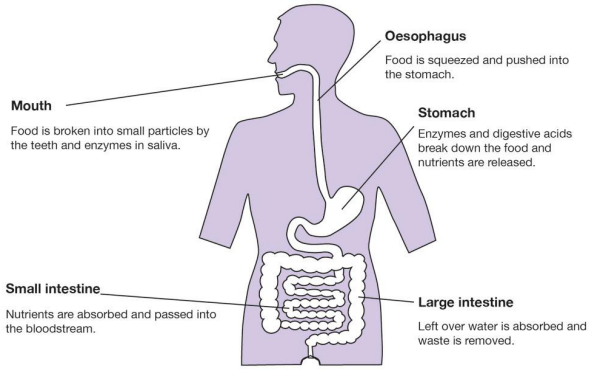
Stephenson Memorial Primary School - Science

Topic: Animals inc. humans (teeth and digestion)	Year: 4	Strand: Biology

What should I already know?

All animals need food, water and air to survive.
The different ways in which humans stay healthy.
Animals can be carnivores, herbivores or omnivores.
The function of bones and muscles.
The names of the different parts of the body.
Where the lungs, heart and stomach are.
Excretion is one of the seven living processes.

What should I know by the end of this unit?

What is the role of teeth and how do we look after them?	Teeth are used for cutting and chewing food. They start the digestive process, which gives us energy to live Humans look after their teeth by brushing them twice a day, flossing and avoiding sugary food and drinks. Not looking after teeth can lead to plaque and tooth decay.
What are the different types and functions of human teeth?	Humans have two sets of teeth. Children have 20 milk teeth. Adults have 32 teeth, Incisors are shovel shaped for biting and cutting food. Canines are pointed for tearing and ripping. Premolars and molars are flat and they grind and chew food. 
The digestive system	

Vocabulary

Absorb	Soak up or take in
Canine	Pointed teeth near the from of the mouth (humans)
Decay	Gradually destroyed by a natural process
Digestion	Breaking down ingested food to get nutrients
Enamel	The hard white substance covering a tooth
Excretion	Removing faeces, sweat or urine from the body
Faeces	Solid waste substance removed through the anus
Incisor	The teeth at the front of the mouth used for biting
Ingested	Take in
Intestines	The tubes in your body through which food passses when it has left your stomach
Molar	Large flat teeth at the back of the mouth for chewing
Oesophagus	Tube carrying food from your mouth to your stomach
Plaque	A substance, containing bacteria, that can form on your teeth
Premolar	Teeth in front of the molars
Rectum	Straight section of large intestine connected to anus
Saliva	Watery liquid in your mouth
Stomach	Where food is digested before it moves to the intestines

Stephenson Memorial Primary School - Science		
Topic: Animals inc. humans (food chains and food webs)	Year: 4	Strand: Biology

What should I already know?

Animals can be grouped in different ways including as carnivores, herbivores and omnivores
Examples of habitats and micro habitats
Plants need sunlight to grow
Living things depend on each other to survive
Nutrition is one of seven life processes

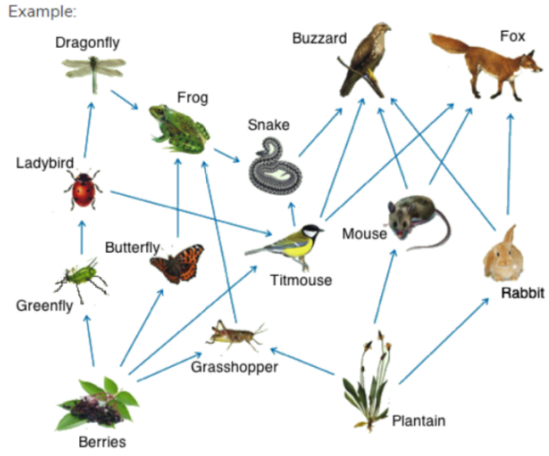
What should I know by the end of this unit?

What is a food chain?

A food chain shows the direction in which energy moves from the producer to the various consumers.
The producer (a plant) gets its energy from the Sun.
The primary consumer eats the plant and gets its energy from it.
The secondary consumer eats the primary consumer and gets its energy from it.
The arrows show the direction in which the energy travels.

What is a food web?

A food web shows the direction in which energy travels when animals and producers are eaten by more than one thing.
A food web shows how different food chains link together.



When part of the food web is removed this has an impact on the other parts.
The numbers of some species will increase while others will decrease.

Vocabulary

Carnivore	An animal that eats meat (other animals)
Energy	The ability and strength to do physical things
Food chain	A series of living things which are linked to each other because each thing feeds on the one next to it in the series
Food web	A combination of food chains that integrate to form a network
Habitat	The natural environment in which an animal or plant normally lives or grows
Herbivore	An animal that only eats plants
Omnivore	An animal that eats both meat (other animals) and plants
Predator	An animal that kills and eats other animals
Prey	An animal hunted or captured by another for food
Primary consumer	An organism that feeds on producers. They are always herbivores
Producer	Organisms that make their own food using energy from the Sun
Secondary consumer	Organisms that eat primary consumers for energy
Tertiary consumer	Organisms that eat secondary consumers

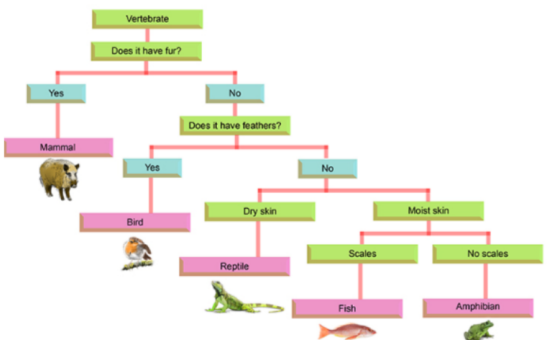
Stephenson Memorial Primary School - Science

Topic: Living things	Year: 4	Strand: Biology

What should I already know?

Identify and describe a variety of common plants, trees and animals.
Living things have seven characteristics: movement, respiration, sensitivity, growth, reproduction, excretion, nutrition (Mrs Gren).
Animals can be grouped as vertebrates or invertebrates
How to group animals according to what they eat,

What should I know by the end of this unit?

There are 5 different groups of vertebrates	Mammals - give birth to live young - Have hair or fur - Warm blooded - Have lungs to breathe Fish - have fins and scales - Use gills to breathe underwater - Lay eggs in water - Cold blooded Birds - Warm blooded - Have feathers - Have wings and beaks - Lay eggs Reptiles - Cold blooded - Lay eggs - Have scales - Can not breathe underwater Amphibians - Moist skin - Cold blooded - Lay eggs - Live on water and land
What is a classification key?	A classification key is a tool used to group things to help us identify them. 

Vocabulary

Amphibian	Animal living in water and on land
Birds	Animal with wings, feather and a beak
Classification key	A tool to sort things into groups
Environment	All the circumstances, people, things and events around them that influence their life
Feathers	Soft, light parts that grow from the skin of a bird
Fins	Thin, flats body part used for swimming or balance
Fish	Animal living in water with fins, scales and cold blood.
Gills	An organ used for breathing in water
Habitat	The natural environment of a plant or animal
Invertebrate	An animal with no backbone
Lungs	Organ for breathing in air
Mammal	An animal with hair or fur
Reptile	A cold blooded animal with scales, that cannot breathe underwater
Scales	Small, hard, thin plates that cover some animals
Urban	To do with a city or town
Vertebrate	Animal with a backbone

Changes to the environment can affect living things	Habitats can change throughout the year and this can effect the plants and animals. Humans can have positive and negative effects on the environment: - Positive effects - nature reserves, ecological parks. - Negative effects - litter, urban development

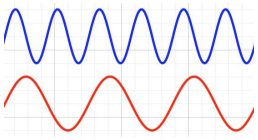
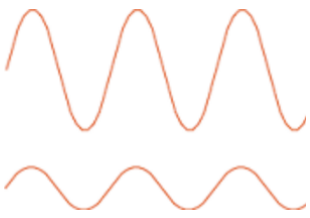
Stephenson Memorial Primary School - Science

Topic: Sound	Year: 4	Strand: Physics

What should I already know?

Hearing is one of my five senses
I use my ears to hear

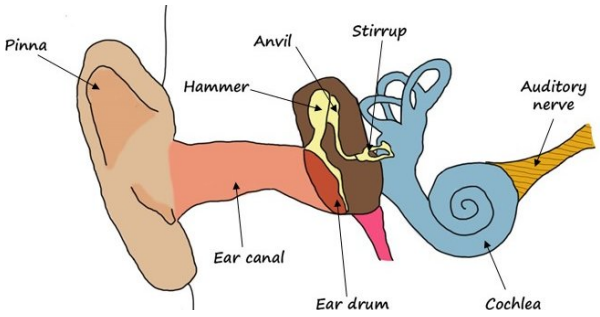
What should I know by the end of this unit?

What is a sound?	A sound is a thing that can be heard. The object that makes the sound is called the source.
How is a sound made ?	When objects vibrate a sound is made. The vibration makes the air around the object vibrate and the air enters your ear. These are called sound waves. If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations.
How do sounds travel?	Sound waves travel through a medium such as water, glass, stone, air or brick.
How do sounds change?	The pitch of a sound is how high or low it is. The squeak of a mouse is a high pitch. The roar of a lion is a low pitch. Pitch is shown by the frequency of the sound waves (how close together they are).  High pitch Low pitch The volume of a sound is how loud or quiet it is. Volume is shown by how tall the sound waves are (amplitude).  Louder Quieter Sounds gets quieter as you get further away from the source.

Vocabulary

Amplitude	The strength of a sound wave
Decibel	A measure of how loud a sound is
Frequency	A measure of how many times per second the sound wave cycles
Medium	The substance the sound wave travels through
Pitch	How high or low a sound is
Sound wave	Invisible waves that travel through air, water and solid objects as vibrations.
Source	Where something comes from
Vibrate	To move and back and forth very quickly
Vibrations	Invisible waves that move quickly.
Volume	How loud a sound is

How do we hear sounds?	Sound waves travel to the ear and make the eardrums vibrate. Messages are sent to the brain which recognise the vibrations as sounds.



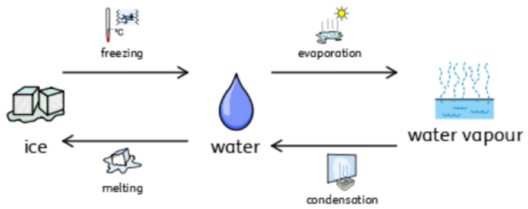
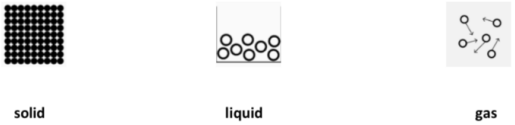
Stephenson Memorial Primary School - Science

Topic: States of matter	Year: 4	Strand: Chemistry

What should I already know?

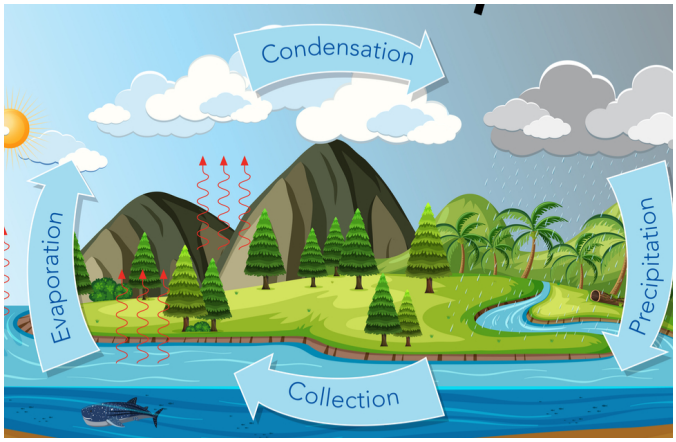
Why some materials are used for certain purposes because of their properties.

What should I know by the end of this unit?

What is a particle?	Materials are made from particles Particles are so small we cannot see them with our eyes The properties of a material depend on what its particles are like. Particles behave differently in solids, liquids and gases
What is a solid? 	A solid has a fixed shape and volume and can't be poured Solids have vibrating particles which are closely packed and form a regular pattern Solid particles do not have much energy
What is a liquid? 	Liquids take the shape of the container they are in Liquids can be poured Liquids have particles which are close together, but random. Liquid particles have some energy and can move over each other.
What is a gas?	Gases will fill the container they are in Gas particles spread out and move in all directions. They have lots of energy.
Materials can change state.	As particles are heated they get more energy and change state from solid to liquid or liquid to gas. As particles are cooled they have less energy and change state from gas to liquid or liquid to solid.   Freezing point of water = 0°C Boiling point of water = 100°C

Vocabulary

Boiling point	The temperature at which a substance boils
Condensation	Small drops of water which form when water vapour or steam touch a cold surface
Cooling	Lowering the temperature of something
Evaporation	To turn from liquid into gas
Freezing	To become solid because of low temperatures
Gas	A state of matter that is not liquid or solid
Liquid	A state of matter that flows easily and is not solid or gas
Melting	To change from a solid to a liquid through heat or pressure
Particles	A tiny amount or small piece
Precipitation	Rain, snow or sleet are formed by the condensation of water vapour in the atmosphere
Solid	A state of matter with a fixed shape, not a liquid or gas
Vibration	To shake in very small movements
Water cycle	The process by which water on the Earth evaporates then condenses in the atmosphere and then returns to the Earth as precipitation
Water vapour	Water in the state of gas especially from evaporation below boiling point

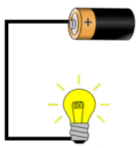


Stephenson Memorial Primary School - Science

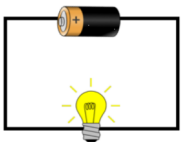
Topic: Electricity	Year: 4	Strand: Physics

What should I already know?
Sources of light and sound may need electricity to work

What should I know by the end of this unit?	
What is electricity?	Electricity is a form of energy that can be carried by wires and is used for heating, lighting and to provide power for devices. Electricity is generated using energy from different sources such as the sun, wind, oil, coal and water.
Which appliances run on electricity?	Some appliances use batteries and some use mains electricity. Common appliances which use electricity include cooker, kettle, toaster, laptop, phone, torch, television, lamp.
How does a circuit work?	A circuit allows electrical current to flow to an appliance. Electrical current flows from the positive terminal of a battery through the wires and appliance to the negative terminal. A circuit contains a power source, wires and an appliance. In order to work a circuit must have: 1. A power source 2. Be a complete loop A switch can break or reconnect a circuit
What are electrical insulators and conductors?	When objects are placed in a circuit, they may or may not allow electrical current to pass through. Objects that allow electrical current to pass through are called electrical conductors. Objects which do not allow electrical current to pass through are called electrical insulators.



Circuit has a battery but is incomplete - will not work



Circuit has a battery and is complete - will work

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.
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
Crocodile clip	A sprung metal clip
Current	A flow of electricity
Device	An object invented for a particular purpose
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
Power	Power is energy.
Source	Where something comes from
Switch	A small control for an electrical device to turn it on or off
Terminal	The end point
Wires	A long thin piece of metal to carry electrical current.