

It is very important to be safe with electricity.
Electricians are trained to be safe with electrical
circuits and equipment.

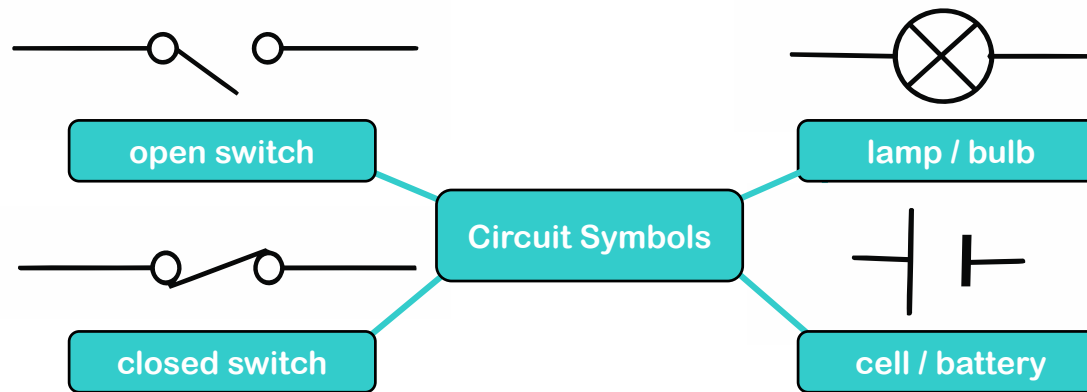
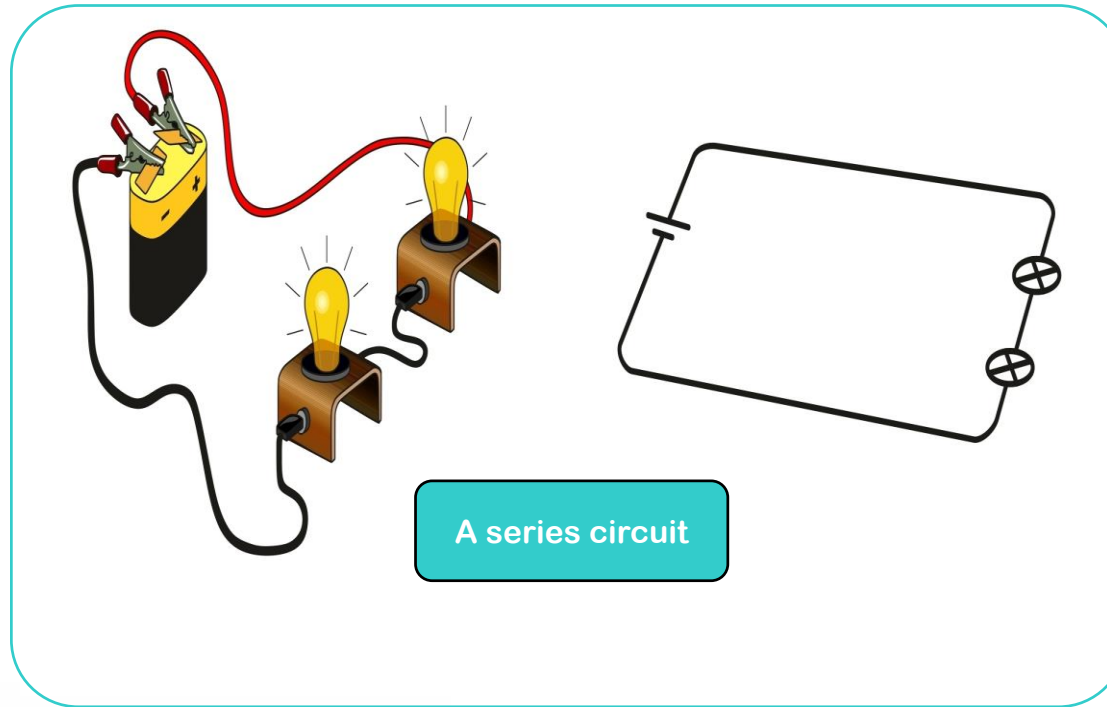
Year 4 Autumn 1st Half Electricity

All metals are good conductors of electricity and
materials like rubber are good insulators.

KEY VOCABULARY

Learn these words
and their definitions.

Key Word	Definition
series circuit	A looped circuit where the electricity flows from the positive to negative terminal of the battery.
circuit diagram	Electrical components shown in a picture by using standard symbols.
parallel circuit	A circuit with two or more pathways for the current to flow through.
conductor	Materials which allow electricity to flow through them with ease.
insulator	Materials that do not allow electricity to pass through them with ease.
loop	A complete circuit.
switch	A toggle which is changed by someone as way of controlling an electrical circuit or system.
resistance	A measure of how much an object opposes the flow of electrons.



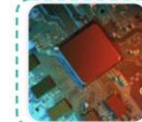
NIT LESSONS



1. Know how to work safely with electricity



2. Explore how electricity is transported



3. Describe the basic parts of a circuit



4. Identify when a lamp will light in a simple series circuit



5. Explain how to recognise electrical conductors and insulators



6. Understand the difference between a series and parallel circuit

We can conserve energy by:

- Turning off electrical devices
 - Turning lights off
- Using renewable sources such as solar and wind power
- Using energy-saving lightbulbs

The softer the material, the more sound will be absorbed by it.

Year 4 Autumn 2nd Half Sound

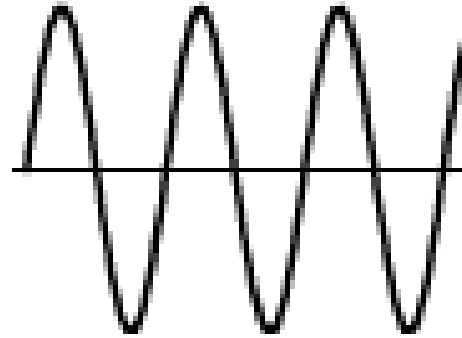
Sound waves can travel through solids, liquids and gases, but will sound differently depending on what they are travelling through.

KEY VOCABULARY

Learn these words and their definitions.

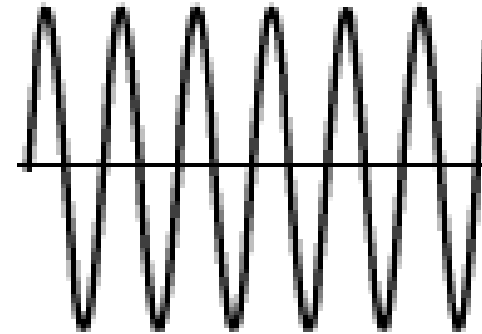
Key Word	Definition
vibration	A movement back and forth to create a sound.
speed of sound	The distance travelled per unit volume by a sound wave.
soundproof	Something such a material that prevents the passage of sound through it.
sound wave	A form that sound takes as it moves through air, water etc. Recorded on a graph.
frequency	The number of cycles per second that a sound oscillates, recorded in Hertz (hz).
decibel	A unit measurement given to the loudness or intensity of a sound.
eardrum	The part of the ear that vibrates when receiving sounds.
pitch	The quality related who whether sounds are 'high' or 'low.'

low pitch sound



- The sound waves are wider apart.
- Has a lower frequency in hertz (Hz)
- The sound wave moves slower.
- On a musical instrument, a thicker string will produce a lower sound.

high pitch sound



- The sound waves are closer together.
- Has a higher frequency in hertz (Hz)
- The sound wave moves quicker.
- On a musical instrument, a thinner string will produce a higher sound.



Protecting your ears

- If a sound reaches 85 decibels (dB) or stronger, it can permanently damage your hearing.
- Your ear drum can get perforated, or burst, if you don't protect your ears.
- Ear defenders are used by workmen and those who work in noisy environments to protect their ears from the sound.



NIT LESSONS



1. Explain what causes sound



2. Describe how sound travels



3. Compare the speed of sound and the speed of light



4. Describe high and low pitched sounds

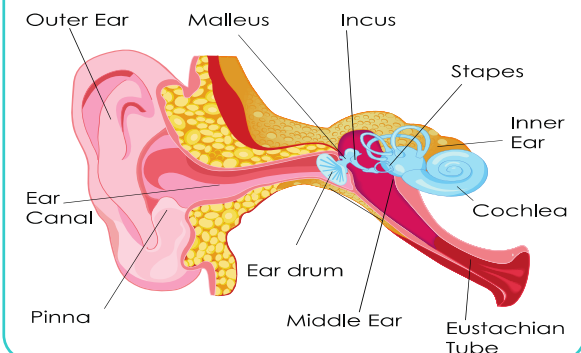


5. Explore acoustics and how sound travels through solids, liquids and gases



6. Explain how to protect your ears

human ear



A 'mixture' is something that is physically joined together but can be separated again.

Year 4 Spring 1st Half States of Matter

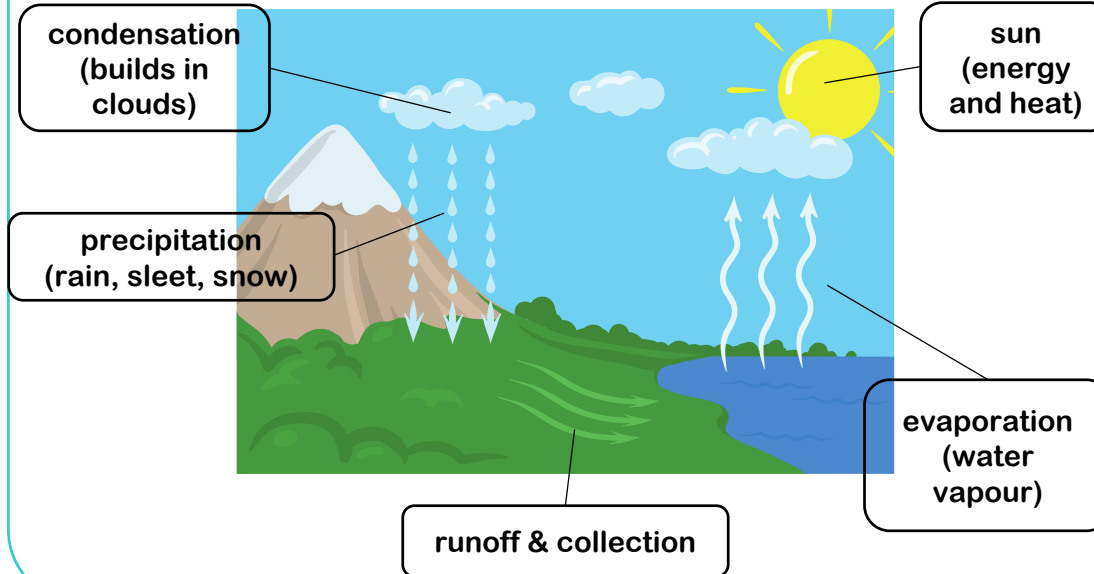
Mixtures can be separated in so many ways – such as evaporation, distillation, filtering and absorption.

KEY VOCABULARY

Learn these words and their definitions.

Key Word	Definition
water cycle	The processes that water takes between the earth's oceans, land and atmosphere.
molecule	A group of atoms bonded together that can take part in a chemical reaction.
solute	Something which is dissolved in a solution.
solvent	The ability to dissolve other substances.
evaporation	The process of liquid turning to vapour.
water vapour	The form water takes when it evaporates into a gas in the air.
condensation	The conversion of a vapour or gas to a liquid, often collects as droplets on a cold surface.
distillation	The action of purifying a liquid by heating and cooling.

The Water Cycle



NIT LESSONS

- 1 • Compare and group solids, liquids and gases
- 2 • Investigate the effect of temperature on changing state
- 3 • Understand dissolving and diluting
- 4 • Explore evaporation and condensation
- 5 • Understand the water cycle
- 6 • Describe freezing and melting

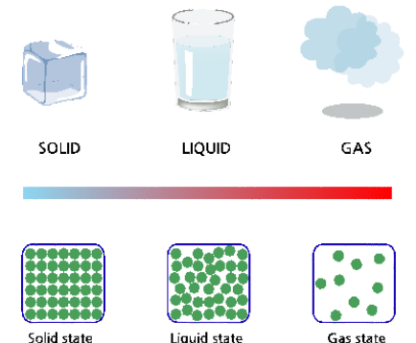
Dissolving

- The item being dissolved is the **solute**.
- The substance dissolving it is called the **solvent**.
- When the solvent can dissolve no more of the solute, it is called '**saturation**'

Diluting

- This process **reduces the concentration of a solute in a solution**.
- Takes place by adding more of the solvent to the solute.
- A good example of this is adding more water to orange squash.

States of Matter



Our small intestine measures around 6 metres long if you stretched it out! Hardly 'small' is it?

Year 4 Spring 2nd Half Animals Including Humans – Food and Digestion

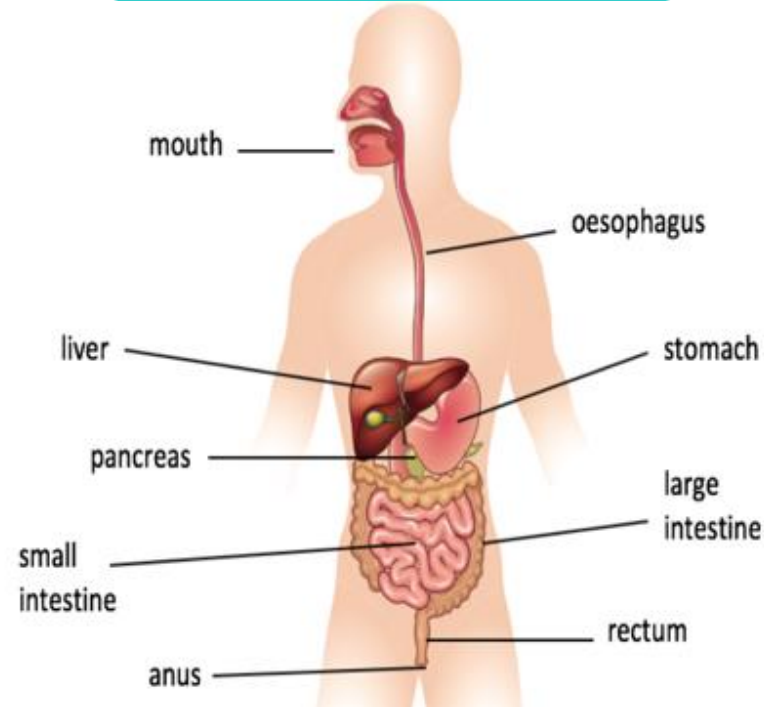
The average adult human produces about 160kg of poo in a year!

KEY VOCABULARY

Learn these words and their definitions.

Key Word	Definition
salivary gland	A gland which produces saliva (spit) to help you digest your food.
oesophagus	A muscular tube connecting the throat and the stomach.
intestines	Including the large and small intestine, these are the tubes which pass your food from stomach to anus and help sort food and waste.
food pyramid	A graphic which outlines different food and healthy eating.
nutrient	A substance that offers nourishment to the body. We need these to be healthy.
vitamin	A group of compounds which are essential for healthy growth, they are found in food.
digest	To break down food within the body.
decomposer	An organism that breaks down organic material.

The digestive system



Fun Food Facts!

1. Most of our protein comes from meat, fish, eggs and nuts.
2. Fruit and vegetables are full of the vitamins we need to be healthy.
3. A food chain is vital for nature to survive
4. We are 'consumers' as we eat food to make the energy we need.
5. In the UK, 1.9 million tonnes of food is wasted each year!



NIT LESSONS

1

Understand salivary glands and taste buds

2

Know the different types of teeth

3

Understand the intestines

4

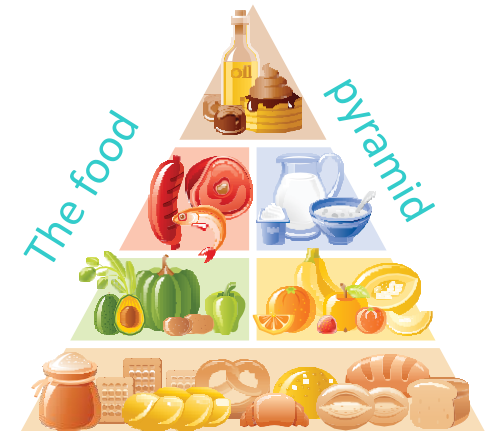
Understand the food pyramid and why it's important

5

Know about vitamins and minerals

6

Understand the food chain; know how natural cycles work



A habitat is a natural environment for any type of living organism.







Year 4 Summer 1st Half
Classifying Living Things and
their Habitats

In 2018, scientists discovered 230 new species of animals and plants on earth.

KEY VOCABULARY

Learn these words
and their definitions.

Key Word	Definition
classify	To arrange or group things into categories depending on characteristics.
vertebrate	An animal with a backbone.
invertebrate	An animal without a backbone.
cold-blooded	An animal whose body temperature varies with the environment they are in, i.e. fish.
warm-blooded	Animals that maintain a regular body temperature
sample	A small amount of something to show what the whole of it may be like.
exoskeleton	An external covering of the body found in some invertebrates such as arthropods.
creature	An animal, distinct from a human being.

Type	Food	Body	Blood
Mammal 	Can be carnivorous, omnivorous or herbivorous	<ul style="list-style-type: none"> Hair and fur Four-chambered hearts Females give milk Have teeth Vertebrates 	Warm-Blooded
Insect 	Can be carnivorous or herbivorous	<ul style="list-style-type: none"> Made up of a head, thorax and abdomen Six legs Invertebrates 	Cold-Blooded
Bird 	Can be carnivorous, omnivorous or herbivorous	<ul style="list-style-type: none"> Feathers Wings Beaks Lays eggs Vertebrates 	Warm-Blooded
Fish 	Mostly carnivorous	<ul style="list-style-type: none"> Breathe with gills Scales Fins Can swim Most are vertebrates 	Cold-Blooded
Amphibian 	Can be carnivorous or herbivorous	<ul style="list-style-type: none"> Live in water or land Can breathe through gills or lungs Vertebrates 	Cold-Blooded
Reptile 	Can be carnivores or omnivorous	<ul style="list-style-type: none"> Most lay eggs Has scales Live in water or land Vertebrates 	Cold-Blooded



UNIT LESSONS

1

•1. Understand habitats

2

•2. Know how scientists classify animals

3

•3. Understand the difference between vertebrate and invertebrate

4

•4. Know about cold-blooded amphibians and reptiles

5

•5. Know about warm-blooded birds and mammals

6

•6. Understand how fish are different from amphibians and reptiles



Habitats

Did you know that around 450 million litres of water are wasted each year in the UK?

Year 4 Summer 2nd Half
Living things and their habitats:
Nature and the environment

It is estimated that the world's reserves of oil and gas could run out in the next 50 years.

KEY VOCABULARY	
Learn these words and their definitions.	
Key Word	Definition
ecology	A type of science which looks at the relations between different organisms and their environments.
interdependent	When two or more things are reliant on each other for survival.
ecosystem	A community of organisms that interact with each other within their environment.
environment	The surroundings or conditions in which we live.
pollute	To damage something natural with harmful substances.
chemical	A substance which has been artificially prepared for a purpose.
habitat	The natural home of an animal or plant.
emission	This release of something, such as gas, into the atmosphere.



Air pollution



Manufacturing & Pollution



Deforestation




Hazardous Waste



Radioactive Hazard



Water Pollution

 UNIT LESSONS

1

Know about the balance of nature

2

Understand ecosystems and how they are affected by changes in the environment

3

Understand man's impact on the environment

4

Know about air pollution; know how we can help protect the environment

5

Understand water pollution

6

Explore methods that can be used to conserve water

Five top tips for helping to save the planet!

1. Re-use and recycle plastic items.
2. Turn off taps and only use the water you need.
3. Fully switch off lights and electrical items.
4. Encourage the use of renewable energy sources.
5. Walk, cycle or use public transport.



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