
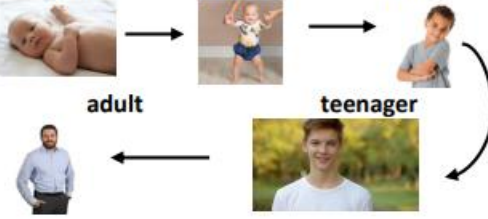


Animals including humans have offspring that grow into adults


lamb → **sheep**



baby → **toddler** → **child** → **teenager** → **adult**




egg → **chick** → **chicken**

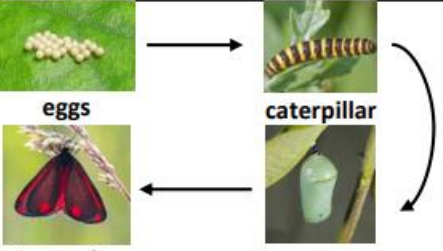


The young of some animals don't look like their parents:

spawn → **tadpole** → **frog**




eggs → **caterpillar** → **pupa** → **butterfly**



Animals including humans – Year 2

Key vocabulary	
offspring	A person's children or an animal's young.
reproduction	The process where new animals, humans or plants are made.
growth	The process of getting bigger.
exercise	This is when you move your body physically to get fit and remain healthy. Our heartbeat increases when we exercise.
breathing	This is what we do to get oxygen in our bodies.
hygiene	Keeping clean to prevent illnesses and the spread of disease.
germs	A very small thing that can cause diseases. We cannot see them with our eyes.
disease	An illness which affects people, animals or plants.

Significant scientist	
<p>Dr Ernest Madu (born 1960)</p> 	<p>Dr Ernest Madu is a cardiologist. His work focuses on providing affordable healthcare in low-resource nations.</p>

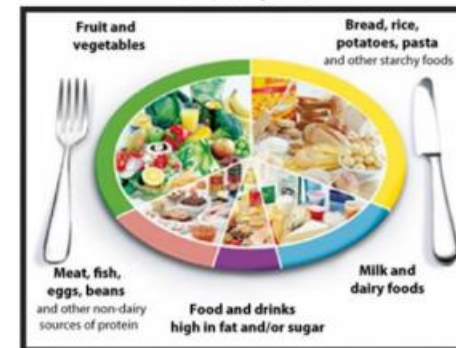
All animals including humans have these

basic needs to survive:



The Eatwell plate

This shows the different food groups that make up a healthy diet.



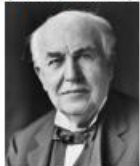
Key Vocabulary	
electricity	A form of energy used for lighting, heating, making sound and making machines work.
electrical appliance	A machine or device that runs on electricity.
mains	The electricity supplied to households from power stations.
electrical circuit	This consists of a cell or battery connected to a component using wires. It needs to be a complete circuit to work.
cell and battery	A cell is a single unit and a battery is a collection of cells.
electrical component	A part that combines with others to form a circuit. E.g. bulb, motor, buzzer
switch	Can be added to a circuit to turn a component on or off. It allows the electricity to flow or it stops it.
conductor	Material that allows electricity to pass through.
insulator	Material that does not allow electricity to pass through it.

Appliances that run on electricity

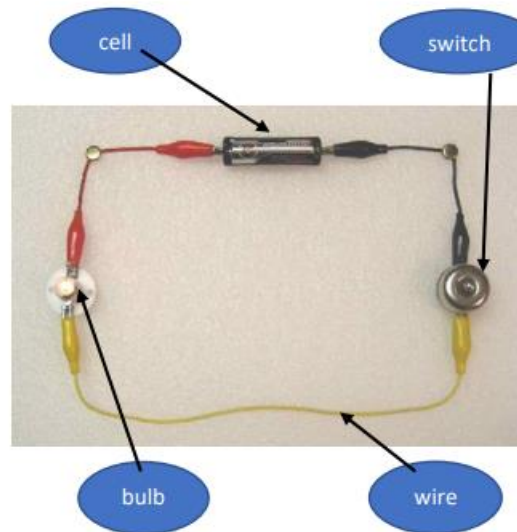
Some plug into the mains and others run on batteries.



Electricity – Year 4

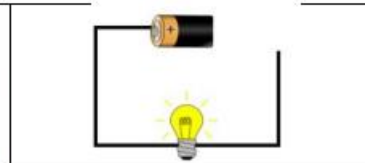
Significant scientist	
Thomas Edison (1847-1931) 	Thomas Edison was an American inventor. He is sometimes described as America's greatest inventor. He invented the first practical incandescent light bulb.

Electrical circuit with a bulb

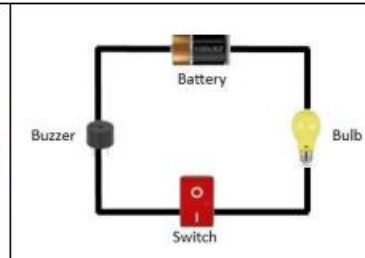


The switch opens and closes the circuit. The bulb lights in this circuit because the switch is on.

This circuit will not work as it is not complete.



This circuit is complete so the buzzer will sound and the bulb will light.



Conductors and insulators

Conductors

Some materials let electricity pass through them easily. These are known as electrical conductors. Many metals are good electrical conductors, such as iron, copper and steel.



Insulators

Some materials do not allow electricity to pass through them. They are known as insulators. Plastic, wood, rubber and glass are good electrical insulators.

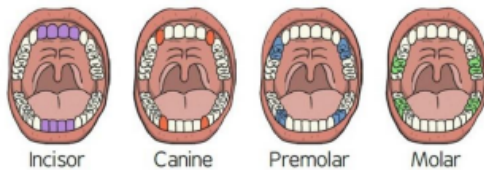


Key vocabulary	
digestive system	The organs in your body involved in the digestion of food.
digestion	This is the way the body breaks down food so the body can absorb it.
herbivore	Animals that only eat plants.
carnivore	Animals that eat other animals.
omnivore	Animals that eat both plants and animals.
producer	All green plants can make food in their leaves. They are the only producers of food.
consumer	Animals that eat plants in a food chain.
predator	Animals that catch and eat other animals.
prey	Animals that are hunted and eaten by predators.
food chain	Animals eat plants or other animals. The way this happens is shown in a food chain.

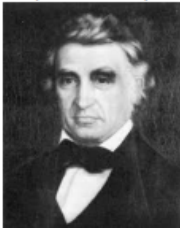
Teeth

Humans have 4 types of teeth:

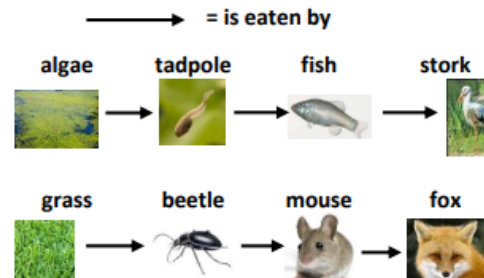
- **incisors** – used for cutting
- **canines** – rip and tear food
- **molars and premolars** – for grinding and chewing food



Animals including humans – Year 4

Significant scientist	
<p>William Beaumont (1785-1853)</p> 	<p>William Beaumont was a surgeon in the U.S. Army. He carried out lots of experiments and research on human digestion. As a result, he provided the world with new information about the digestive process in living human beings.</p>

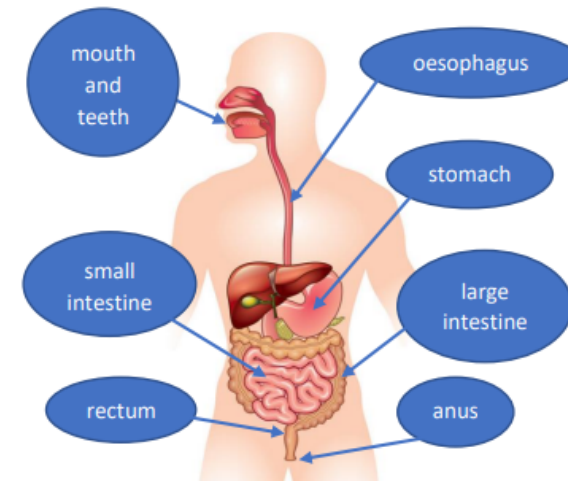
Food chains



Lion skull



Lions are carnivores. They have big canine teeth to help them catch their prey.





The main parts of the digestive system:

- Food enters the body through the **mouth**
- The **teeth** start to break the food down. **Saliva** is added and the tongue rolls the food into a ball.
- After swallowing, the food passes down the **oesophagus** to the stomach
- In the **stomach** the food is broken down further by being churned around and some chemicals are added.
- Food passes into the **small intestine**. Here **nutrients** are removed from the food to be used elsewhere in the body.
- The rest passes into the **large intestine** where **water** is removed to be used elsewhere in the body.
- What is left is then stored in the **rectum** until it leaves the body through the **anus** when you go to the toilet.

Key vocabulary	
classification	Grouping things based on their characteristics so that they can be identified.
classification key	A series of yes/no questions that help identify or classify things.
environment	The conditions in which a living thing exists. Soil, climate and other living things all count as part of the environment.
habitat	The place where an animal or plant lives.
migrate	The long-distance movement of animals, usually due to a change in the seasons.
hibernate	An animal or plant that spends the winter in a dormant state.
vertebrates	Animals that have a backbone. Fish, amphibians, reptiles, birds and mammals.
invertebrates	Animals that do not have a backbone. Examples are snails, worms, spiders and insects.

How can environments change?	
Natural changes	This could be caused by flooding, fire, earthquakes etc
Human have an impact on the environment:	
Positive impact This could be:	Negative impact This could be:
<ul style="list-style-type: none"> • setting up a nature reserve • tree planting • creating a garden pond. 	<ul style="list-style-type: none"> • littering • deforestation • air pollution • plastics in the oceans

Living things and their habitats – Year 4

Significant scientists	
<p>Jane Goodall (Born 1934)</p> 	Jane Goodall is an expert on wild chimpanzees. She is known for her ground breaking discoveries about their behaviour. She has shown us the urgent need to protect chimpanzees from extinction.
<p>Seirian Sumner</p> 	Dr Seirian Sumner is an evolutionary biologist and behavioural ecologist. She specialises in social evolution and behaviour in insects (bees, wasps and ants).

Environments can change with the seasons:



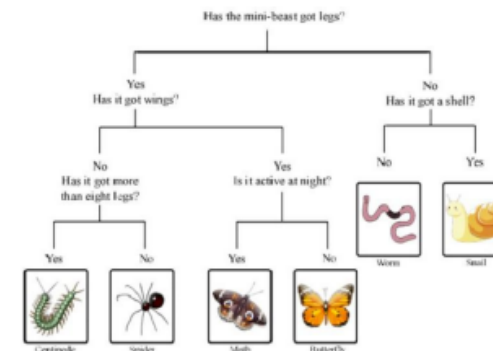
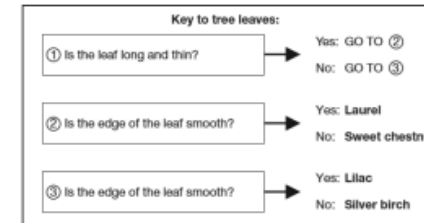
Arctic tern migrates from the Arctic to Antarctica.



Hedgehogs hibernate in the winter in small, dry, sheltered places, like tree roots.

Classification keys

A key to sort leaves




Key vocabulary	
sound	Something you can hear or that can be heard. We hear sound with our ears.
sound source	A source is producing sound when some part of it is vibrating.
vibrations	Sounds are made when something vibrates. This means it moves quickly backwards and forwards.
pitch	How high or low a sound is.
volume	How loud or quiet a sound is.
sound insulation	A material which blocks sound effectively.

How do we hear sound?



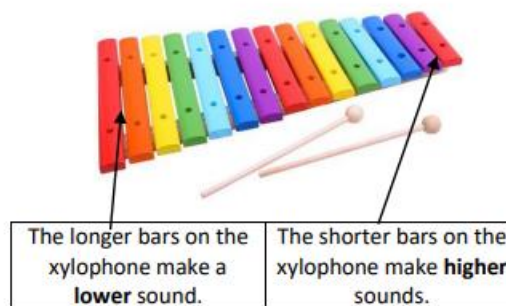
Sound – Year 4

Significant scientist	
Christian Doppler (1803-1853)	Christian Doppler was an Austrian mathematician and physicist. He is celebrated for his principle known as the Doppler effect. This describes how noises sound different as you move toward or away from a noisy object.
	

As well as travelling through air (gas), sound can travel through solids and liquids:



Pitch



Volume

The volume (loudness) of a sound depends on the size of the vibrations.



If we blow an instrument harder, we make a louder sound.

The closer we are to the sound source the louder it will be.



A train arriving at a station sounds loud.

The further away from a sound the fainter it will be.



A train in the distance sounds quieter.




Insulating sound




We can wear ear defenders to protect our ears from very loud sounds.

Key vocabulary	
change of state	When a material changes from one state to another.
melting	A solid changing into a liquid.
freezing	When a liquid becomes cold enough to turn solid, it freezes.
melting point	The temperature at which a solid becomes a liquid.
boiling point	The temperature at which a liquid turns into a gas.
evaporation	When liquid changes into a gas.
condensation	The process when a gas changes into a liquid, caused by cooling.
water cycle	The never-ending process of water moving from the oceans, up into the atmosphere, and back to the Earth and oceans.
temperature	The measure of how hot or cold something is.



Solids, liquids and gases

A solid keeps its shape and has a fixed volume.		
ice	sugar	
A liquid has a fixed volume but changes in shape to fit the container. It can be poured.		
water	honey	
A gas fills all the available space; it has no fixed shape or volume.		
water vapour	bubbles in cola	

States of matter – Year 4

Significant scientist	
Bernard Palissy (1510-1590) 	Bernard Palissy was a French potter and scientist. He is often credited as the man who 'discovered' the modern theory of the water cycle. He asserted that rainfall alone was sufficient for the maintenance of rivers.



Melting and freezing

	Melting is a change of state from solid to liquid. The melting point of water is 0°C.
	Freezing is a change of state from liquid to solid. The freezing point of water is 0°C.

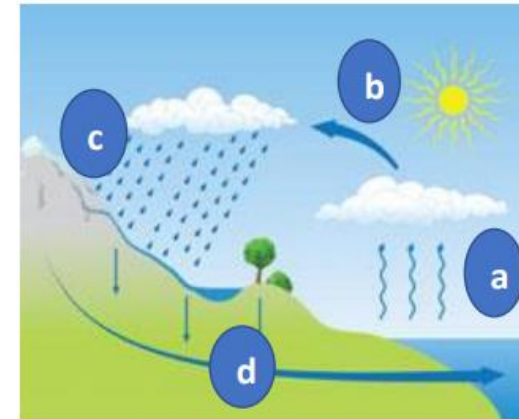
Boiling is a change of state from liquid to gas. Water boils when it is heated to 100°C.



Evaporation and condensation

	Evaporating puddles Evaporation is the change from a liquid to a gas at the surface of the liquid.
	Condensation in the bathroom Condensation is the change from a gas to a liquid, caused by cooling.

The Water Cycle



a	Water evaporates into the air The sun heats up water at the surface of seas, rivers, lakes and turns it into water vapour. The water vapour rises into the air.
b	Water vapour condenses into clouds Water vapour in the air cools and changes back into tiny drops of liquid water, forming clouds.
c	Water falls as rain snow, sleet etc When too much water has condensed the water droplets in the clouds get too heavy and water falls back down to Earth in the form of rain, snow, sleet etc. This is called precipitation.
d	Water returns to the sea. Rainwater runs over the land and collects in lakes or rivers which take it back to the sea. The cycle starts all over again