Greenmount Primary School

Knowledge Organiser - Year 4 - Animals including humans

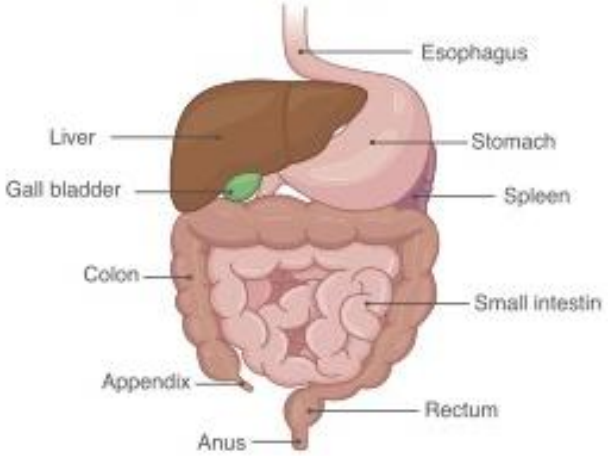
Careers connected to animals: doctor, veterinarian, dentist, farmer, physiotherapist

Key Vocabulary

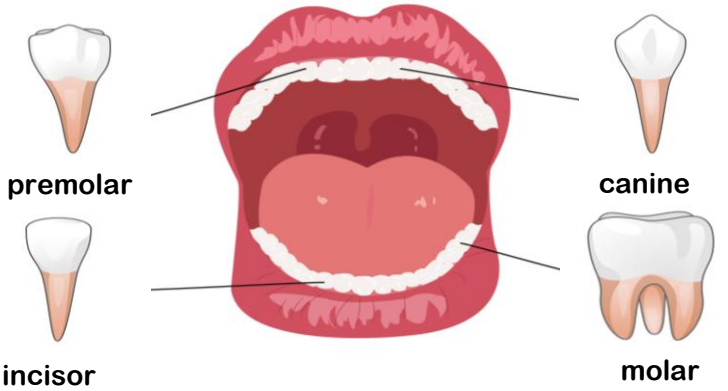
digestive system	series of organs that break down food
oesophagus	tubes running from mouth to stomach
saliva	a fluid in the mouth which helps break down food
incisors	front teeth for cutting food
molars	wide, flat teeth for grinding food
enamel	very hard layer covering the tooth
fluoride	ingredient in toothpaste that helps prevent cavities forming
consumer	an animal which gets its food from other living things
predator	an animal that gets its food from killing and eating other animals

The Digestive System

- The digestive system begins with the **mouth** and **teeth** where food is ingested and chewed.
- Saliva is mixed with the food which helps to break it up.
- When the food is small enough to be swallowed, it is pushed down the **oesophagus** by muscles to the stomach.
- In the stomach, food is mixed further.
- The mixed food is then sent to the **small intestine** which absorbs nutrients from the food.
- Any leftover broken down food then moves on to the **large intestine**.
- The food minus the nutrients arrives in the **rectum** where muscles turn it into faeces (poo). It is stored here until it is pushed out by the **anus**. This is called excretion.



Types of Teeth and their function

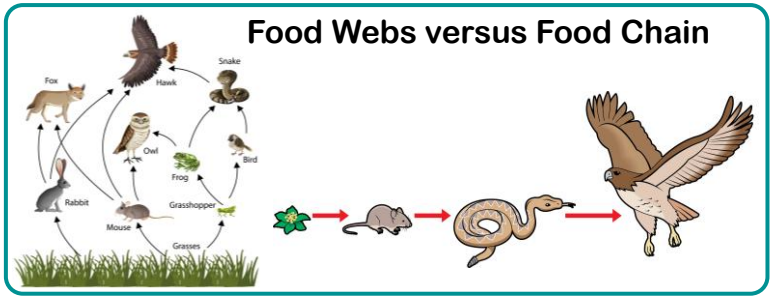


Different teeth have different functions
Teeth of animals are designed for the foods they eats

- **Herbivores** (e.g., horses) have little use for canines and mainly use incisors and molars
- **Carnivores** (e.g., Lion) mainly use canines and incisors, they don't have molars (have premolars – small molars)
- **Omnivores** (e.g., humans) use all three

Tooth enamel is the hardest substance in the human body
Humans have two sets of teeth; milk teeth and adult teeth

Food Webs versus Food Chain



Knowledge Organiser: Year 4 - Electricity

Careers connected to electricity:
electrician, electrical engineer

Key Vocabulary

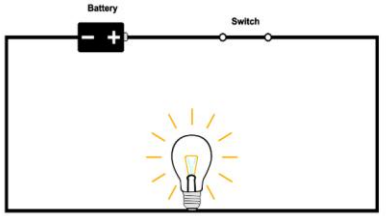
electricity	energy that powers electrical appliances
batteries	containers made of cells in which chemical energy is converted into electricity
circuit	a pathway that electricity flows around
voltage	the measure of electrical power
current	the flow of electricity
bulb	the glass case that contains the filament of an electric lamp
conductor	electrical conductors are materials which allow electricity to flow through them easily
insulator	materials that do not let electricity pass through them easily
switch	a device which builds and breaks the connection in an electric circuit

Key Facts

1. A circuit contains a battery (cell), wires and a component that requires electricity to work (bulb, motor or buzzer).
2. Electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer.
3. A switch can break or reconnect a circuit.
4. A switch controls the flow of the electrical current around the circuit. When the switch is off, the current cannot flow. This is not the same as an incomplete circuit.

Conductors and Insulators

- Materials that allow electricity to pass through to create a complete circuit are called electrical conductors.
- Materials that do not allow electricity to pass through and do not complete a circuit are called electrical insulators.

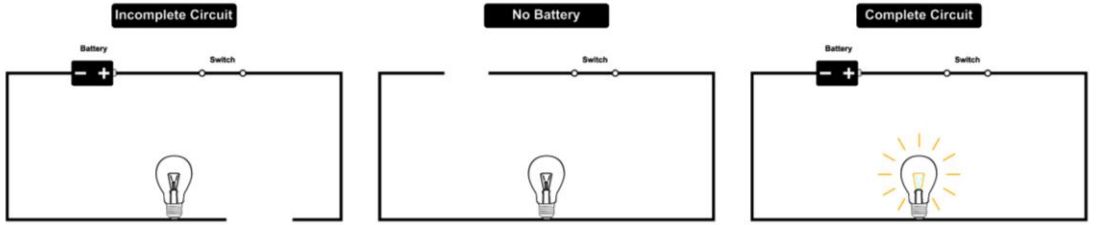


Simple Circuit

A **complete** circuit is a **loop** that allows electrical current to flow through wires.

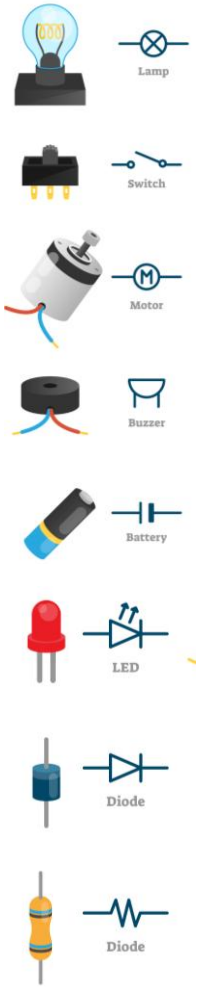
Simple Electrical Circuit

These are complete circuits - they have a battery (cell) and a component (bulb). The wires are placed in the right places of the battery for the circuit to work.



These circuits will not work as they are incomplete.

Electrical Components



Knowledge Organiser: Sound Year 4

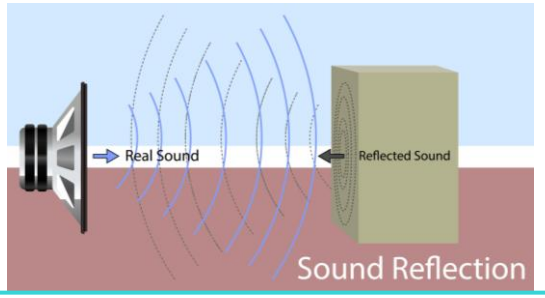
Careers connected to sound:
audiologist, sound engineer

Key Vocabulary

Vibration	Particles moving very quickly
Medium	A substance such as air, water or a solid
Source	The start of something
Energy	The power to make something work, move or grow
Materials	Anything used in making something or building
Reflect	Bounce back from a surface
Volume	How loud or quiet a sound is
Decibels	The unit to measure loudness
Pitch	How high or low a sound is
Instruments	Objects used to play music
Particles	Tiny pieces that make up something larger
Sound source	The object that started the sound

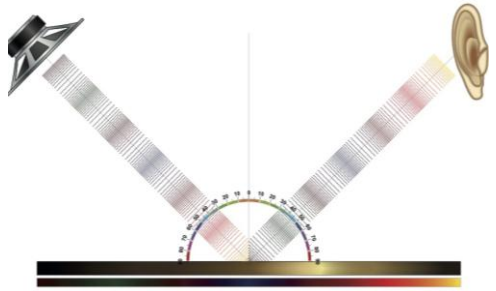
How sounds are made and travel

When objects vibrate, a sound is made. The vibration makes the air around the object vibrate and the air vibrations enter 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. Sound waves travel through a medium (such as air, water, glass, stone, and brick).



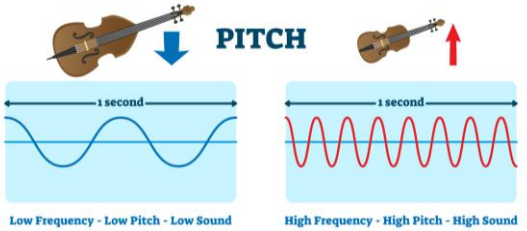
How do we hear?

The sound waves travel to the ear and make the eardrums vibrate. Messages are sent to the brain which recognises the vibrations as sounds.



Pitch

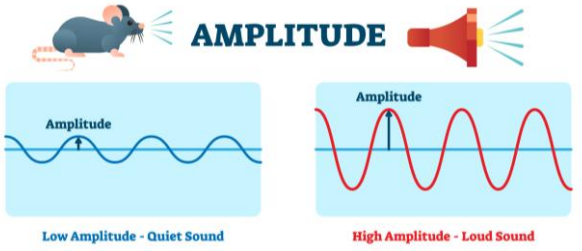
The pitch of a sound is how high or **low** it is. A squeak of mouse has a high pitch A roar of a lion has a low pitch.



A high pitch sound is made because it has a high frequency. The sound source vibrates many times a second.

Volume

The volume of a sound is how **loud** or **quiet** it is. Quieter sounds have a smaller **amplitude** and less energy (**smaller vibrations**) and louder sounds have a bigger amplitude and more energy. The **closer** we are to a 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.



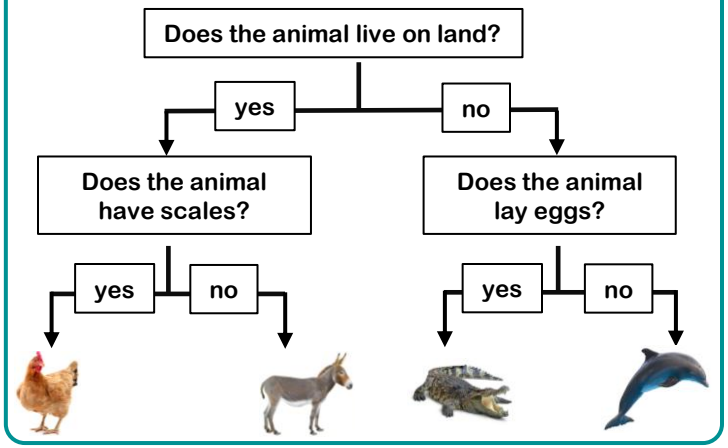
Knowledge Organiser: Living things and their habitats Year 4

Careers connected to living things and their habitats: animal care practitioner, biologist, zoologist

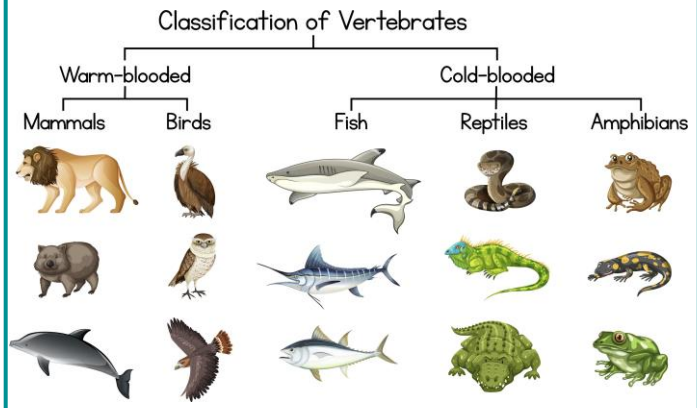
Key Vocabulary

adapted	changed to suit an environment
camouflage	a way of blending or hiding in your surroundings
coastal	at or near the coast, or beach
grassland	areas containing grass
classify	to arrange things in classes or groups according to shared qualities or characteristics
species	a grouping, or kinds of animals with similar characteristics
sub-group	a group within a larger group
classification key	a series of questions that help to identify a species

Classification Keys

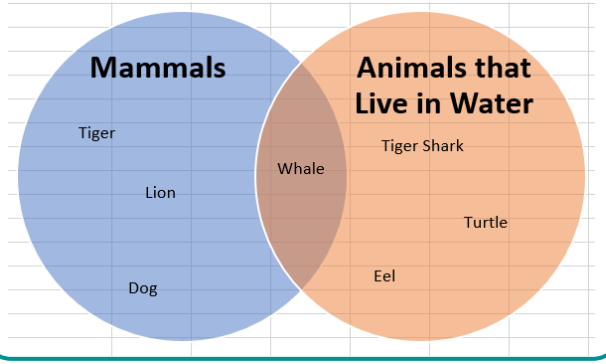


Classification

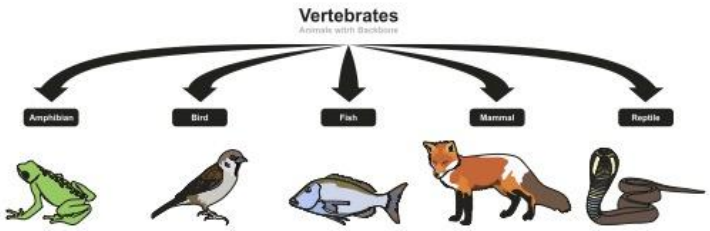


Venn Diagrams

Animals can be sorted, or classified, in a number of different ways. A 'branched' diagram or a Venn diagram, like those shown below, are just two examples.



What is a Classification Key?



A classification key is a series of questions that determine an organism's physical characteristics. **When you answer one question, it either branches off to another question or identifies the organism**. Ultimately, they help to identify an unknown organism, or work out how to categorise groups of similar organisms.

Knowledge Organiser: Year 4 - States of Matter

Careers connected to States of Matter: Chemical Engineer, Pharmacologist, Pharmaceutical pharmacist, Chemist.

Key Vocabulary

thermometer	an instrument that measures temperature in degrees Celsius (˚C) or Fahrenheit (˚F)
melting point	the point where a solid melts and forms a liquid when heated
freezing point	the point where a liquid freezes and forms a solid when cooled
boiling point	the point where a liquid evaporates and forms a gas when heated
solid	state of matter that holds its form and shape
liquid	state of matter which flows and forms a pool
gas	state of matter which flows, can spread out and can be squashed
evaporation	the process where a liquid turns into a gas when heated
particles	one very small part of matter
condensation	the process where a gas forms a liquid when cooled
water vapour	the name of water as a gas
substance	the material, or matter, of which something is made

States of matter

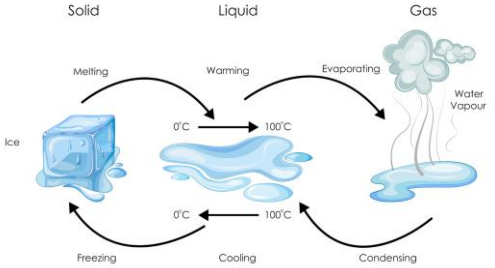
Everything in our universe is made of **matter**. There are 3 states of matter:

Solid **Liquid** **Gas**

Solid particles have **strong** bonds so solids have a fixed shape. **Liquid** particles have **weaker** bonds and more energy so liquids can change shape. **Gas** particles have **really weak** bonds so gases can spread out and move freely.

Changes of state

States of matter can change.
Substances can be **heated** or **cooled** to change from one state to another.



Ice **Water** **Water Vapour**

In water, the **melting** and **freezing point** is **0˚C** and the **boiling point** is **100 ˚C.**
Different substances have different melting, freezing and boiling points.

Condensation

When **water vapour (gas)** touches a **cold** surface, the particles **lose energy** and the bonds become **stronger**, turning the gas into a **liquid**.

Evaporation

Heating liquid water **increases** the particle's energy and the bonds become **weaker**, turning it into a **gas**. The **hotter** the temperature, the **faster** the rate of evaporation.