

# Vocabulary

Key Word	Definition
appliance	A device or piece of equipment that has been made to perform a specific task.
battery	A small item used to power small appliances.
circuit	A route through which electricity flows.
component	The parts of a circuit.
conductor insulator	Allows electricity to flow through it. Doesn't allow electricity to flow through it.
current	The rate of flow of electricity measured in amps.
electrical	Something that uses electricity to work
mains power	Electricity provided by power stations.
portable	Can be easily carried around.
pylon	A tower used for keeping electrical wires above the ground.
switch	A device for controlling the flow of electricity in a circuit.



cork



iron nail



copper rod

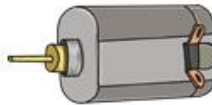


plastic ruler



steel spoon

# Knowledge Organiser Electricity Strand: Physics



## Key Questions

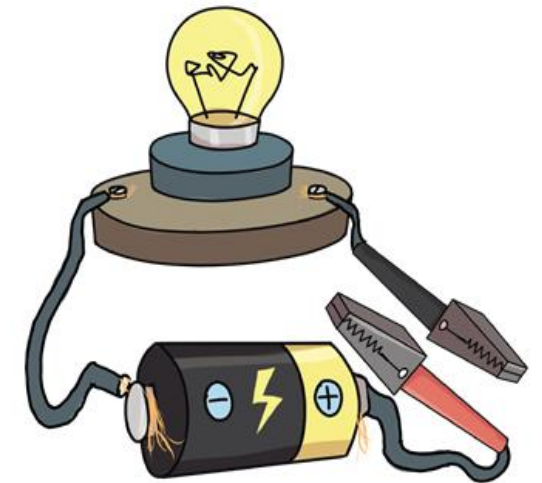
Which appliances use electricity?

How can I make a simple circuit?

Why don't some circuits work?

How can we test whether a material is a conductor or insulator?

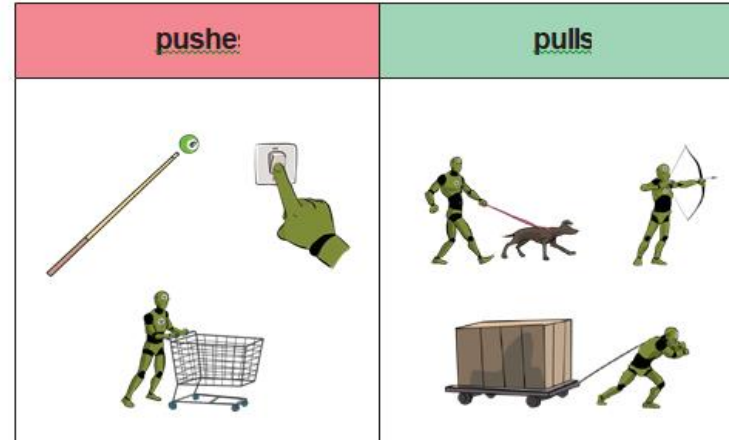
How do switches affect a circuit?



## Vocabulary

Key Word	Definition
force	Push, pull, twist or turn caused when two objects interact with each other
magnet	An object or device that attracts iron or another magnetic material <b>contact</b> – touching
contact non-contact	Touching. Not touching.
attract	Pull towards
repel	Push away
magnetic	Attracted to a magnet.
non-magnetic	Not attracted to a magnet.
iron	A metal that can be made into a magnet.

## Knowledge Organiser Forces and Magnets: Physics



## Key Questions

1

What is a force?

2

Do objects move the same on different surfaces?

3

How do magnetic forces work?

4

Which materials are magnetic?

5

Do magnets attract each other?

6

Are all magnets the same strength?

## Magnets and their poles



## Examples of magnetic objects



iron nails



steel spoon

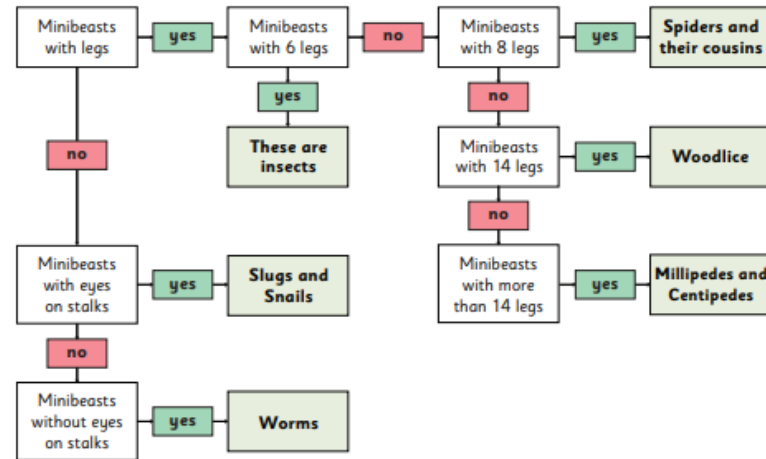


steel paper clip

# Vocabulary

Key Word	Definition
environment	The conditions (both living and non-living) that surround an organism.
classify	To arrange a group of people or things in classes or categories according to shared qualities or characteristics.
vertebrate	An animal which has a backbone.
invertebrate	An animal without a backbone.
exoskeleton	A rigid external covering for the body in some invertebrate animals.
key	A questioning device that allows the progressive narrowing down of the classification of an unknown living thing based on observable or testable features.
adaptation	The way in which an organism is particularly suited to its environment.
pollution	The introduction into the environment of a substance which has harmful effects.

# Knowledge Organiser Living Things & their Habitat: Biology



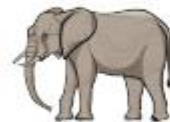
Use the **classification key** to identify these mini-beasts.



We can group animals into **five different groups** based on their characteristics.



**Fish**



**Mammal**



**Reptile**



**Amphibian**



**Bird**

# Key Questions

1

What are the 7 life processes?

2

How can we sort and group animals?

3

What are vertebrate animals?

4

Which living things can be found in the local area?

5

What is a classification key?

6

How is our environment changing?

**Movement**

**Respiration**

**Sensitivity**

**Growth**

**Reproduction**

**Excretion**

**Nutrition**



# Vocabulary

Key Word	Definition
bulb	A fleshy base of a plant that can grow another plant.
seed	A small part of a plant that can grow another plant.
leaf	Part of a plant that is typically flat and hangs off the stem.
stem	The main stalk of a plant.
roots	The part of the plant that attaches into the ground for support and nutrient collection.
flower	The seed bearing part of a plant that is usually surrounded by brightly coloured.
tree	A woody plant.
plant	A living organism.
dispersal	To distribute or spread over a wide area.
formation	To create...
pollination	The transfer of pollen to allow fertilisation.
nutrients	Something that provides nourishment to a living thing.

# Knowledge Organiser Plants Strand: Biology



## Key Questions

What do plants need?

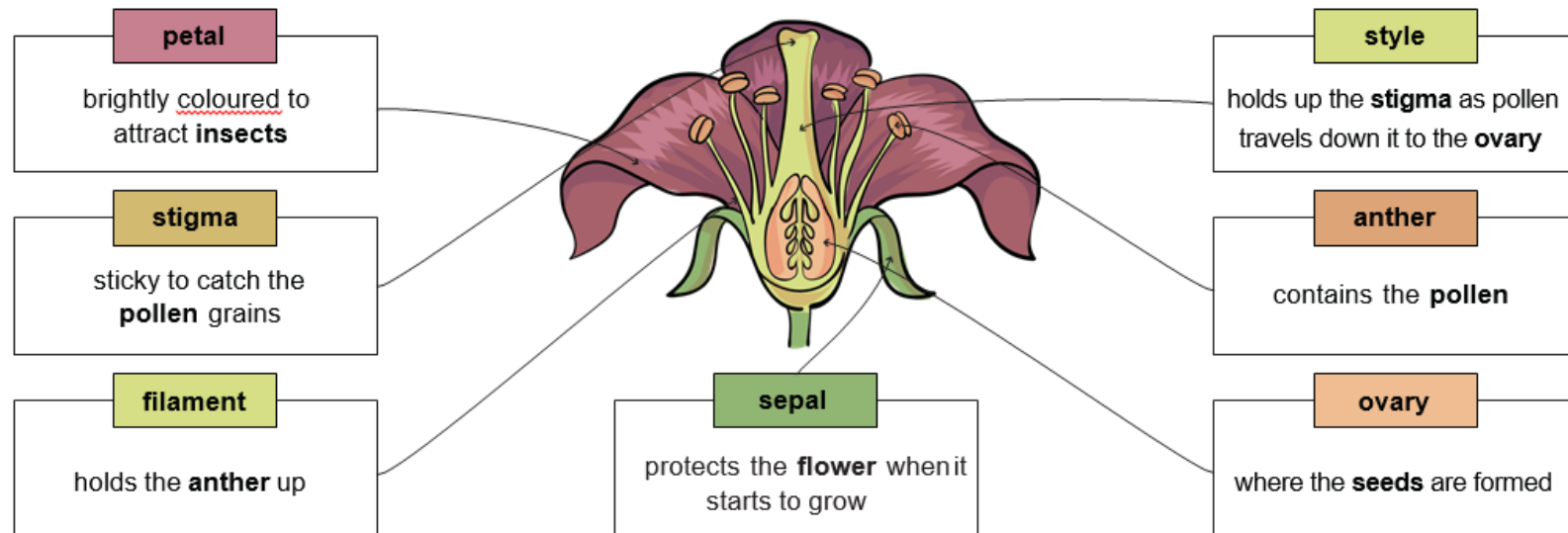
Do the different parts of a plant have a function?

What are roots?

How do plants transport water?

How do plants reproduce?

How are seeds dispersed?

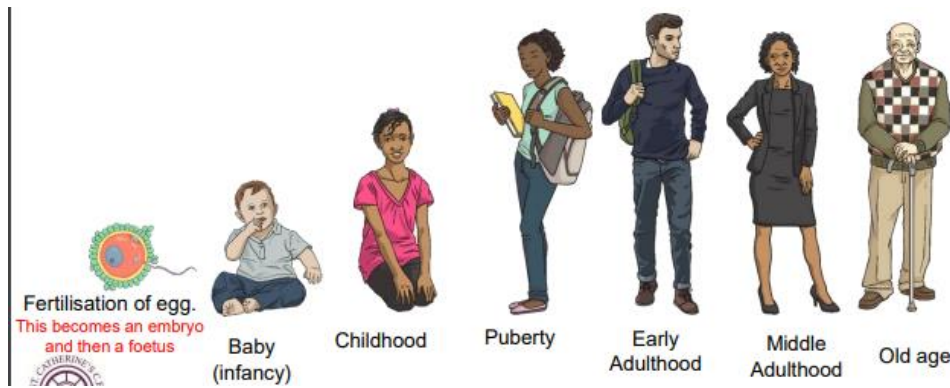


# Vocabulary

Key Word	Definition
Embryo	A newly fertilised egg in the womb
Foetus	An unborn baby that has developed from an embryo
Childhood	the age span ranging from birth to adolescence
Adolescence	The time when a child develops into an adult
Puberty	The time during which adolescents reach sexual maturity and become capable of reproduction
Hormones	Substances in our blood that influence our mood or behaviour
Lifespan	The length of time something lives for
Reproduction	The biological process by which new individual organisms – "offspring" – are produced from their "parents"

# Knowledge Organiser Animals including humans 5 - Birth to Old Age: Biology

Foetal Growth From 8 to 40 Weeks



# Key Questions

- 1 How do humans change throughout their life?
- 2 • How do we develop in the womb?
- 3 • How do we change through puberty?
- 4 • How do we change when we are senior?

# Puberty

**Puberty** is the stage of development between childhood and adulthood. Changes happen inside and outside of the body during puberty. Physical growth occurs so that the body changes to that of an adult which enables reproduction. Two parts of the brain – the hypothalamus and the pituitary gland start to make more of some **hormones**.



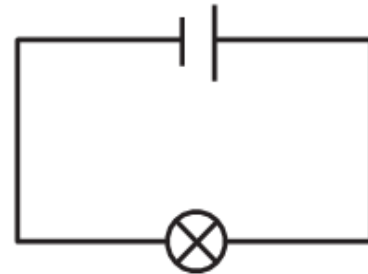
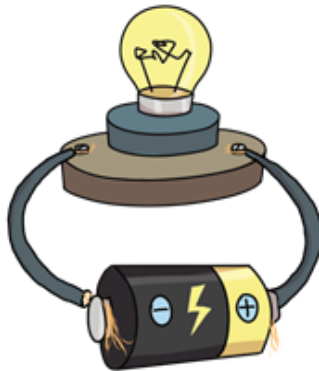


# Vocabulary

Key Word	Definition
appliance	A device or piece of equipment that has been made to perform a specific task.
battery	A small item used to power small appliances.
circuit	A route through which electricity flows.
components	The parts of a circuit.
conductor	Allows electricity to flow through it.
electrical	Something that uses electricity to work.
insulator	Doesn't allow electricity to flow through it.
mains power	Electricity provided by power stations.
pylon	A tower used for keeping electrical wires above the ground.
renewable energy	Energy from a source that is not depleted when used, such as wind or solar power.
non-renewable energy	Energy from a source that is depleted when used, such as coal, gas and oil.

# Knowledge Organiser Electricity: Physics

## Simple Circuit



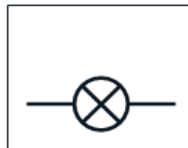
The **circuit** has to be complete to allow the **electricity** to travel all the way around it.

## Scientific Symbols

When scientists draw electrical circuits, they use **scientific symbols** to show **different components**.



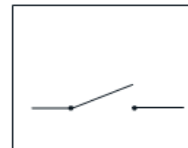
battery or cell



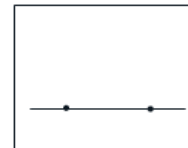
bulb



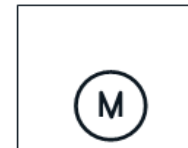
wire



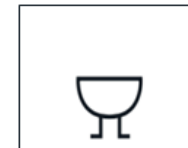
open switch (off)



close switch (on)



motor



buzzer

# Key Questions

1

How do I draw a scientific diagram of a circuit?

2

How does voltage in a circuit affect the brightness of a bulb?

3

How do I plan a fair test experiment to investigate variations in how components function?

4

How do I write a conclusion for my experiment?

5

- What is renewable and non-renewable energy?

# Vocabulary

Key Word	Definition
gravity	The force which attracts a body towards the centre of the Earth
friction	Is a force which slows moving objects when surfaces rub together.
air/water resistance	A force caused by air which acts in the opposite direction to the object moving through it
upthrust	A force which acts in an upwards direction in a liquid, usually water.
newtons	Is a measurement of force named after the scientist, Sir Isaac Newton
newtonmeter	Is a device used to measure forces.
mass	Is a measurement of the amount of matter something has.
weight	Is a measurement of the force exerted on a mass by gravity.
gears	Are small wheels with small teeth which when combined change the force needed to move an object.
pulleys	A pulley is a device which helps move objects by making a smaller force larger.
lever	A lever is a long beam that rests on a fulcrum. Depending on the position of the fulcrum, this makes lifting loads easier.

# Knowledge Organiser Forces: Physics



**Water resistance** is a type of friction caused by water pushing against any moving object.



**Air resistance** is a type of friction caused by air pushing against any moving object.

**Pulleys**

The **load** is the force being lifted

**Levers**

A **lever** is a long beam that rests on a **fulcrum**.

The **fulcrum** is what the lever turns on.

**Effort** is the force needed to move a

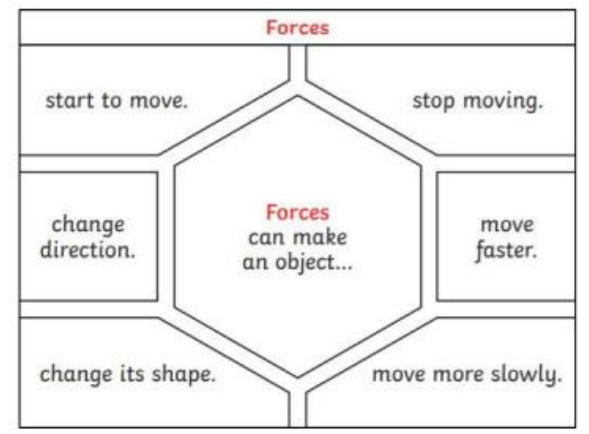
**Gears**

**Effort**      **Load**

**Gears** or cogs can be used to change the speed, force or direction of a motion.

# Key Questions

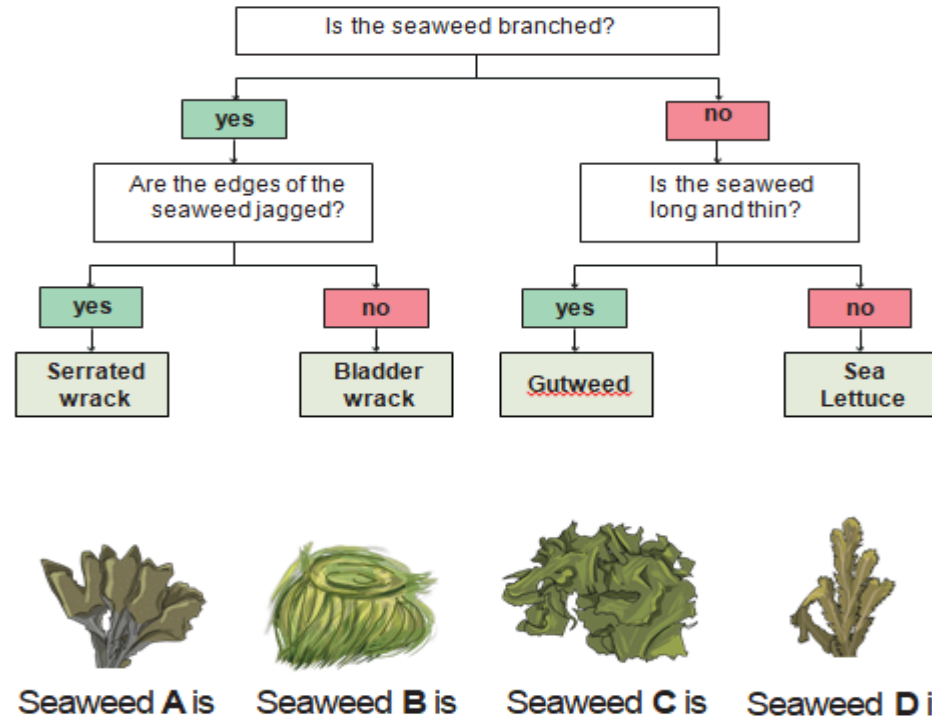
1. What is gravity?
- What is Friction?
- Can I carry out Friction Investigation?
- Can I Identify the effects of air resistance?
- What is water resistance?
- Can I explain about gears, levers and pulleys?



## Vocabulary

Key Word	Definition
classify	To arrange a group of people or things in classes or categories according to shared qualities or characteristics.
vertebrate	An animal that has a backbone.
invertebrate	An animal without a backbone.
exoskeleton	A rigid external covering for the body in some invertebrate animals.
vascular	Plants that use roots and stems to take in water and nutrients.
Non-vascular	Plants that do not use roots and stems to take in water and nutrients.
taxonomy	The scientific process of grouping or classifying living organisms

## Knowledge Organiser Living things and their Habitats 6 Classification: Biology



**Carolus Linnaeus** (also known as Carl Linnaeus) was a scientist who developed a detailed way to **classify** all living things known as a **taxonomy**.



His taxonomy helps us to determine what each living thing is. His scientific process involved **observing, recording** the information and making **conclusions**.

Microorganisms are **very small** living things. We can classify microorganisms into **five groups**.

**viruses, bacteria, fungi, algae, protozoa**

## Key Questions

1

How are animals classified?

2

- What is a classification key?

3

- How can we classify plants?

4

- Is yeast a living microorganism?

5

- What are the five main groups of microorganisms?

6

- Who was Carolus Linnaeus?