



KEY VOCABULARY	
Learn these words and their definitions.	
Key Word	Definition
metamorphic rock	A rock made by changing existing rocks by heat or pressure.
igneous rock	A rock made from solidified lava or magma.
sedimentary rock	Rock made when sand, mud and pebbles join in layers.
soil types	These include clay, chalky and sandy and depend on the feel and density of the soil.
weathering	When rocks get worn away and break due to physical, chemical or biological processes.
acid rain	Rain which becomes acidic due to pollution.
fossil	The remains of a prehistoric animal or plant embedded in a rock.
mineral	A solid substance naturally formed underground i.e. coal.

### Weathering

A good way to discover different types of weathering is by a trip to a graveyard.

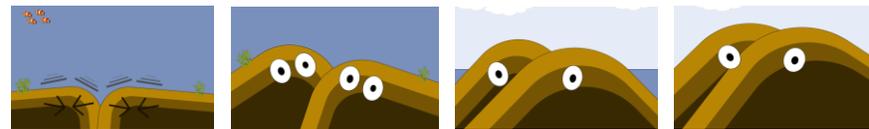
**Physical weathering** is when rocks can be broken up by ice, which thaws in the rock and makes it crack.

**Biological weathering** is when plants and fungi, such as lichens and moss grow on the gravestone.



**Chemical weathering** can be caused by acid rain dissolving the rock over many years.

**Rock Type** Rocks react to weathering in different ways. The most common rocks for gravestone are marble, slate and granite.



### How mountains are formed.

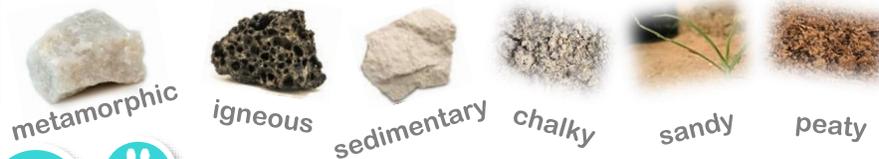
The tectonic plates are constantly moving. Sometimes they join together and hit one another.

They don't break up, but instead push upwards in the water together.

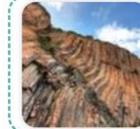
They merge together underwater and eventually push above the water's surface to form a big mountain.

Eventually, a huge 'fold' mountain is formed. This is how the world's tallest mountain, 'Everest' was made.

### Rock & Soil Types



Rocks with Nuclear Waste Services



1. Describe how mountains are formed



2. Recognise the differences between igneous, sedimentary, and metamorphic rock



3. Understand what fossils are



4. Describe what soils are made of



5. Observe rocks, including those used in buildings and gravestones



6. Classify different types of gravestone weathering





## Sun Safety



### Lesson sequence

1

•1. Explain how shadows are formed

2

•2. Explore Light

3

•3. Understand different types of mirrors

4

•4. Know what a periscope is and how it is used

5

•5. Explain how reflective surfaces help keep us safe

6

•6. Know light from the Sun can be dangerous and ways to protect your eyes

## Year 3 Autumn Term 2<sup>nd</sup> Half Light

### Light Facts!

Light travels in straight lines.

Light travels at around 300,000 kilometres per second

Light will travel through transparent objects...

...but not opaque ones.

The invisible light waves from the sun are called 'ultraviolet'

### Shadows

A shadow is formed when an opaque object blocks the light.



A shadow will get smaller the further the object is from the light source

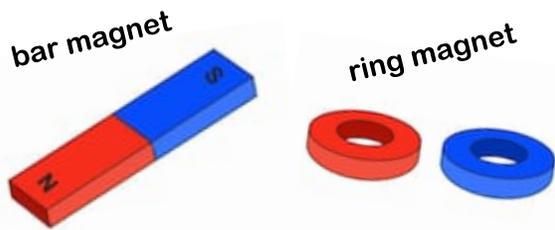
Shadows change angle and length during the day due to the position of the sun in the sky.



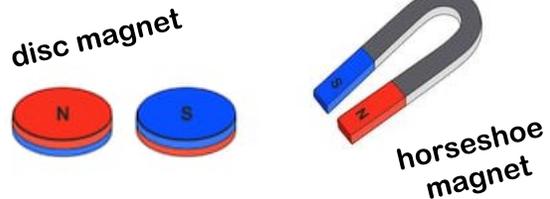
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Key Word	Definition
transparent	A material that allows light to pass through it.
opaque	A material which is not able to be seen through.
reflection	An image seen in a mirror; it happens due to a change in direction of the light wave.
fluorescent	A brightly coloured reflective surface - often used by cyclists.
UV rays	Short light waves made by the sun, which are harmful to our skin.
periscope	A long tube-like object which contains mirrors at certain angles so an object can be seen around corners.
shadow	A dark shape made on a surface when an object blocks light.
sun protection	Something which prevents or reduces the effect of the sun i.e. sun hat, sunglasses, sun cream.



types of magnet



### Lesson sequence

- 1 • Understand magnetism
- 2 • Learn about the different types of magnets
- 3 • Learn about magnetic fields; learn about the law of magnetic attraction
- 4 • Know that magnetic needles always point magnetic north
- 5 • Compare how things move on different surfaces
- 6 • Explore different forces between 2 objects

## Year 3 Spring Term 1<sup>st</sup> Half Forces and Magnets



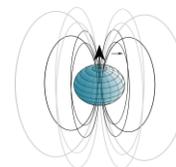
A permanent magnet produces a magnetic field around it that enables it to stick to some types of metal, like iron.

Aluminium and copper are examples of metals which won't stick to a magnet.



Some items can be magnetised by stroking a magnet along them in one direction. This can be useful for things like magnetising a screwdriver.

The Earth is a giant magnet, with a North and South Pole. It is magnetic because of the large amount of iron-rich molten rocks under its surface. The Earth's magnetic field stretches into space.



A compass works because it's north end is drawn to align with the Earth's magnetic field. A compass has helped people navigate for many years!

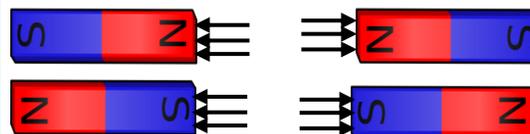
### attraction

Remember, with magnets, opposites attract. If a North Pole is next to a South Pole, these are attracted to each other and will stick together.



### repulsion

If magnetic poles are placed North to North or South to South, they are not attracted and will repel each other.



## KEY VOCABULARY

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Key Word	Definition
lodestone	A mineral which is naturally magnetised.
horseshoe magnet	A U-shaped magnet
bar magnet	A magnet in the shape of a bar with the north and south pole at each end.
attract	To pull or draw oneself or itself.
repel	To force back or push away.
compass	An instrument containing a magnetised pointer which shows direction.
magnetic needle	A piece of magnetised steel used on the dial of a compass.
pendulum	A weight hung from a fixed point so that it can swing freely

## What are the different types of nutrients?

- Protein help your body to grow and repair itself examples include **red meat, yogurt, beans**
- Carbohydrates give you energy examples include **bread, potatoes, pasta**
- Fats give you energy examples include **nuts, oils, avocados**
- Vitamins keep your body healthy examples of foods high in vitamins include **oranges, carrots and nuts**
- Minerals keep your body healthy examples of foods high in vitamins include **milk, sweetcorn, spinach**
- Fibre helps you to digest the food that you have eaten examples of foods high in fibre include **wholegrain bread, cereals and lentils**
- Water helps to move **nutrients** in your body and get rid of waste that you don't need examples of foods high in water include **celery, cucumber, tomatoes**

## Lesson sequence

1

- Know how to keep healthy through diet

2

- Design a healthy dinner for Tim Peake in space

3

- Learn about voluntary and involuntary muscles

4

- Introduction to the skeleton

5

- Know about the skeleton – tendons and ligaments

6

- Explore how skeletons and muscles are used for support, protection and movement

## Year 3 Spring Term 2<sup>nd</sup> Half Animals Including Humans – What Makes Us

### Brain



The Brain is like a computer and controls our nervous system. It controls our breathing, movement and our thoughts.

### Skull

- Protects brain
- Creates facial structure

### Ribcage

- Protects heart and lungs
- Supports shoulder and chest muscles

### Spine

- Protects spinal cord
- Balance and structure
- Enables flexible motion

### Limbs

- Movement
- Handling and carrying

### Pelvis

- Supports upper body weight
- Attachment for lower limbs
- Protects organs

### Muscles



Our muscles are attached to our bones by tendons. They contract and relax, and always work in pairs. There are over 650 muscles in our bodies!

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skeleton	The set of bones on a human or animal, joined together to make our structure.
tendon	A tough, elastic tissue which connects the muscles and bones
involuntary muscles	Muscles not controlled by an individual's will.
voluntary muscles	Muscles whose actions are controlled by an individual's will

## What are the different food types?

- Fruit and vegetables
- Bread, rice, potatoes, pasta and other **starchy** foods.
- Milk and dairy
- Oils and spreads
- Meat, fish, eggs, beans and other non-dairy sources of protein.



# photosynthesis

carbon dioxide + water → oxygen + glucose

## How we use the rainforest



### Lesson sequence



Describe the process of germination in seeds and bulbs



Explain how water and food moves around a plant



Asexual reproduction in plants



Describe the features of non-vascular plants



Explore extraordinary plants and fungi



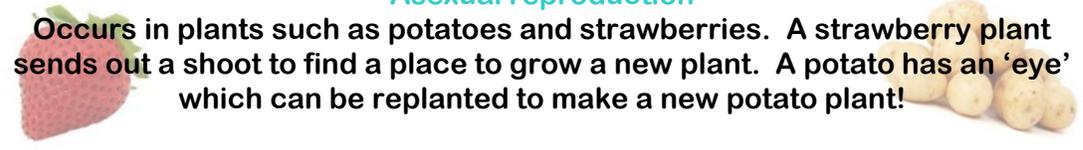
Explore the rainforest and its problems

# Year 3 Summer Term 1<sup>st</sup> Half

## Exploring the World of Plants

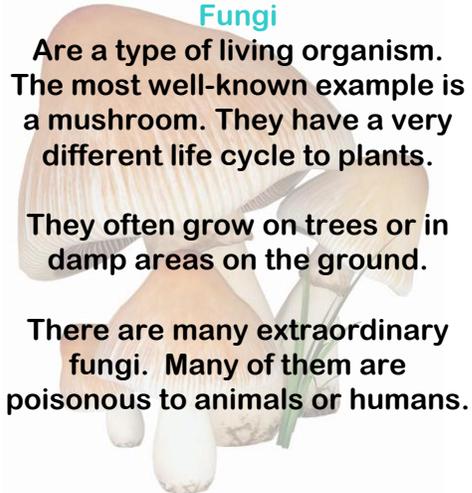
### Asexual reproduction

Occurs in plants such as potatoes and strawberries. A strawberry plant sends out a shoot to find a place to grow a new plant. A potato has an 'eye' which can be replanted to make a new potato plant!



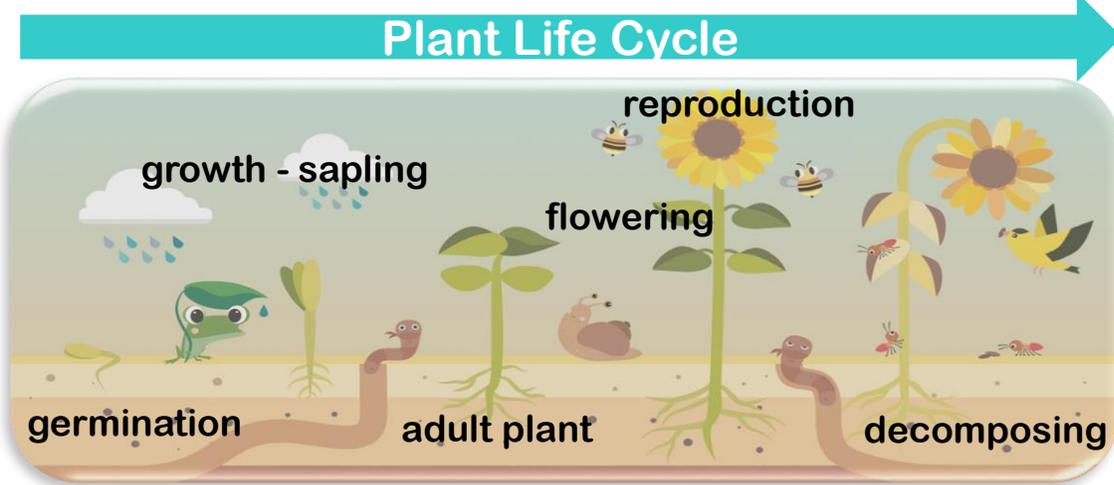
### Fungi

Are a type of living organism. The most well-known example is a mushroom. They have a very different life cycle to plants. They often grow on trees or in damp areas on the ground. There are many extraordinary fungi. Many of them are poisonous to animals or humans.



### Insectivorous plants

Unbelievably, some plants actually eat insects, not the other way around! A Venus Flytrap is an example. It has tiny hairs inside it which sense the movement of an insect. At this point, it's leaves snap together, trapping the insect inside it. There are some other plants which even eat small mice!

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Key Word	Definition
germination	When a seed breaks open and begins to grow.
non-vascular	A plant with no roots, stem or leaves.
asexual reproduction	Producing offspring from only one parent.
fungi	A group of living organisms, which includes mushrooms
insectivorous	A living thing which eats insects.
deforestation	When forests are cut down by humans.
biodiversity	A variety of plant and animal life that lives in a particular habitat.
fertilisation	When the pollen and ovary from a flower meet to form a seed.

# photosynthesis

carbon dioxide + water → oxygen + glucose

## Types of seed dispersal

## Lesson sequence



Describe how plants soak up water



Describe the life cycle of a plant



Explain how plants make their own food



Name the parts of the flower and describe what they do



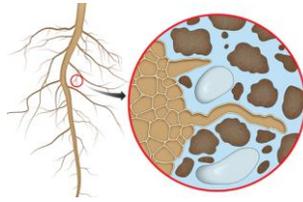
Describe the process of pollination



Describe the different ways plants share their seeds

# Year 3 Summer Term 2<sup>nd</sup> Half Plants – Life Cycles

## Diagrams and Pictures - What do I need to know?

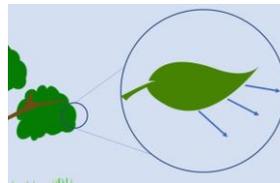
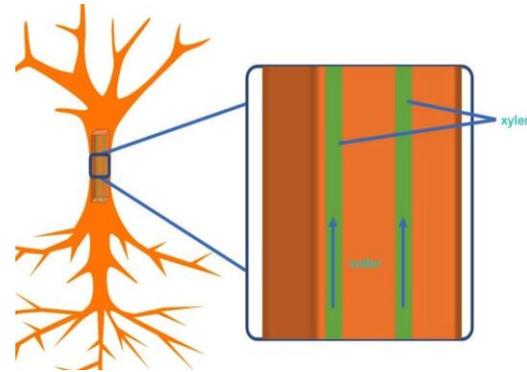


### ROOT HAIRS

These are tiny strands on roots which absorb the water and nutrients from the soil.

### XYLEM and PHLOEM

This diagram shows how the phloem work. They are a bit like veins – they go right from the roots, through the stem, to leaves. They transport water. Phloem are similar, but they move the food and nutrients.

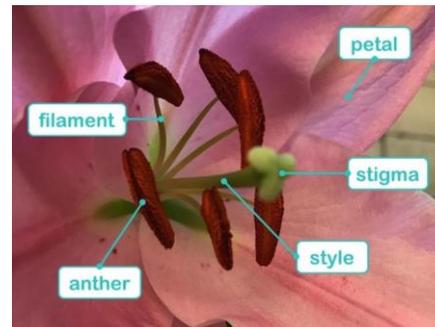


### TRANSPIRATION

Water escapes from the leaves, which forces the plant to suck more water up via the xylem to replace what it has lost.

### PARTS OF A FLOWER

All these parts are vital. The **petal** is bright and pretty to attract insects. The **anther** makes pollen and is held up by the **filament**. The **stigma** is sticky to stop the pollen dropping, and this sits on a tall **style** to make sure the insect can find it!



## KEY VOCABULARY

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Key Word	Definition
transpiration	Water escaping through plant leaves.
photosynthesis	The chemical reaction in plants that allows them to make their own food
carbon dioxide	A colourless, odourless gas, it is taken in by plants.
pollination	The process of moving pollen from one flower to another.
dispersal	The spreading of a plant's seeds over a wide area.
xylem	A tube that transports water from the roots, through the stems, to the leaves.
phloem	A tube that transports food and nutrients from the roots, through the stem, to the leaves.
glucose	A sugar made during photosynthesis.