

Earth and Space Award

The Earth orbits the sun taking $365\frac{1}{4}$ days.

The Sun gives us warmth and light.

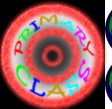
Shadows form when the light is blocked. Shadows move and change size as the Earth spins. When the Sun is overhead, shadows are shortest.

The Earth takes 24 hours to spin once.

The moon orbits the Earth taking 28 days.

Gravity is a pulling force. It pulls us and everything else to Earth.

1 got their **FIRST** certificate!!!



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Earth and Space Award

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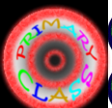
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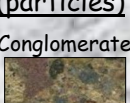
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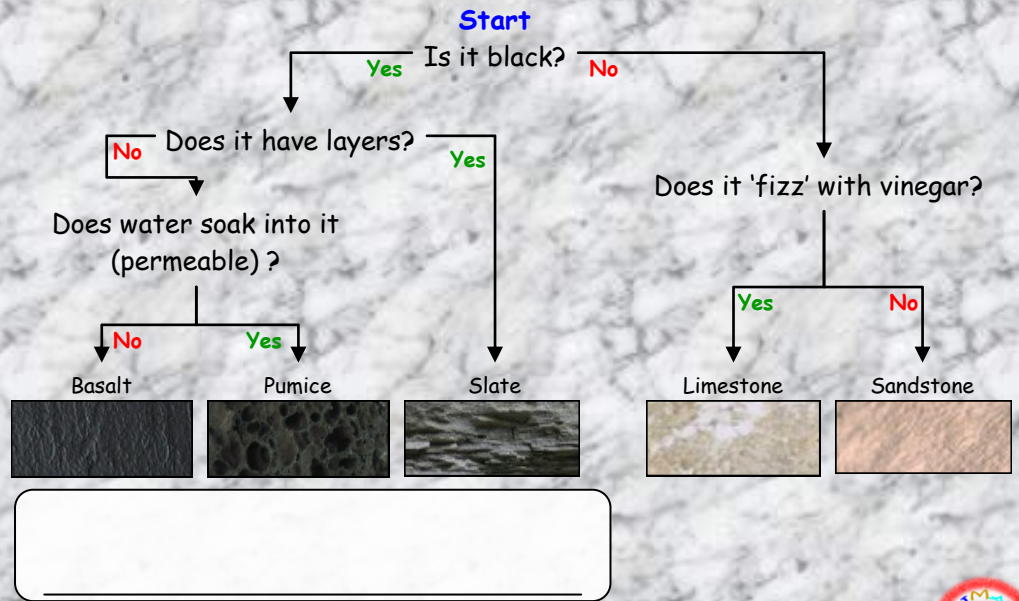


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Rocks and Soils Award

There are hundreds of different types of rocks and soils, so it is helpful to group them. Because there are so many, using a classification key is a useful way to identify them.

| | |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Igneous (volcanic) | |
|  Granite |  Obsidian |
| Metamorphic (squashed/heated) | |
|  Gneiss |  Marble |
| Sedimentary (particles) | |
|  Sandstone |  Conglomerate |






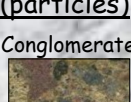


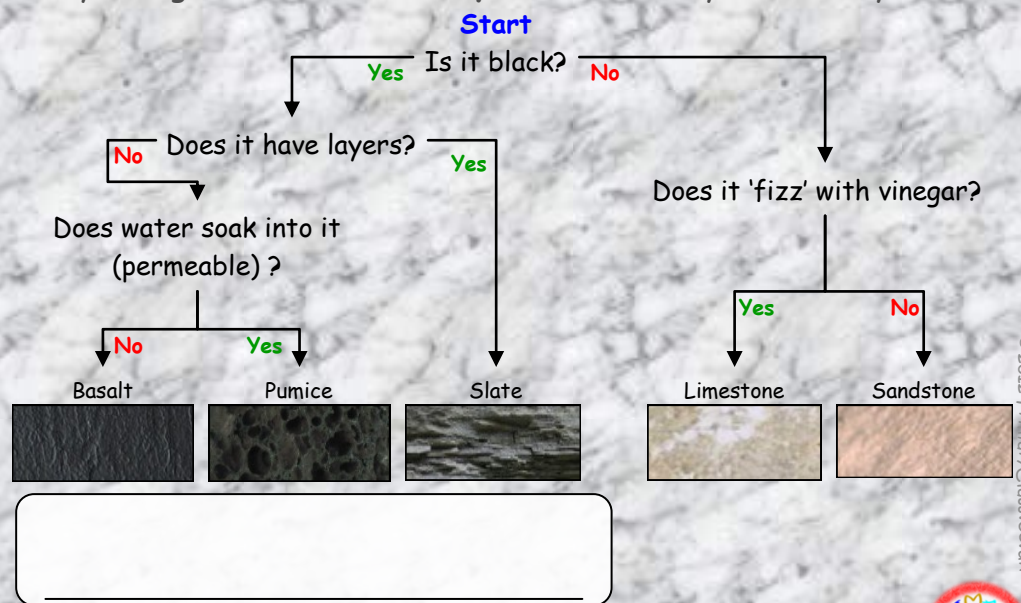
2 got their **SECOND** certificate!!!



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Solids, Liquids and Gases Award

Solids:

Keep their own shape and cannot be squashed.

They will also not flow (although small particles like sand can appear to flow).

metal, wood, ice

Liquids:

Change their shape to fit the container they are in.

It is very difficult to squash a liquid.

They flow very easily.

oil, water, shampoo

Gases:

Do not have any particular shape.

Gases are easily squashed, but will push back. They also flow very easily.

3 got their **THIRD** certificate!!!



Solids, Liquids and Gases Award

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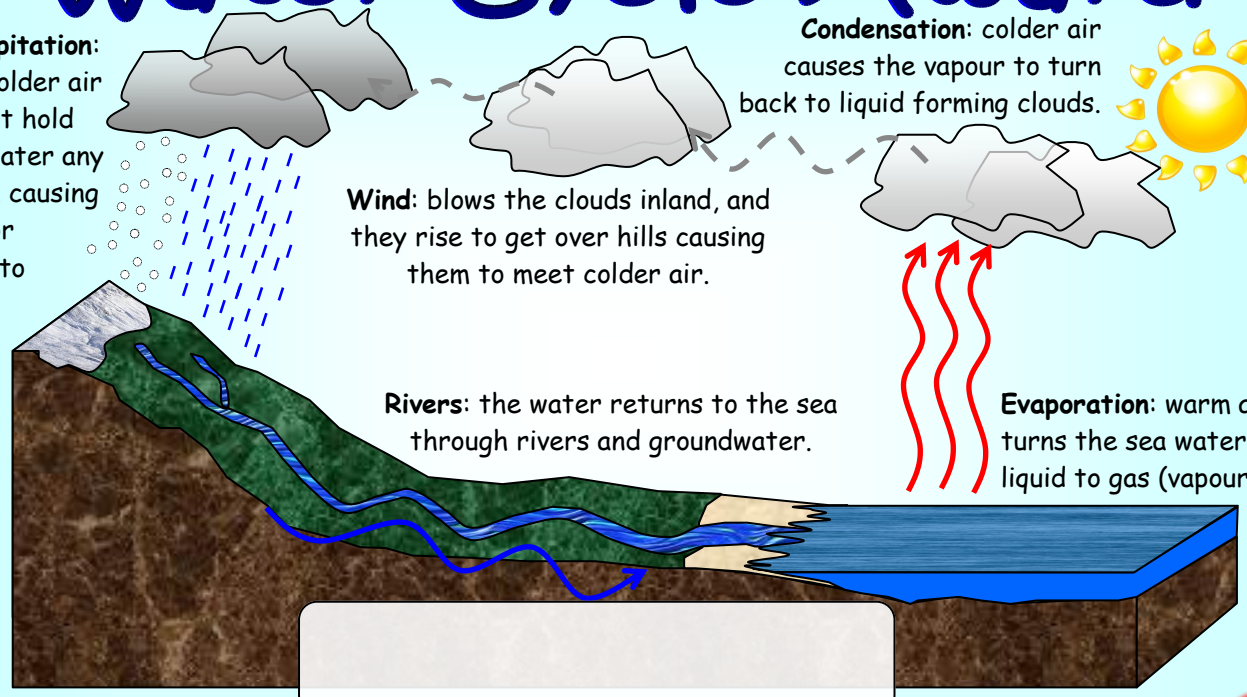
3 got their **THIRD** certificate!!!



Water Cycle Award

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Precipitation: the colder air cannot hold the water any more, causing rain or snow to fall.



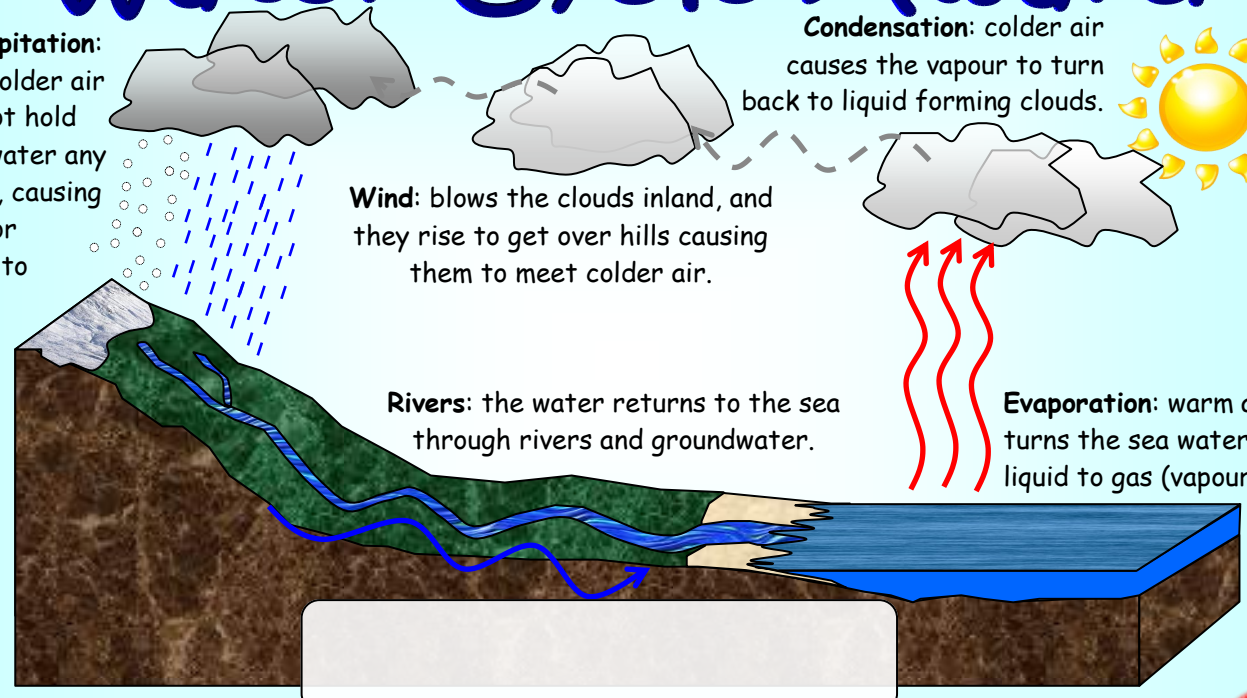
4 got their **FOURTH** certificate!!!



Water Cycle Award

© 2012 PrimaryClass.co.uk

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Changing Materials Award

There are 3 states: solid, liquid or gas. Some materials can change between these states. For water:

Solid → Liquid = **melt**

Liquid → Gas = **evaporate**

Gas → Liquid = **condense**

Liquid → Solid = **freeze**

Heat is often the cause of changing state.

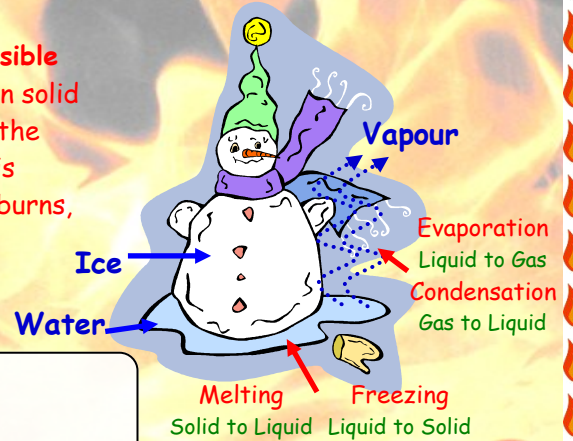
Different materials have different temperatures when they turn from solids to liquids, to gases, and back.



Reversible change: when materials can change state, then back again, for example, candle wax.

Irreversible change: when materials can change state, but cannot change back, for example, burning wood.

The candle wax is **reversible** as it can change between solid and liquid depending on the heat. The wick (string) is **irreversible** as when it burns, it cannot change back.



5 got their FIFTH certificate!!!



Changing Materials Award

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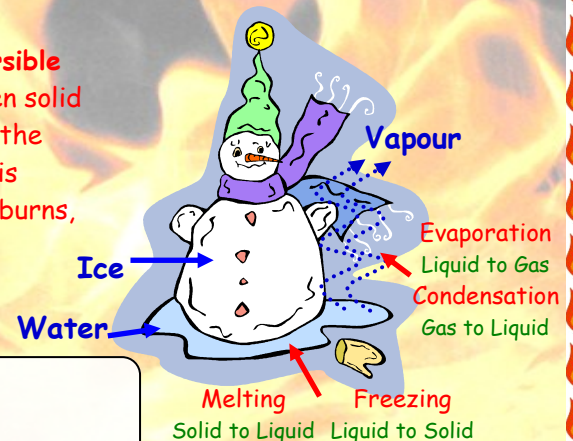
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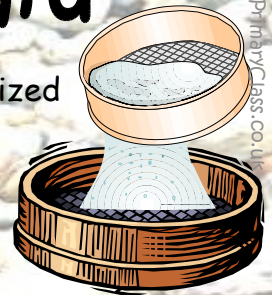
Separating Materials Award

To separate **soluble** materials (ones that **dissolve**) such as salt from water we need **evaporation** where water turns to **vapour** (gas), leaving behind just the salt.



If the material is **insoluble** such as sand, we can use filter paper to catch the sand leaving the just water to filter through.

To separate different sized larger particles such as pebbles and stones, we can use sieves. Large mesh sizes stop large objects, letting smaller ones fall through.



Magnets can also be used to separate **magnetic** materials such as iron and steel.

6 got their **SIXTH** certificate!!!



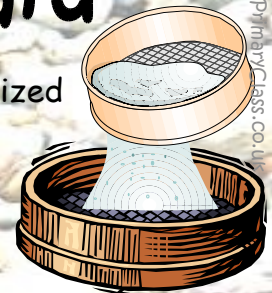
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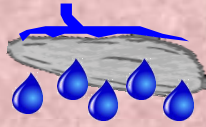
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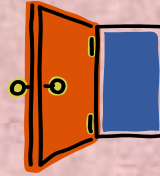
Properties of Materials Award

There are lots of words we can use to describe a material, here are just a few...

Permeable: liquid can pass through



Impermeable: liquid cannot pass through.



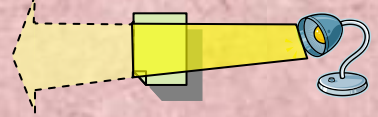
Conductor: to let something pass.

Insulator: to stop something passing.
For example heat (thermal) or electricity

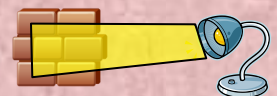
Transparent: light will pass through clearly (glass).



Translucent: light will pass through, but the image will not be clear (paper).



Opaque means no light will pass through (brick).



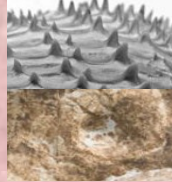
Malleable
(bendy/flexible)



Rigid
(stiff)



Rough



Hard

Smooth



Soft



Heavy



Light



Brittle



Strong

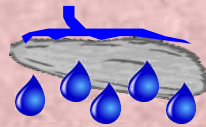
7 got their SEVENTH certificate!!!



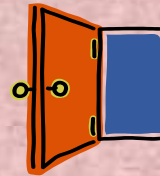
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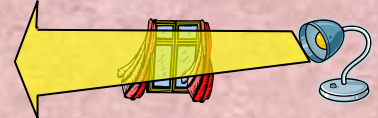
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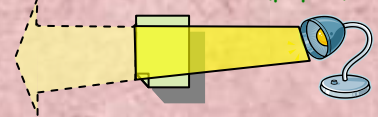
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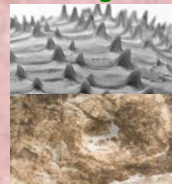
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(bendy/flexible)



Rigid
(stiff)



Rough



Hard

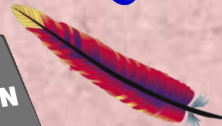
Smooth



Soft



Heavy



Light



Brittle



Strong

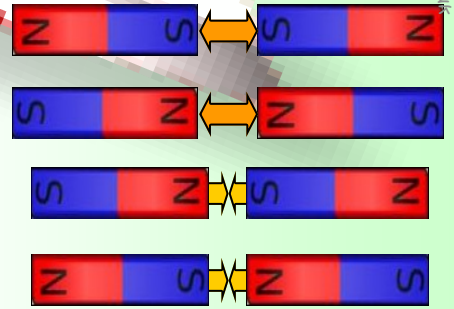
7 got their SEVENTH certificate!!!



Magnets Award

Magnetism is a force. It can push or pull.

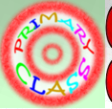
Magnets have 2 poles (ends) known as **north** and **south**. They are often shown by different colours (for example red is north, south is white).



Same poles will

Many metals are magnetic like steel and iron, but not all.

8 got their **EIGHTH** certificate!!!

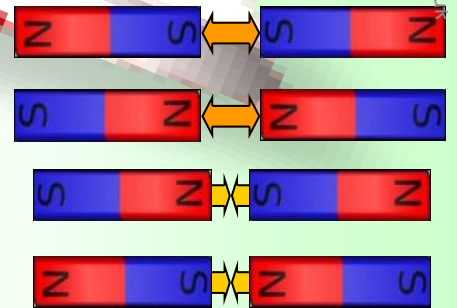


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Magnets Award

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Same poles will repel (push).
Opposite poles will attract (pull).

Many metals are magnetic like steel and iron, but not all.

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PULL

Forces Award

PUSH

Forces, measured in Newtons, either push or pull. Magnetism is also a type of force that can push or pull. A spring will also push or pull depending on whether it is stretched or squashed.



Friction pulls or slows objects to a stop in a 'rubbing' way. The rougher the surface, the more the friction.

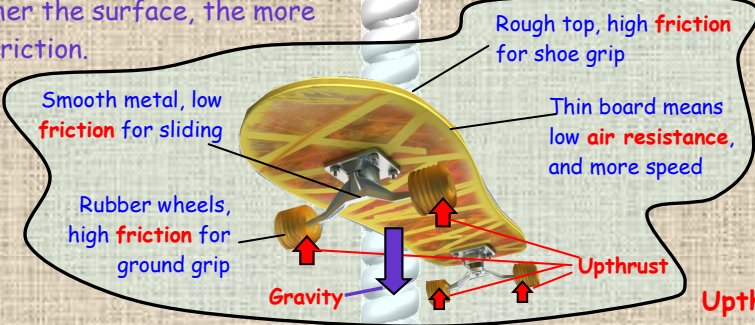
Air Resistance pushes back on an object moving through air.



Water Resistance pushes back on an object moving through water.



Gravity pulls objects to its centre.



Upthrust pushes back gravity. That is why you might seem lighter in water, and keeps things floating.

9 got their NINTH certificate!!!



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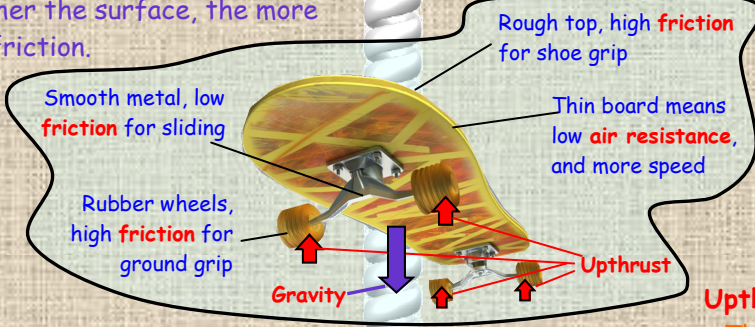
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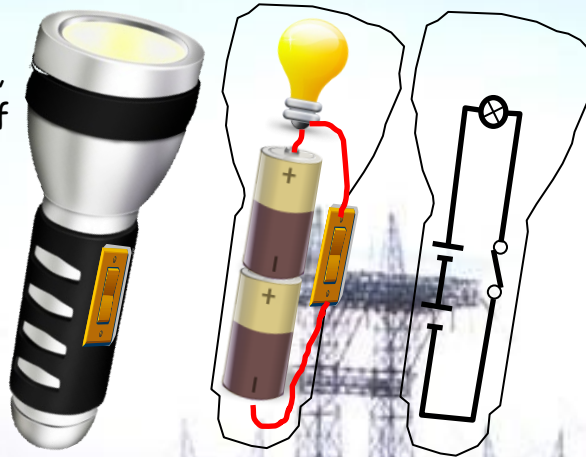
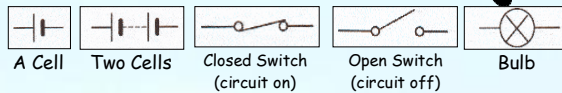
Circuits work when they are **complete**. This means there are no gaps in it.

Metals, such as copper, are great **conductors** of electricity. Plastic, wood, rubber are good **electrical insulators**.

Electricity is **very dangerous**. Water also easily **conducts electricity**, and so should be kept well away from each other.

Circuits Award

A switch is able to **break or complete a circuit**, depending on if it is open or closed.



More bulbs in a circuit will make them **dimmer**. More **batteries** will make them **brighter**.

Cells (batteries) need to be the same way round (- to +) to create the **flow of electricity** around the **circuit**.

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10 got their TENTH certificate!!!



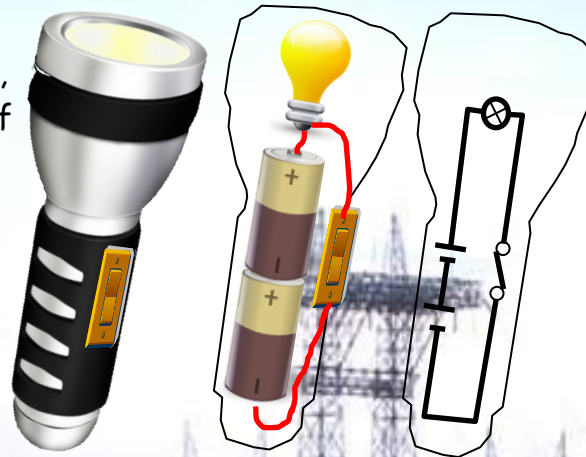
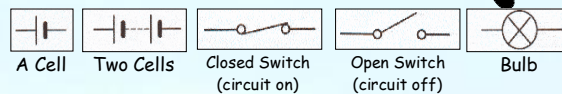
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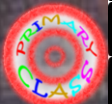


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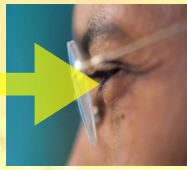
Light Award

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Light travels in straight lines

from a source to our eyes.



The closer the object to the source, the larger the shadow.



Light cannot bend, but reflects off objects.

Shadows form when light is blocked.



11 got their ELEVENTH certificate!!!



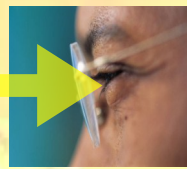
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Sound Award

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Sound is **vibration** and it travels in all directions from the source.



It is difficult to see **vibrations**, but try watching a string close up when it is played on a guitar.

Pitch describes how **high** or **low** a sound is. A tight string or drum skin will produce **higher pitches**. A smaller/ shorter string will also produce a **higher pitch**.



Volume describes the **loudness** of a sound. The harder something is blown, plucked or hit, the **louder** the sound.



Sound can travel through solids, liquids and gases, but some materials are better than others. **Metal resonates** very well is why many instruments are made from it.

12 got their TWELTH certificate!!!



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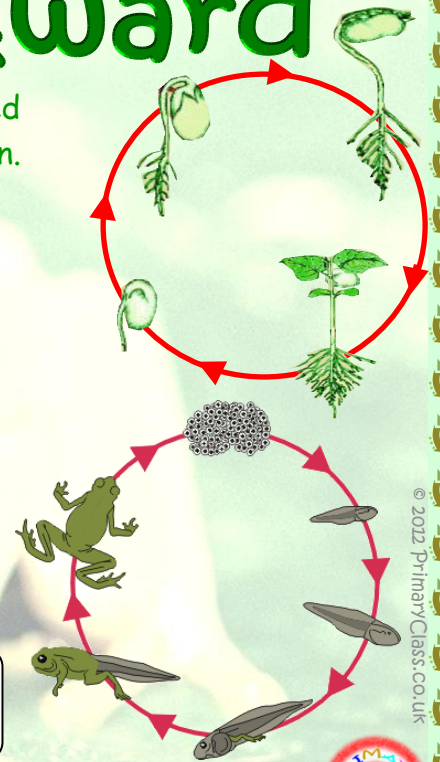
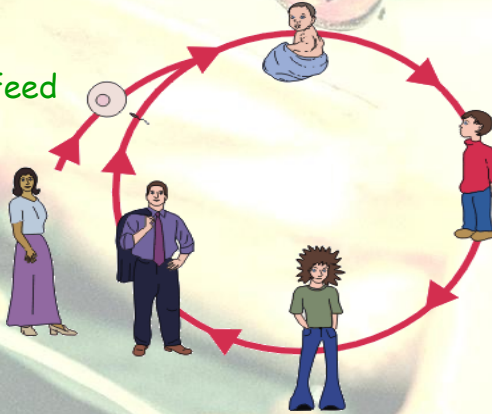
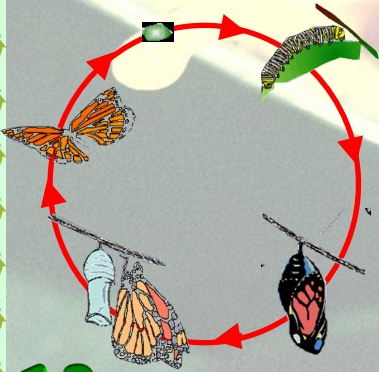


Life Cycles Award

All living things, plants, animals, insects, bacteria, have the need to **reproduce**. That means to make sure their **species** carries on. Here are some examples of **life cycles**.

All living things...

- move
- reproduce
- feed
- grow
- sense



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13 got their **THIRTEENTH** certificate!!!

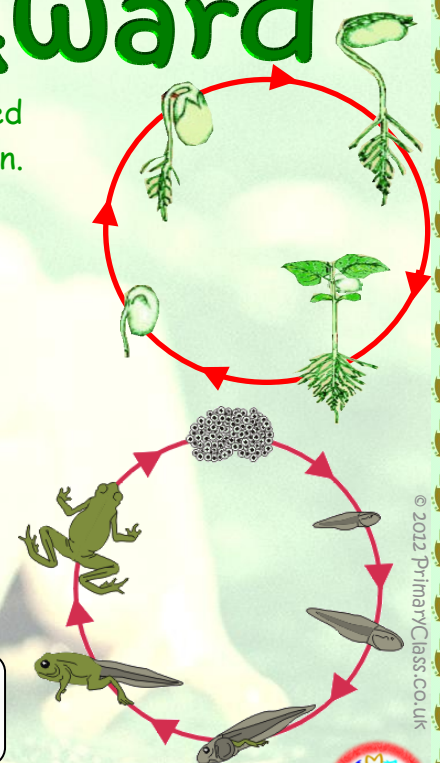
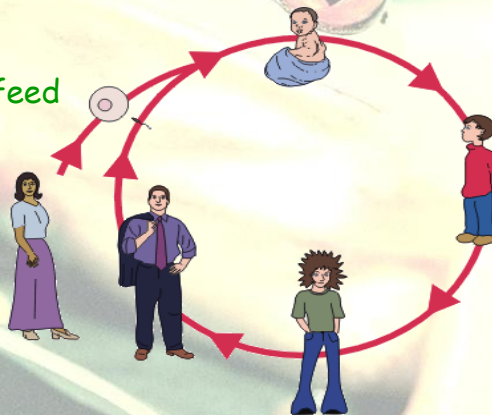
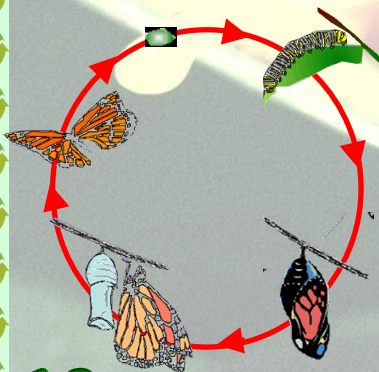


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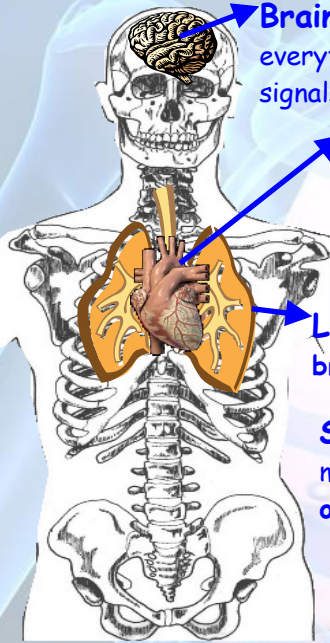


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13 got their **THIRTEENTH** certificate!!!



Humans and Teeth Award



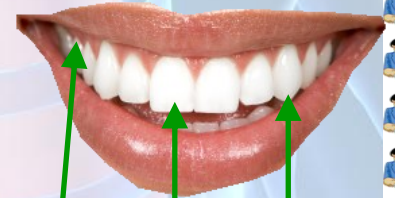
Brain: like a computer, controls everything around our body by sending signals through our **nerve system**.

Heart: pumps blood around the body. **Pulse** is faster when we work harder as the **muscles** need more **oxygen**. Blood goes out through **arteries**, and returns to the heart through **veins**.

Lungs: **oxygen** goes into our lungs when we breathe, before going into our blood.

Skeleton and Bones: Our skeleton helps us move and stay upright. Our **bones** also protect our **organs** (for example, the **skull** protects the **brain**).

Muscles and Joints: when a muscle **contracts** (pulls), it makes joints move, like this hip and leg joint.



Molars grind up the food.

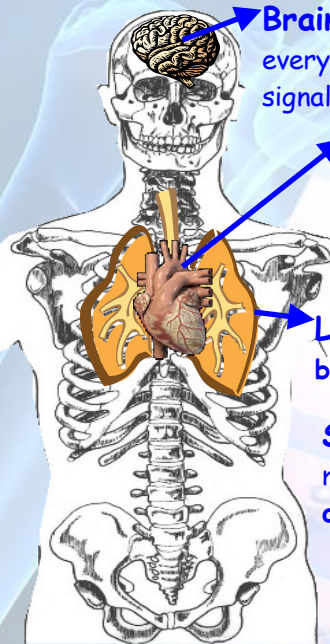
Incisors are sharp for cutting food.

Canines break food off to eat.

14 got their **FOURTEENTH** certificate!!!



Humans and Teeth Award



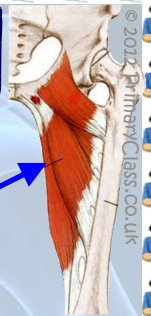
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Being Healthy Award



Balanced Diet: your body needs all types of food, not just fats and sugar

Exercise: the heart is a muscle, so lots of exercise will keep it strong.

Lungs: smoking can cause many deadly illnesses. Tar fills and blocks your lungs.

Fruit and Vegetables: for vitamins. Try to eat 5 different types a day.

Meat/Fish/Eggs/Beans: for protein, that helps your body grow and repair.



Carbohydrates: gives your body fuel and energy.

Teeth: need to be cleaned at least twice a day. Food, especially sugary food makes your teeth rot.



Healthy Lung

Tar Filled Lung

Fats/sugars: for energy, but many people have too much of this.

Dairy/milk: for protein and calcium, which keeps our teeth and bones strong.



15 got their FIFTEENTH certificate!!!



Being Healthy Award



Balanced Diet: your body needs all types of food, not just fats and sugar

Exercise: the heart is a muscle, so lots of exercise will keep it strong.

Lungs: smoking can cause many deadly illnesses. Tar fills and blocks your lungs.

Fruit and Vegetables: for vitamins. Try to eat 5 different types a day.

Meat/Fish/Eggs/Beans: for protein, that helps your body grow and repair.



Carbohydrates: gives your body fuel and energy.

Teeth: need to be cleaned at least twice a day. Food, especially sugary food makes your teeth rot.



Healthy Lung

Tar Filled Lung

Fats/sugars: for energy, but many people have too much of this.

Dairy/milk: for protein and calcium, which keeps our teeth and bones strong.



15 got their FIFTEENTH certificate!!!





Microorganisms Award



To see **Microorganisms** you need a **microscope**.
Some microorganisms are useful, some are harmful.

Virus: These can make you feel sick, like when you have a cold. They can easily transfer from person to person.

Bacteria: often found in food that is rotting or not cooked enough.



To protect from harmful bacteria, wash your hands, cover your mouth when you sneeze, and make sure food is cooked properly.



Yeast: For bread to rise, it needs yeast.

Yoghurt: this also needs **microorganisms** to make milk thicken.

Rotting: **microorganisms** cause old food and plant life to **decay**. The **nutrients** that form afterwards is useful for new plants to grow.

16 got their **SIXTEENTH** certificate!!!



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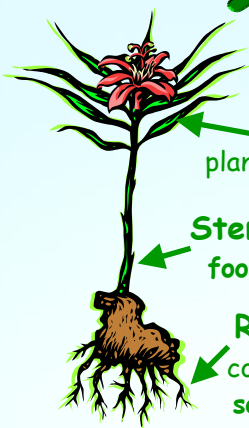
16 got their **SIXTEENTH** certificate!!!



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Plants Award

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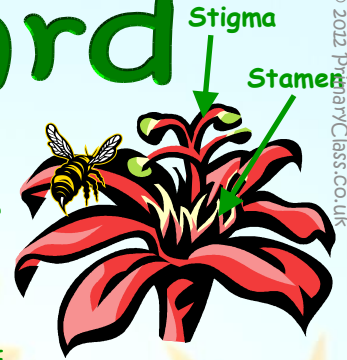


Leaves: produce food for the plant using the sun (photosynthesis).

Stem: holds a plant upright. Carries food and nutrients around the plant.

Roots: through which the plant collects water and nutrients from soil. Also helps support the plant.

Flower: these attract insects such as bees. Using insects, the wind, animals, or other ways, the plant can disperse (spread) its seeds. The stigma and stamen are the male and female parts of a plant and they produce the seed (pollination).



Plants need these to grow:



Nutrients



Air



Warmth and Light



Water



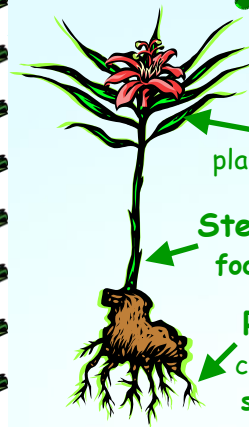
Germination: a seed needs water and warmth to grow.

17 got their SEVENTEENTH certificate!!!



Plants Award

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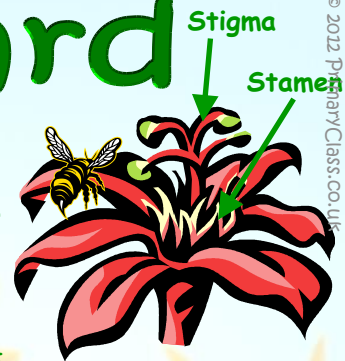


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Habitats and Adaption Award

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Hump: stores fat so that it can survive for a long time without food and water.



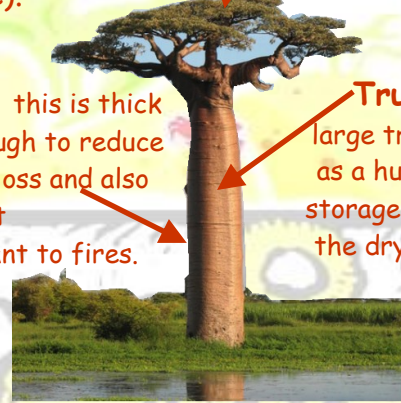
Thick fur: insulates (keeps out) cold at night, and heat in the day.

Camel: found in dry and sandy desert habitats.

Plants and animals have certain features that help them survive in their habitat (where they live).

Nose and Eyes: to protect from sand storms, they have 2 sets of long eyelashes and their nose can close. The eyelashes also protect the eyes from the bright sun.

Leaves: for 9 months of the year, there are no leaves to preserve water.



Bark: this is thick and tough to reduce water loss and also make it resistant to fires.

Trunk: the large trunk acts as a huge water storage tank for the dry months.

Baobab Tree: grow in hot savannah habitats that have 9 months without rain.

18 got their EIGHTEENTH certificate!!!



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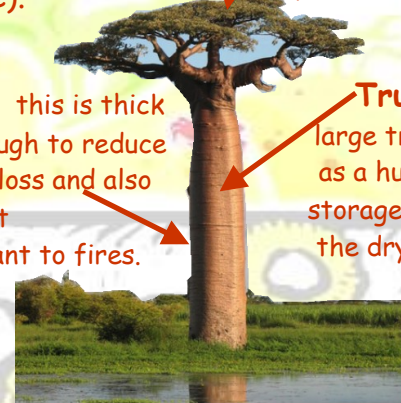
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Animals and Food Chains Award

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Herbivore: animals that eat only plants.

Carnivore: animals that eat only other animals.

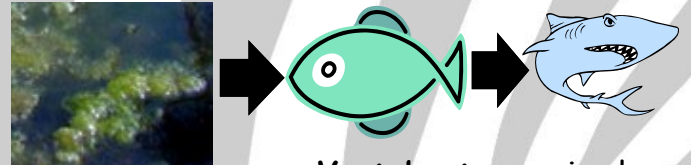
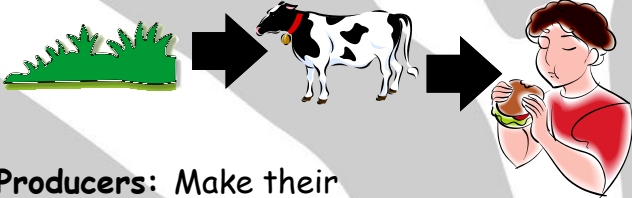
Omnivore: animals that eat both plants and animals.

Predator: an animal that hunts another animal. **Prey:** an animal that is hunted by another animal.

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Food chain: if one part of the food chain disappears, the rest of the chain would not have food.



Producers: Make their own food (plants)

Consumers: Eat other animals or plants.

Vertebrates: animals with a backbone

Invertebrates: animals without a backbone.

19 got their **NINETEENTH** certificate!!!



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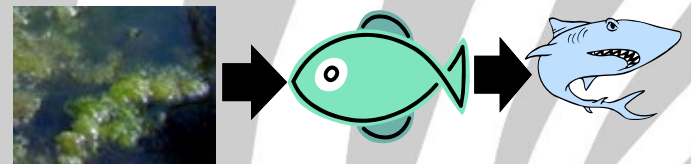
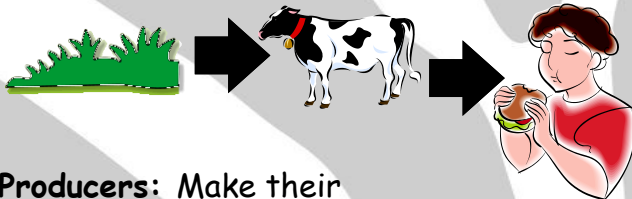
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Science Skills Award

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QUESTION?

Can you think of a question that can be investigated?

PLAN

Can you choose the right equipment to use?

PREDICT

Can you use your knowledge to predict what will happen?

FAIR

Change only the one thing you are testing.

OBSERVE

Can you see, smell, feel any changes?

MEASURE

Can you use equipment to measure time, temperature etc?

RECORD

Can you organise your results in a table?

RELIABLE

Are your results reliable? Do you need to repeat the test?

PRESENT

Can you present your results in a graph or chart?

INTERPRET

Can you use your graph and results to explain what happened?

EVALUATE

How could your test be better?

20 got their TWENTIETH certificate!!!



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