

# Air

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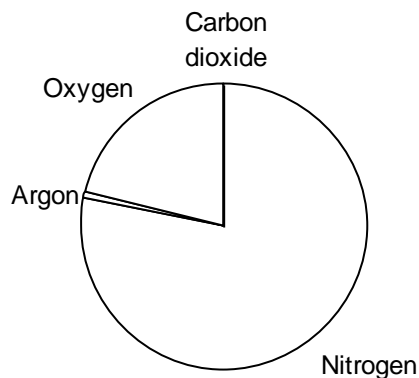
# Gases in the air

Air is the gas all around us.

It is a mixture of several different gases, mainly nitrogen and oxygen.

Without air we cannot breathe and fires won't burn.

It supports balloons and aeroplanes.



| Name of gas                  | Amount             | Uses  |
|------------------------------|--------------------|---|
| Nitrogen                     | <b>78%</b>         | Nitrogen is the main gas in air.<br>Nitrogen is used to make plant food (fertilizer) and is also in explosives.   |
| Oxygen                       | <b>21%</b>         | Without oxygen we cannot breathe and fires won't burn.<br><br>Oxygen is used in hospitals to help us breathe.<br>It also used in welding and as rocket fuel.<br><br>Oxygen is produced by plants (during photosynthesis).                                 |
| Argon                        | 1%                 | Argon is the gas inside electric light bulbs  |
| Carbon dioxide               | 0.03%              | Carbon dioxide is the gas in fizzy drinks. It is also used in fire extinguishers.<br>All living organisms breath out carbon dioxide when they make energy (from food).<br>Carbon dioxide is needed by plants when they make food (during photosynthesis). |
| Helium and other inert gases | .Very small amount | It is a very light gas and is used in balloons to help them float   |
| Water vapour                 | Varies             | Water vapour is formed when water evaporates.<br>When water vapour in the air cools down it forms clouds.<br>There is lots of water vapour in the air we breathe out.   |

## AIR

Is air a single gas or a mixture of several things

*Single gas*

*Mixture*

1. Air is made up mostly of a gas called .....
2. What gas are the bubbles in fizzy drinks:.....?
3. What gas is needed for fires to burn? .....
4. Why is helium is sometimes put into balloons to make them float because

*It burns easily*

*It is very light*

*It looks pretty*

5. What gas is often put inside light bulbs .....
6. What gas is produced by plants during photosynthesis .....
7. Air is sometimes spoilt by humans adding soot and other substances that shouldn't be there.

This is known as

*Pollution*

*Conservation*

*Germination*

8. Which of the gases below is NOT found in the air

*Hydrogen*

*Nitrogen*

*Carbon dioxide*

9. What percentage of the air is Oxygen? .....
10. What gas do humans and other animals breath out.

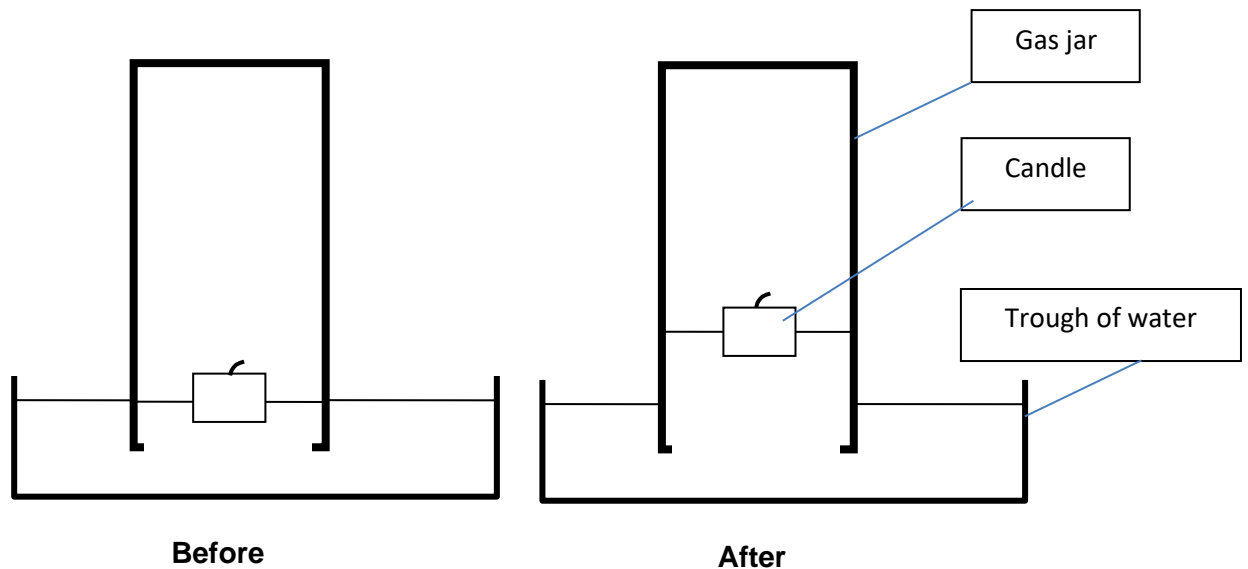
Something to find out:

What is global warming?

What gases help cause global warming?

Why is global warming bad?

# Experiment to burn a candle in air



We floated a burning candle on water and placed a glass gas jar over the candle.

After a few minutes the candle went out and the water rose a small way up the glass jar.

1. Why did the candle go out?

.....

2. What gas in the air is needed for the candle to burn?.....

3. Why did the water go up in the gas jar?

.....

..

# Uses for air

## Evidence that air exists

Write underneath each picture what is happening



Breathing: air contains oxygen which is needed to keep us alive



Slows down a parachute

Blowing up a balloon

Helps a plane fly

Moving a Sailing boat

Needed for fires to burn

Remember that air has weight: an inflated balloon weighs more than a light balloon

**Air pressure:** Vacuum packed clothes, crushing a bottle, the egg experiment

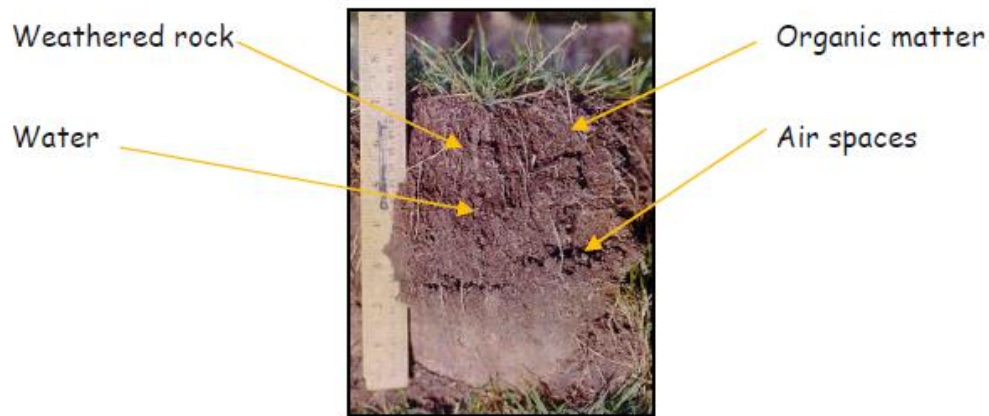
## There is no air on the Moon

*What would happen if we threw a paper aeroplane on the moon?*

*What would happen if we tried to use a parachute on the moon?*

## Showing how much air is in different types of soil

Soil is composed of (made from) weathered rock (bits of rock), organic matter (bits of plants, animals and their droppings), water and air. Living in the soil are small organisms. These include animals, worms, insects and microbes.



You have three beakers of soil. One contains a sandy soil, one a clay soil and one normal soil.

The aim of this experiment is to choose one of the beakers and find out how much air it contains (as a percentage if you can).

Work out how you will do the experiment, chose your apparatus and then carry out the investigation.