

Year 6 Science Revision Instructions

- *The exam is 60 minutes long*
- *It will cover the topics listed below*
- *Some questions could be multiple choice*
- *There will be a mixture of short and long answer questions*
- *You may have to draw a bar chart and a line graph*
- *You are allowed to bring a calculator to the exam*
- *Remember to bring a pencil and a ruler*

Be prepared to answer questions about topics/experiments that you have not directly studied. We are keen to see how well you can apply your knowledge to both familiar and unfamiliar situations. This is a key skill that you will need for the Common Entrance course which starts in year 7.

You should use your science exercise book along with the revision notes included in this booklet.

You can also access resources from Mr Taylor's excellent website: www.abt252.com

There is also plenty of online material in the Key Stage 2 (KS2) section at: www.bbc.co.uk/bitesize

Topics that will be examined:

Electricity

- Controlling the brightness of bulbs
- Circuit diagrams
- Circuit symbols
- Difference between series and parallel circuits

Light and how we see things

- Examples of light sources
- Light ray diagrams to show how light travels and how we see things
- Examples and definitions of transparent, translucent, opaque materials
- How shadows form
- Factors affecting shadow length/position/size
- What happens when light meets a mirror

Dissolving and mixtures

- How filtering works
- Examples of soluble/insoluble substances
- How substances dissolve
- Factors affecting the speed of dissolving
- How to separate mixtures using a step by step procedure

Forces

- How to measure forces
- The effect of friction/air resistance on moving objects
- Using arrows to show the size and direction of forces

Microbes/micro-organisms

- Definition of what a microbe is
- Yeast and why it can be helpful (it's uses and applications e.g. how it can be used to help make bread)

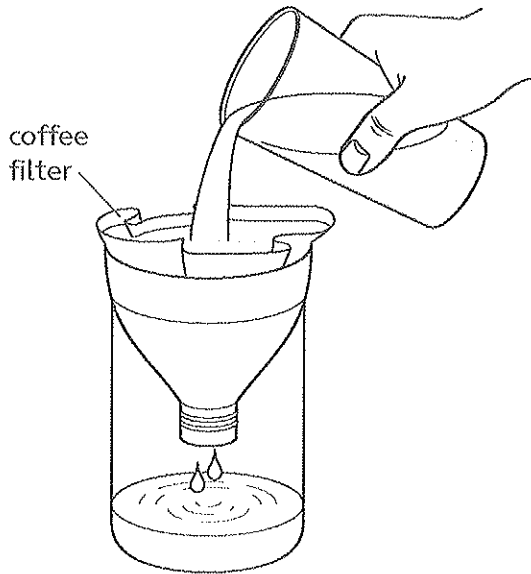
Good luck!

Mr C Laphorn and Miss Cotton

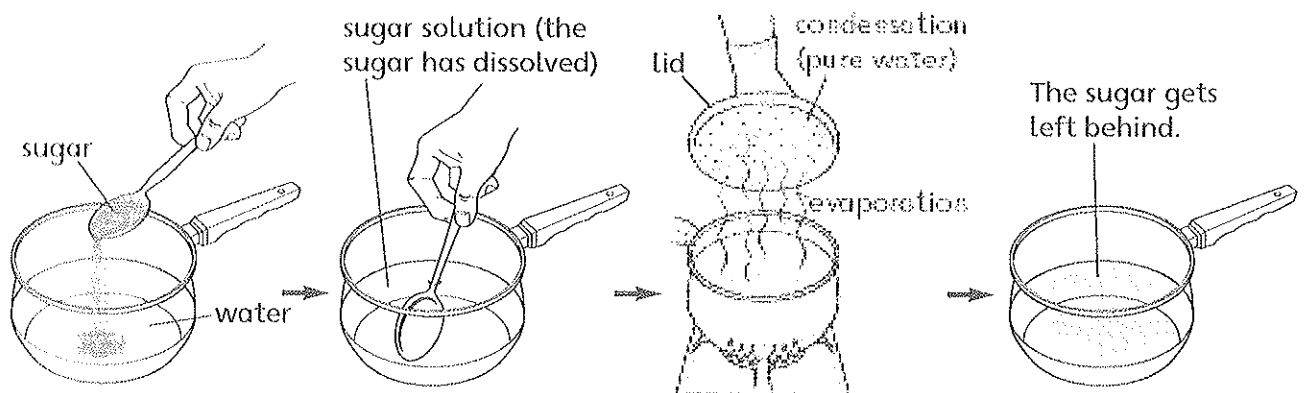
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More about dissolving

You can separate lumps from water by **filtering** it. The lumps are too big to fit through the paper and only the liquid can fit through the holes.



Some solids seem to disappear when they are added to water but they are still in the water – they have **dissolved**. Water with something dissolved in it is not **pure**, but is a type of **mixture** called a **solution**. You cannot get the dissolved solid back by using filtering but you can get it back by **evaporating** the water. Only the water evaporates, the solid is left behind. If you evaporate the water from a solution and then **condense** it, the water will be pure.

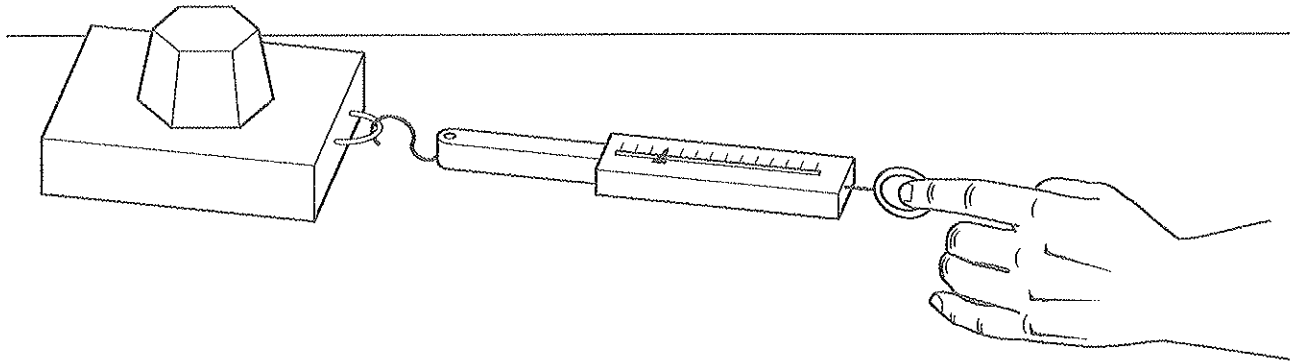


Balanced and unbalanced forces

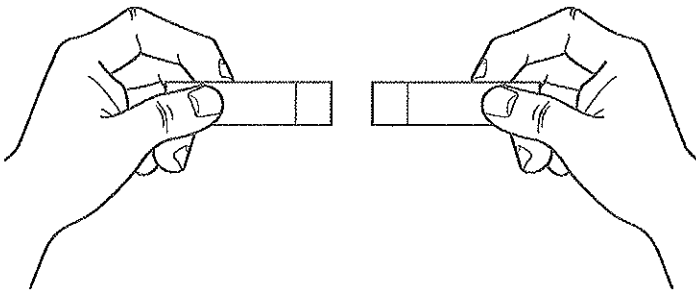
Forces are pushes or pulls. You can measure forces using a **forcemeter**.

The units for force are **newtons (N)**.

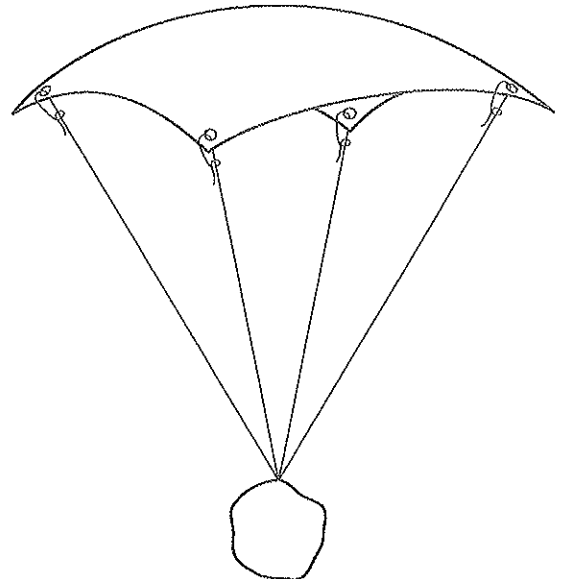
Friction is a force that slows down moving objects.



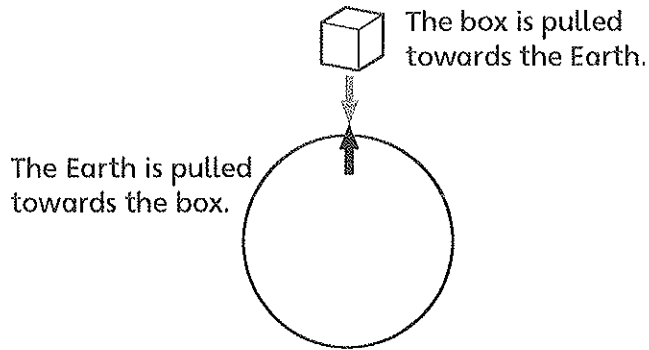
Magnets can attract and repel each other. Magnets also attract things made from **magnetic materials** like iron.



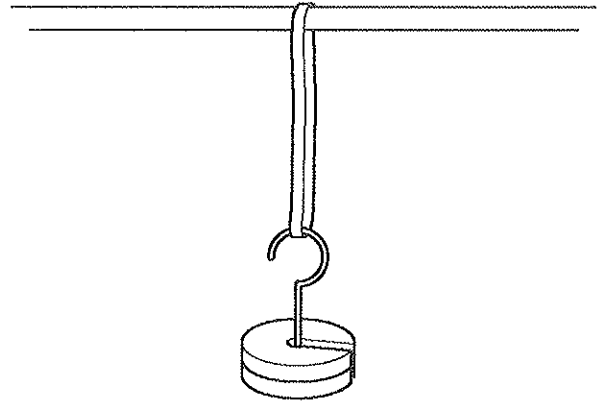
Air resistance slows down falling things. Objects with larger areas have more air resistance.



Gravity pulls the Earth and objects towards each other. **Weight** is the force due to gravity.



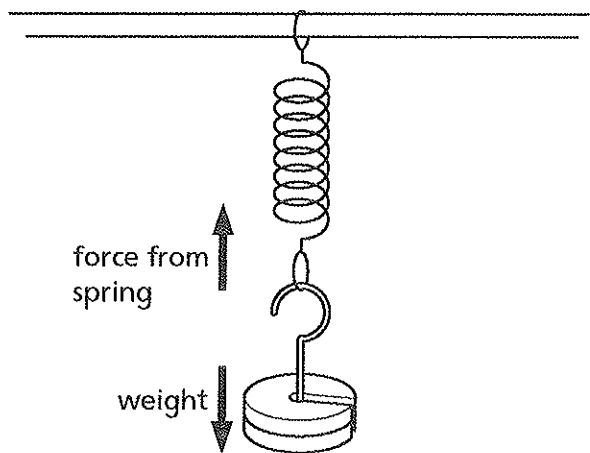
Elastic bands stretch when you hang things from them. The more you stretch an elastic band, the more it pulls back.



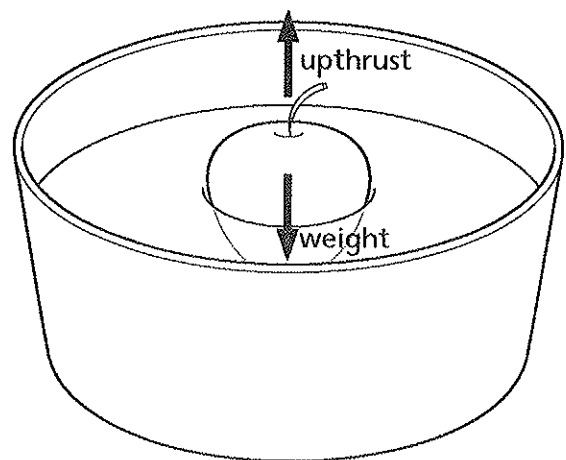
Balanced forces

When an object is not moving the forces on it are **balanced**.

The force from the spring is balancing the weight. The object is not moving.



Upthrust from the water balances the weight of the apple, so the apple **floats**.

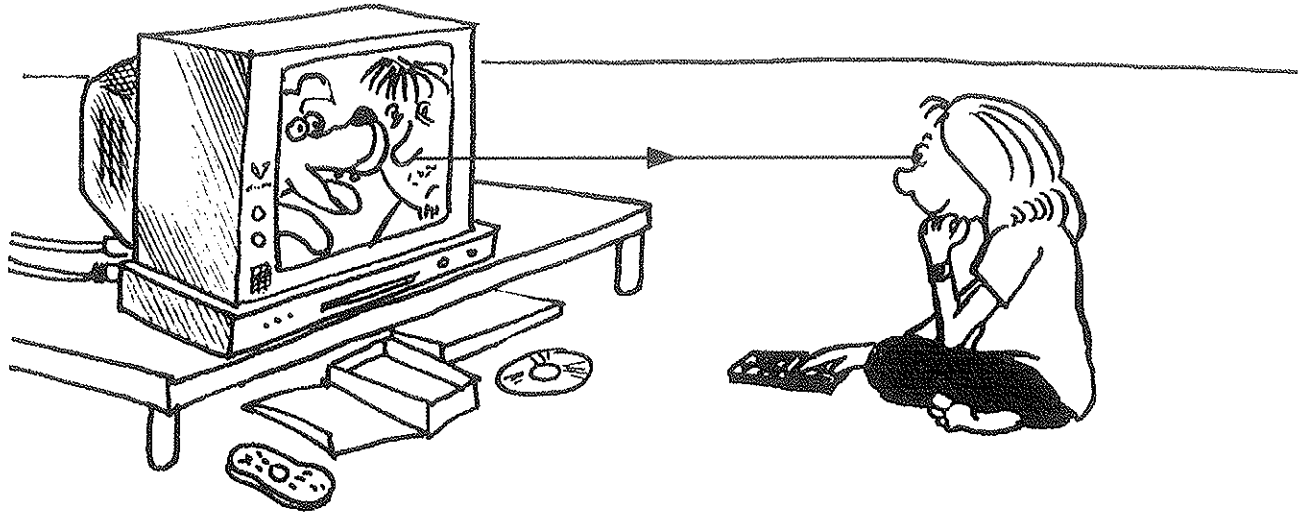


Unbalanced forces

Unbalanced forces can make things start or stop moving, speed them up, slow them down or make them change direction..

Light and how we see things

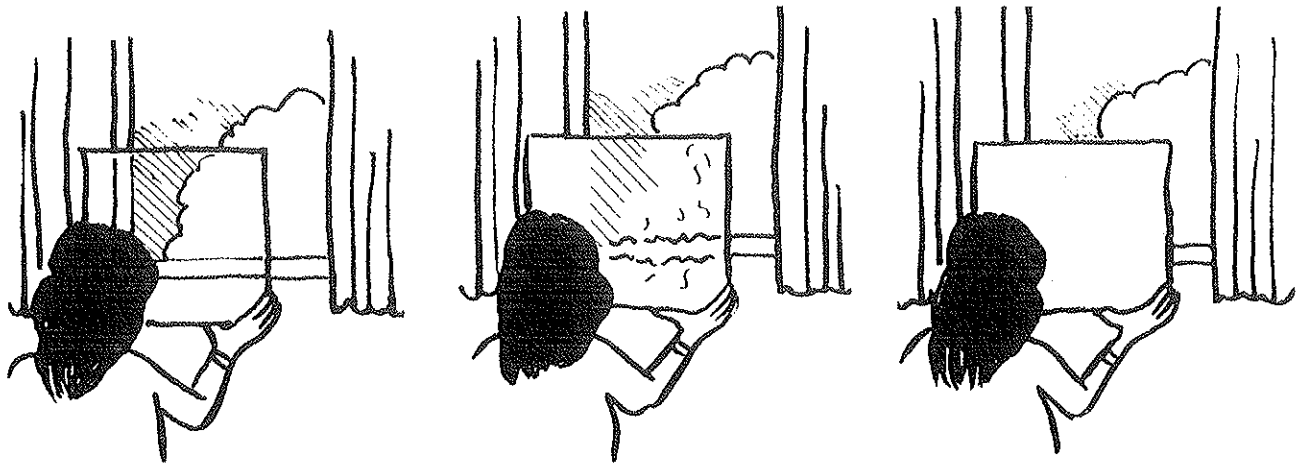
The Sun, light bulbs and candles all make light. They are **light sources**. We can see light sources when the light from them goes to our eyes.



Light can travel through **transparent** materials.

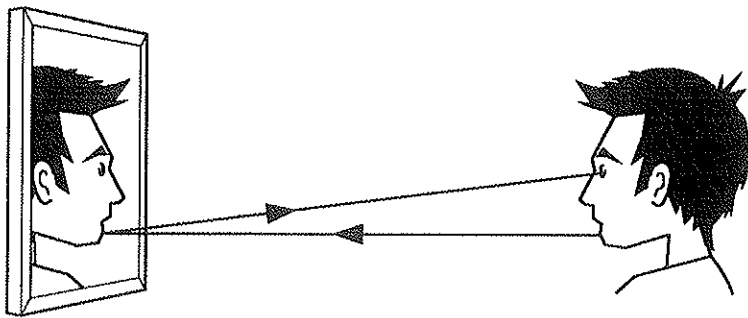
Light can go through **translucent** materials, but you cannot see clearly through them.

Light cannot travel through **opaque** materials.





Shadows are formed when something opaque stops light from travelling. You have a shadow on a sunny day because light from the Sun cannot travel through you.



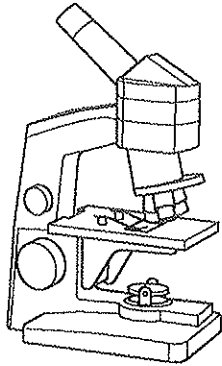
You can see a picture of yourself in a **mirror**. Mirrors **reflect** light. Light changes direction when it hits a mirror.

Shiny materials are good at reflecting light because they are very smooth. You can make metal or wood shinier by polishing it, because polishing makes it smoother. You can usually see yourself in a piece of shiny material.

Micro-organisms

What they are

Micro-organisms (sometimes called **microbes**) are tiny living things which you need a **microscope** to see. There are three main kinds: **bacteria**, **viruses** and **fungi**.



A microscope.

What they do

Micro-organisms can:

- cause diseases
- cause decay
- be used to make foods.

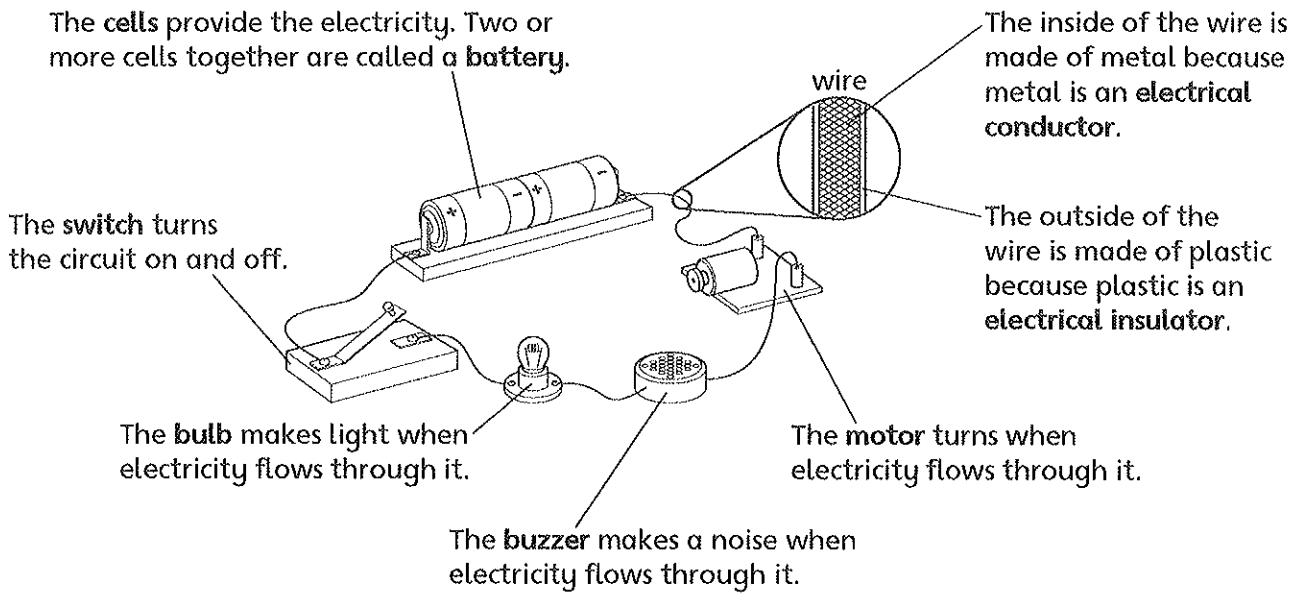
Diseases and other problems

Only some micro-organisms cause diseases. The word **germ** is an everyday word for micro-organisms that can cause a disease. You can catch many of these diseases from other people when they sneeze into the air. The table shows some examples of diseases and other problems caused by micro-organisms.

Micro-organism	Diseases caused	Other problems caused
Viruses	Chicken pox, colds, flu	
Bacteria	Impetigo	Tooth decay, gum disease, boils and spots
Fungi		Athlete's foot

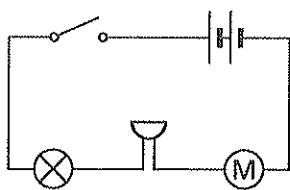
Electricity (Changing circuits)

Electrical **components** such as bulbs and motors only work when they are in a complete **circuit**.



Cells give a low **voltage** which is safe to use. **Mains electricity** is at a much higher voltage, and must be used carefully.

It is easier to draw circuits using **symbols**. **Circuit diagrams** that use symbols are also easier for everyone to understand.

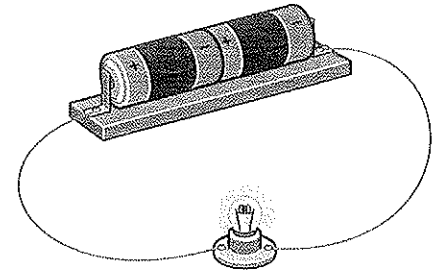
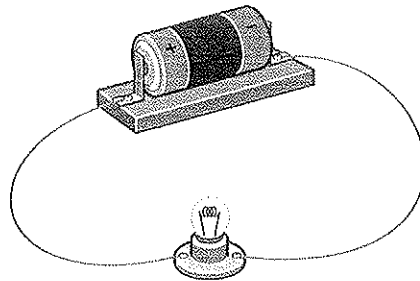


This is the circuit diagram for the drawing above.

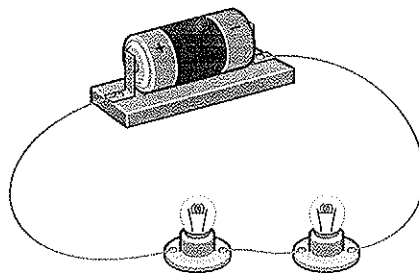
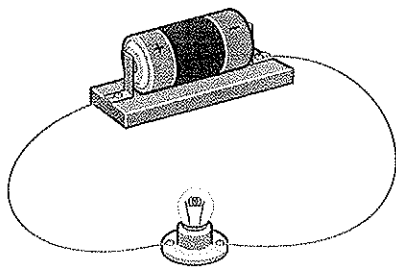
6Gc Changing circuits

Why does changing the circuit change the brightness?

You can make bulbs brighter by adding more cells to a circuit. If there are more cells, there is more electricity flowing around the circuit, so the bulbs are brighter.



You can make bulbs dimmer by adding more of them to a circuit. It is difficult for electricity to flow through bulbs. If you add more bulbs, it is more difficult for electricity to flow through them all, and so less electricity flows through the circuit. Bulbs are dimmer when there is less electricity flowing.



You can also make bulbs dimmer by putting a piece of thin wire in the circuit. It is harder for electricity to flow through thin wire than thick wire, so less electricity flows and the bulbs are dimmer. It is also harder for electricity to flow through long wires, so a long piece of wire will give dimmer bulbs than a short piece of wire.

You should know...

How the length and thickness of a piece of wire can affect the amount of electricity flowing in a circuit.








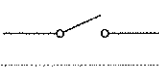

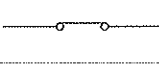








- 1 a Write down one way of making bulbs in a circuit brighter.
b Explain why this works.
- 2 a Write down one way of making bulbs in a circuit dimmer.
b Explain why this works.
- 3 You can make bulbs brighter by using fewer of them in a circuit. Explain why this works.

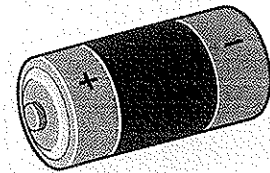


- 4 a Which piece of wire is it easiest for electricity to flow through?
A long and thick
B short and thick
C long and thin
b Explain your answer to part a.

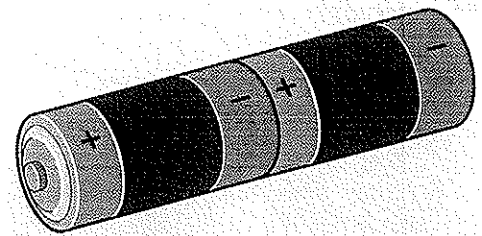
We always use the same symbol for each component, so that anyone who looks at a circuit diagram can understand it.

Component		Symbol
	one cell	
	two cells (a battery)	
	wire	
	open switch	
	closed switch	
	bulb	
	buzzer	
	motor	

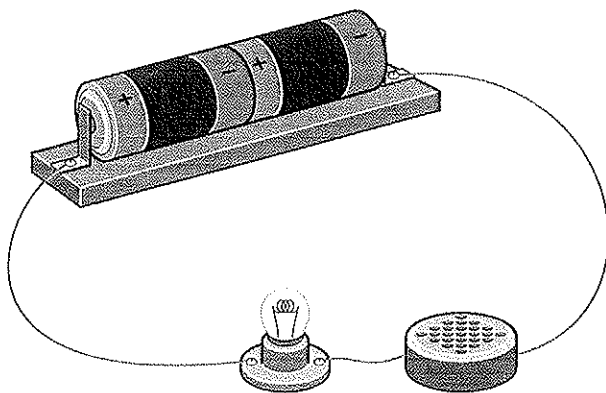
Most people call this a battery, but its proper scientific name is a cell.



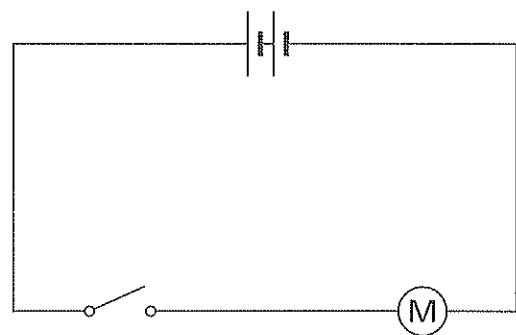
A battery is two or more cells used together, like this:



- 3 Draw neat copies of the symbols for a cell, a bulb and an open switch.
- 4 Draw a circuit diagram for this circuit.



- 5 Draw a picture to show what this circuit looks like. Label the components on your drawing.



You should know...

- Why we use symbols to draw electrical circuits.
- The symbols for different components.