



## Lightbulb - How does a light bulb work?

### Fact

- All light bulbs allow electricity to enter and leave at different parts of the bulb.
- A light bulb works when electricity passes through the filament which is the very thin bit of wire you can see right inside the bulb.
- The electricity finds it hard passing through the thin wire and the friction caused makes heat and light energy.
- A small torch bulb has a metal base where electricity can pass from the positive end of the battery to go up into the thin filament wire in the bulb and the electricity then leaves by passing out the metal side of the bulb to touch a metal band that runs down the length of the side of the torch.

### Do you know

- Thomas Edison invented the first successful light bulb in 1879 by doing two important things. First he put the filament in a glass bulb and then he removed the air (including oxygen) from inside the bulb. Without oxygen to help it burn the filament lasts a lot longer.
- Thomas Edison tested more than 1,600 materials to find the right filament, including coconut fibre, fishing line, and even hairs from a friend's beard.
- When electricity has to work hard to pass through something like a filament scientists say it has 'high resistance'. That means the electricity has to really push through the object to get from one side to the other.

### Experiments you can do

Make some heat energy with friction.

What you need and what you do:

Your two hands. Make sure your hands are nice and dry then rub them together very quickly. The more you rub the hotter your hands will get. Can you feel the heat energy you're creating? This is a handy thing to remember on a cold day. Try it on your cold feet too.

### Other Investigations

Ask your teacher to help you use a circuit with a light bulb to look at how the electricity from a battery makes it light up.

What you need: 2 size D cells, A 2.5 volt light bulb, 3 wires

What you do:

Have your teacher help you set everything up in a circuit. If you can, look at it in a darkened room. You can change the amount of power flowing from the battery into the bulb if you add another bulb to your circuit and watching the change in the amount of light. Does it get brighter or dimmer?

### Jokes

What did the little light bulb say to its mother?" I wuv you watts and watts".

From Gemma