

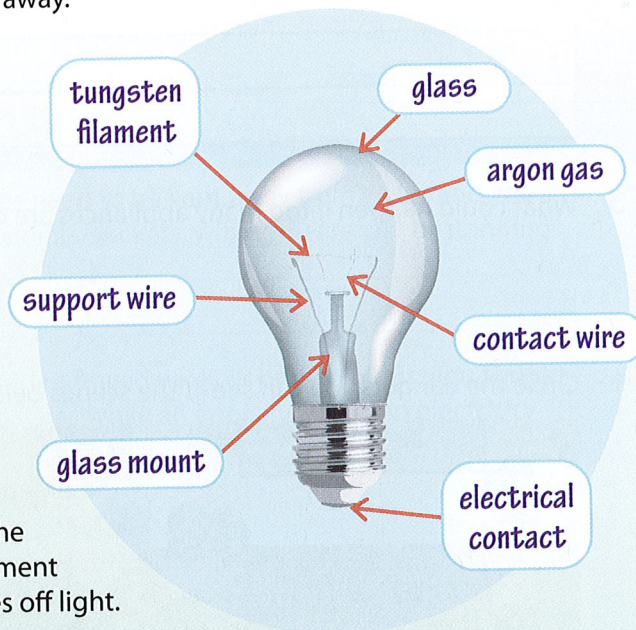
## Features of Electrical Devices – Lights

### *Incandescent Light Bulb*

An incandescent light bulb's components are housed in a sealed glass enclosure (the bulb) that is filled with argon gas. A filament of tightly coiled tungsten wire is found within the bulb. The argon gas preserves and protects the filament from burning away.

To hold the filament in place, two support wires are attached to a glass mount, which is anchored to the base of the light bulb. Two rigid contact wires come out of the glass mount and join to the ends of the filament. One wire is attached to a positive terminal in the glass mount, and the other is attached to a negative terminal.

Incandescence is light that comes from heat. It is thermal radiation. When a light bulb is switched on, an electric current is sent through a circuit. Electrons travel up the contact wires, through the filament and down again. Tungsten is a highly resistive material. This means the electrons struggle to move through the tungsten filament. The energy created makes the filament heat up until it becomes so hot that it glows and gives off light.



### *Fluorescent Light Bulb*

Fluorescent light bulbs consist of a sealed glass tube that is filled with argon gas and a tiny amount of mercury. The inside of the glass is coated with a layer of phosphor. Phosphor is a substance that has the ability to store energy and release it as bright, visible light.

For a fluorescent light to work it must have two electrodes wired to an electric circuit. These are usually made of coiled tungsten. When the light is turned on, electricity flows through the circuit creating enough heat to turn the mercury to vapour. Free electrons that are floating around in the gas collide with the mercury atoms, which creates light energy, or ultraviolet (UV) photons. Because UV light cannot be seen by humans, the phosphor coating on the glass tube is needed to convert the UV light to standard visible light.

Incandescent light bulbs release a large percentage of energy as heat rather than light. Therefore, they waste a lot of energy. A larger portion of the energy produced by fluorescent lights is radiated as light. Fluorescent light bulbs were invented to be a more efficient and energy saving light source.

