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Expository Essay

In my essay I will be telling how a light bulb works by starting with the filament and so on. You will learn what is in a light bulb and how the circuit works.

The most important component in a light bulb is called a filament. A filament is a fine wire strung between two contact points. You can see the filament in the light bulb. The ends of the filament are connected to electrical leads that connect to the outside wiring through the metal base. When a bulb is screwed on a lamp socket and you turn on the switch, the circuit is completed. Thomas Edison’s filament was made of carbon. Now filaments are made with different materials to last longer. A light bulb has two metal contacts at the bottom of the base where they get power from. These touch the electrical circuit in the fitting attached to your main electricity.

“The bulb glows because the resistance of the filament is much greater than that of the rest of the circuit. Picture a four lane highway suddenly narrowing down to one lane. All the traffic would back up. In electrical terms, the rest of the circuit is carrying more current than the filament can carry. The filament's being fed more current than it can handle, and the energy has to go somewhere, so the filament starts to heat up. The energy is converted from electrical to heat energy and the filament begins to glow, just like any other metal will as it heats up. The energy has now been converted into light. The filament is "incandescing" which is the source of the term "incandescent bulb"([www.ehow.com/how-does\_4563966\_light-bulb-work.html](http://www.ehow.com/how-does_4563966_light-bulb-work.html)).

The parts of a light bulb are a tungsten filament, glass mount, screw thread contact, insulation, electrical root contact, inert glass, support wires and a bulb. In a standard 60 watt bulb the tungsten wire is over 6 feet long. A tungsten wire is a filament. Thomas Edison’s filament only went for 13 and ½ hours. Incandescent light bulbs last between 1000 to 2000 hours. When you turn on a light the electricity flows through the filament. It lights up because the filament glows when hot enough. A light bulb contains a vacuum. Air gets hot in a light bulb and it can burn the filament so a vacuum pushes the air out.

“The electrical charge heats up the filament to produce the light. How? The electrons that make up the electricity current rocket along, slamming into the tungsten atoms and causing them to vibrate. This friction produces heat or thermal energy, which is captured and then released by the electrons in the form of photons (light). Most of these are unfortunately in the lower end of the spectrum (known as infrared) and are invisible to humans. But the hotter the filament, the higher wavelength visible photons are emitted which we can see, and the brighter the light from the bulb”(www.teachengineering.org).

“The law of conservation of energy states that energy can neither be created nor destroyed”(www.howitworks.net/how-light-bulbs-work.html).

I hope you learned a lot about light bulbs. I’m sure there is a lot more to learn. I hope my essay at least gave you an idea.

Sources

1. bits.blogs.nytimes.com
2. [www.ehow.com/how-does\_4563966\_lightbulb-work.html](http://www.ehow.com/how-does_4563966_lightbulb-work.html)
3. [www.wydea.com/topiclightbulb](http://www.wydea.com/topiclightbulb)
4. [www.teachengineering.org](http://www.teachengineering.org)
5. www.howit works.net/how-light-bulbs-work.html