

Facts of Light

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Fifteen years ago, we used a lot of energy in the form of electricity to make light to be able to see. Thirty percent of the electricity schools used was for lighting, and homes used about 14 percent of their electricity consumption for lighting. That's because homes, schools, and other commercial buildings used a lot of incandescent lighting. These inefficient bulbs were perfected by Thomas Edison in 1879 and didn't change much for the next 125 or more years! These bulbs were surprisingly inefficient, converting up to 90 percent of the electricity they consumed into heat.

The Energy Independence and Security Act of 2007 changed the standards for the efficiency of light bulbs used most often. As of 2014, most general use bulbs had to be 30 percent more efficient than traditional, inefficient incandescent bulbs. What did the new standards mean for consumers? The purpose of the new efficiency standards was to give people the same amount of light by using less energy. Most incandescent light bulbs have since been phased out and are no longer available for sale. This has resulted in significant energy savings for homes and schools. Newer, efficient lighting now accounts for a little more than 17 percent of the electricity used in schools and less than 5 percent used in homes.

There are several lighting choices you may see in homes and businesses. Energy-saving incandescent, or halogen, bulbs are different than traditional, inefficient incandescent bulbs because they have a capsule around the filament (the wire inside the bulb) filled with halogen gas. This allows the bulbs to last three times longer and use 25 percent less energy. These bulbs have mostly been eliminated from stores, but you may still have some in your homes.

Compact fluorescent bulbs (CFLs) were commonly used when old, inefficient incandescent bulbs were becoming less available. They used up to 75 percent less energy and lasted ten times longer. Many people did not like CFL bulbs because they could flicker and appear dim. Plus, CFL bulbs have mercury vapor inside. When LEDs became more affordable, CFL bulbs were no longer favored and people stopped purchasing them.

Today, light emitting diodes (LEDs) are preferred for most lighting uses. LEDs have been used for a long time to indicate when something was turned on or off (red or green dots, for example). Today's LED bulbs are available in a wide variety of color "temperatures" from warm, golden white to a bright, bluish white. LED bulbs are the most efficient lighting available and use up to 80 percent less energy than old-style incandescents. They also last longer than any other lighting type, up to 25,000 hours! Most light bulbs purchased for home use are LED. Many commercial buildings use LED lighting, too. Using more efficient lighting has reduced electricity demand and lowered greenhouse gas emissions.

INCANDESCENT BULB



HALOGEN BULB

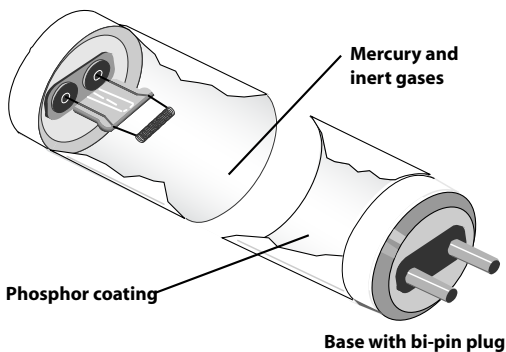


LED BULB



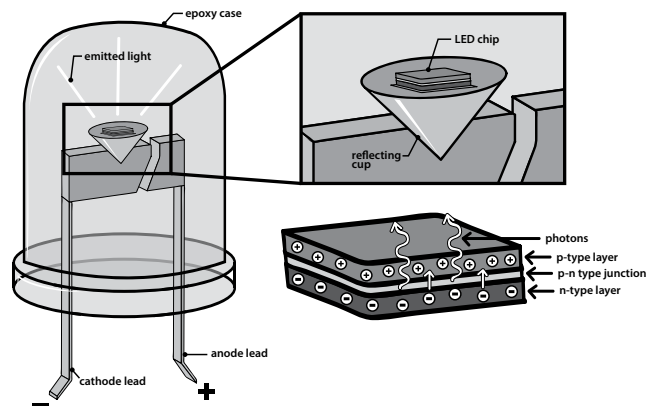
LEDs offer better light quality than incandescent bulbs and halogens, last 25 times as long, and use even less energy than CFLs. LEDs now have a wide array of uses because technology has improved and costs have decreased. CFLs are not as available in stores, and their use has drastically decreased, like the use of halogen bulbs. Some may still use these bulbs in their fixtures at home. They come in several shapes and sizes.

Fluorescent Tube Lamp



In fluorescent tubes, a very small amount of mercury mixes with inert gases to conduct the electric current. This allows the phosphor coating on the glass tube to emit light.

Inside an LED



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