



# Human Powered Electricity

Which light source uses less energy?

Activity Guide

*Can you power these two types of light sources? Use the human powered generator to test how much energy is needed to power the different types of lights.*

## Try This!

**Step 1:** Attach the alligator clips to the human powered generator.

**Step 2:** Attach each alligator clip to each end of the LED light wires.  
(**Hint:** look at the labels to find the LED strand of lights).

**Step 3:** Crank the generator and notice how much effort it takes to light the bulbs and notice the difference in brightness.

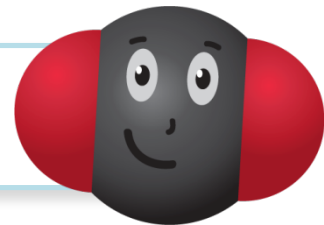
**Step 4:** Repeat steps 2 and 3 with the other strand, which are incandescent lights.

**Do you notice a difference in how much human powered energy you need to power each type of light?**

## Climate Connection

**Different light sources require different amounts of energy to operate. Traditional incandescent bulbs use a lot more energy than CFL or LED bulbs.**

*Another simple way to reduce our carbon emissions is to turn off lights when they are not in use!*



**Turn the page over to learn more!**

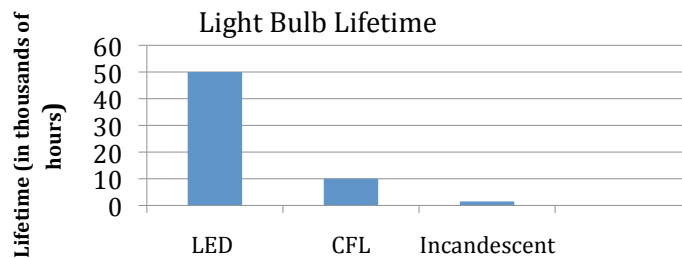
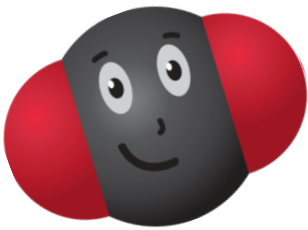
## What's Happening?

*Fossil fuels are materials formed from the organic remains of prehistoric plants and animals.*

Most of the electricity to power our homes comes from burning **fossil fuels** such as coal. When coal burns, it produces carbon dioxide, a **greenhouse gas** that warms our climate. The less energy that you use in your home, the less carbon dioxide will be released into the atmosphere. It is very important to use the most energy efficient appliances in your home.

**CFL (Compact Fluorescent Light)** and **LED (Light Emitting Diode)** light bulbs use much less energy than **incandescent** (or traditional) light bulbs. In fact, incandescent bulbs use 75% more energy! In order for incandescent bulbs to produce light, they need to get very hot which uses a lot of energy. An LED or CFL light on the other hand, doesn't require heating anything and therefore uses a lot less energy.

If every household would change their incandescent bulbs for CFL or LED lights bulbs, it would prevent a large amount of the carbon dioxide from being put into our atmosphere. Another simple way to reduce carbon emissions is to turn off lights when they are not in use!



This graph shows the lifetime of different light sources over time. LED lights last a lot longer!

## Climate Detective Challenge

**Which light bulbs are good choices to conserve energy?**

*Find the answer to this question on the Activity Map!*

