

**The Right Light**

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**Educational Goals: To educate students about energy efficient lighting options for Home & School**

**Description:** A Power Point Presentation about Alternative Light Sources & Light Bulbs, followed by a demonstration comparing Incandescent light bulbs, Fluorescent/Compact Fluorescent light bulbs & Light Emitting Diode (LED) light bulbs.

**Time:** Approximately one hour

**Materials Needed: 1) A three bulb bathroom light fixture. 2) A 120 volt extension cord (to be attached to the bathroom lighting fixture & plugged into a wall outlet). 3) A small screwdriver. 4) One 40 to 60 watt incandescent light bulb. 5) One 15 to 20 watt compact fluorescent light bulb. 5) One 9 watt, screw-in, LED light bulb.**

**Directions: Present & Discuss Power Point Presentation (answering any questions that may arise concerning lighting efficiency). After the PP Presentation, attach extension cord to light fixture, plug light fixture into wall outlet and screw in all three different light bulbs. Instruct students to note the heat that the incandescent bulb releases and to compare the heat being released by the incandescent light bulb, the compact fluorescent light bulb and the LED light bulb. Explain and discuss that approximately 90% of the energy used to illuminate a traditional incandescent light bulb is actually heat energy, not light (or illumination) energy.**

**Additional Resources**

* [**www.smud.org/education/cat/LED.html**](http://www.smud.org/education/cat/LED.html)[**www.epa.gov/bulbrecycling**](http://www.epa.gov/bulbrecycling)

**Topics to Discuss**

* **How Compact Fluorescent light bulbs & LED light bulbs create visible light with very little heat emissions.**
* **How CFL bulbs & LED light bulbs last significantly longer, saving cost on replacement bulbs, but are more expensive to buy initially.**
* **How lighting our homes, schools and cities constitute approximately 65% to 70% of our overall energy cost**
* **How properly recycling these ‘new’ light bulbs is detrimental to our environmental health (because of the presence of small amounts of mercury in CFL bulbs).**
* **How we are still using lighting technology from the 1800’s (when we use incandescent light bulbs), while we have made massive technological advances in other areas in electronics, i.e. desktop and laptop computers, the world wide web, electric cars, photovoltaic solar panels and other advanced electrical products.**

**Mentor Notes: After the PowerPoint Presentation section of the module, try to create a circle of students so the all students can view the light bulbs when you illuminate them. Dim the overhead classroom lights for a better effect and have the students come up in groups of three to gauge the heat being released by all three different bulbs.**