



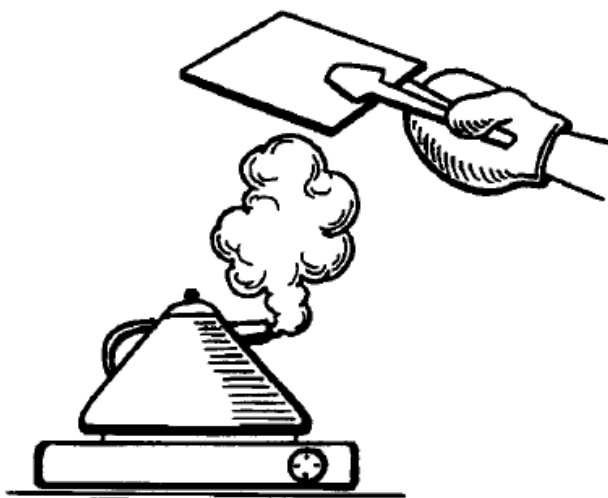
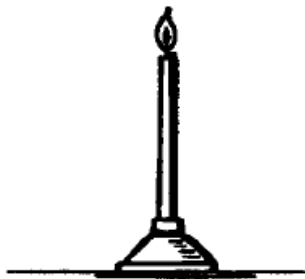
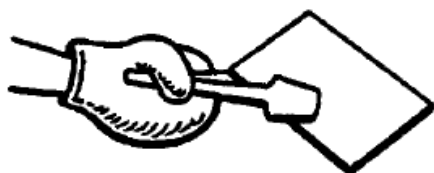
DO IT WITH MIRRORS: A DEMONSTRATION OF THE EFFECTS OF BURNING FUELS

Remember that when we burn something, a chemical reaction called "combustion" happens. As a result of this reaction some new materials are created which usually go into the air. Soot, for example, is a byproduct of combustion. Combustion of fuel is one of the main causes of air pollution.

We burn fuels to get them to do work for us, such as making engines run in cars. We also burn fuels

to heat water to make steam. The steam, as you will learn later, is used to help generate electricity. In certain places we can use steam directly from the earth – geothermal steam – to make electricity (see Section IV).

In this demonstration you will 1.) see the results of combustion and 2.) compare the use of combustion to the use of a clean energy source such as geothermal steam.



Materials:

- candle
- candle holder
- matches or lighter
- small mirror
- kitchen tongs
- hot mitt
- tea kettle
- heat source such as a hot plate
- a source for cleaning the mirror such as soap
- water and towels
- goggles, if possible

Directions:

- 1.) With adult supervision, light the candle (standing in its holder).
- 2.) Wearing the mitt, hold the mirror in the flame using the kitchen tongs. Do this for about 5 seconds or so.
- 3.) Take the mirror away and look at the results. Be ready to describe what you see and where you think it came from.
- 4.) Now try a different version of the experiment. First wash and dry the mirror well.
- 5.) Get the tea kettle actively boiling with water.
- 6.) Wearing the hot mitt, use the kitchen tongs to hold the mirror over the steam coming from the tea kettle. Don't hold it too long – just a few seconds – or the mirror might slip due to the moisture.
- 7.) Look at the mirror to see the result of using hot water as your energy source. Be ready to discuss the results of both demonstrations and how they relate to energy and pollution.