Waste Heat

Grade Levels: 4-6

Background

Energy is never created or destroyed, it simply changes form. A light bulb uses electricity to create light that lights your home. Light bulbs use the electricity to first create heat and then light. Some light bulbs need a lot more heat in order to glow.

Questions

Does a high watt bulb produce more heat than a low watt bulb?

Does an incandescent bulb produce more heat than a fluorescent bulb?

Possible Hypothesis

A _____ bulb produces _____ heat than a _____bulb.

Materials

- Lamp
- Thermometer
- 25-watt Incandescent bulb
- 100-watt Incandescent bulb
- 2 Fluorescent bulbs that produce lumens comparable to the incandescent bulbs

☑ Procedure

1. Put a 25-watt incandescent bulb in the lamp and turn it on.
2. Hold the thermometer six inches above the bulb for one minute and record the temperature. Turn off the lamp.
3. Let the bulb cool, remove it, put in the 100-watt lightbulb,and turn it on. Repeat Step 2.
4. Repeat the procedure with the fluorescent bulbs.

Analysis and Conclusion

Is more heat produced when more light is produced?

Which lightbulbs are more energy efficient—incandescent or fluorescent?