



*Drexel-SDP GK-12 ACTIVITY*

**Science**

**Solar Energy**

**Applications of Energy**

**Grade Level 5**

**Lesson # 1 of 1**

**Lesson Dependency**

**Time Required 1 Day**

**Keywords**

Solar Energy, Heat Energy, Air Density

**Summary**

In this lesson we show how energy (which, in previous Solar Energy lessons on Solar Ovens and Insulation, we have only used in the form of heat) is used to heat particles and introduce motion. We all know the saying “heat rises,” but why does it rise? How does this impact the world around us? Why and how is motion “introduced” into a system?

We explore these ideas in future lessons, but for now introduce these ideas and questions with a few demonstrations. First, we discuss the notion of calories in food and “burn them” with a simple candle. Here, the “energy” of the food is burned into heat. Our bodies burn energy, too, when we move or are active. We generate less useful energy, called friction, when we rub our hands together. It takes energy to move our hands, but also energy is lost to heat between our hands.

On the subject of heat, what happens to heat in the air? It rises, but why is this? The class can speculate, but they can demonstrate the concept by taking a light bulb and heating the air, and then placing a light object like a feather, piece of paper, or, better still, a snake coil shaped sheet of paper and place it close to the light bulb. The feather will rise, and the coil will turn! This is because rising air is passing through it.

## **Educational Standards: 3.4.7**

### **Learning Objectives**

After this lesson, students should be able to:

- Explain that a light bulb generates heat.
- Describe how heat rises with a demonstration.
- Understand that energy is produced in a reaction that takes place in the body.
- Provide examples of how energy is used in our everyday lives.

### **References**

Portions of this lesson, including the “Snake Coil” paper shape, were taken from TeachEngineering.com

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