



# Calorimetry

## STEM Sims

### Lesson 8: Heat Capacity and Chemical Bonding

The amount of energy released when a substance burns is called its heat capacity. Generally speaking, the heat capacity of a material is directly related to the number of chemical bonds – the more bonds a material has, the higher its heat capacity. Can you determine which substances have the greatest and least number of chemical bonds per gram?

#### Doing the Science

1. You must have completed the seven previous lessons in this module before you complete this lesson.
2. Enter the heat capacity values you calculated for each material in the seven previous lessons in Table 1 below.
3. Rank the substances, giving the number “1” to the substance with the highest heat capacity and “7” to substance with the lowest. Enter your rankings in Table 1.

**Table 1.**

Substance	Heat Capacity (calories/gram)	Heat Capacity Ranking
Wood		
Sugar		
Sterno		
Peanuts		
Paraffin		
Coal		
Candle		

#### Do You Understand?

1. Based on your results, which substance had the greatest number of chemical bonds per gram?
2. Which substance would make the best heating source? Please explain your response.
3. What are some ways to make the temperature of the water in the seven previous experiments increase other than by adding more fuel?