Specific Heat:

Aluminum: 0.9J/Cg

Copper: 0.36J/gC

A 50g block of Aluminum gains 1500J of energy.
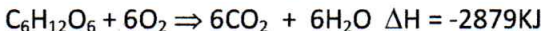
Nutrition Facts

Serving Size 2/3 cup (55g)
Servings Per Container About 8

Amount Per Serving

Calories 230   Calories from Fat 72

	% Daily Value*
Total Fat 8g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	12%
Dietary Fiber 4g	16%
Sugars 1g	
Protein 3g	

1. The temperature of the block will (increase/decrease) by ___**33°C**___ degrees.

$$1500J = 50 \cdot \Delta T \cdot 0.9$$
$$\Delta T = 33°C$$

2. A 50g sample of copper gains the same amount of energy as the Aluminum block, but does not raises up less degrees. True/False. Explain your choice.

   Lower spec. fi heat. ↑ ΔT

3. How many Calories are present in 1 gram of the food?

$$\frac{55g}{230C} = \frac{1g}{?} \qquad ? = 4.18 \, Cal/g$$

4. How many joules of energy are present in 1g of the food?

$$4.18 C \cdot \frac{1000 \cdot 4.1}{1 \, Cal} \cdot \frac{4.18}{1 \, Cal} = 17472 \, J$$

5. If this amount of energy (from #4) was used to heat 1 L (1000g) of water at 25°C what would be the final temperature?

$$17472 J = 1000 \cdot \Delta T \cdot 4.18 \qquad \boxed{\Delta T = 4.1 °C}$$

Sugar is burned releasing energy in the following reaction.

$$C_6H_{12}O_6 + 6O_2 \Rightarrow 6CO_2 + 6H_2O \quad \Delta H = -2879KJ$$

6. How much energy is released when
   a. 1.0 mole of sugar is burned?   **2879 KJ**
   b. 180g. of sugar is burned?   **2879 KJ**
   c. 360.g of sugar is burned   **5758 KJ** ×2
   d. 5.0g of sugar is burned via the following reaction.

$$C_6H_{12}O_6$$
$$180 \, g/mol$$

$$5g \cdot \frac{1 \, mo}{180 \, g} \cdot \frac{2879}{1 \, mol} = \boxed{79 \, KJ}$$

Less energy needed to raise a degree. since energy is the same, more ΔT.