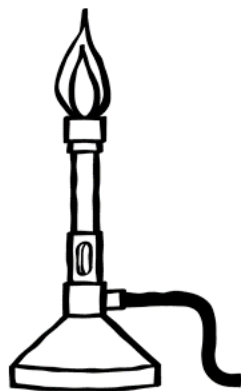


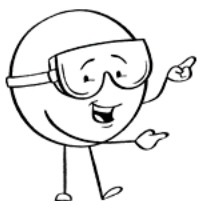
Specific Heat

The amount of energy required to _____ the temperature of one gram of a substance by one Celsius degree (1°C) or one kelvin (1 K) is called _____, _____.

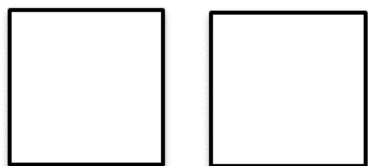
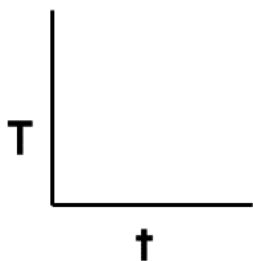


$$c = \frac{q}{m \times \Delta T}$$

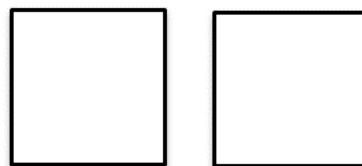
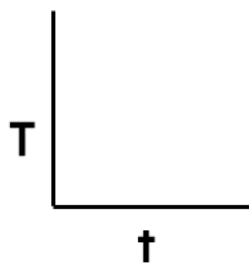
c	Specific heat	
q	Heat	
m	Mass	
ΔT	Change in Temperature	



Heating

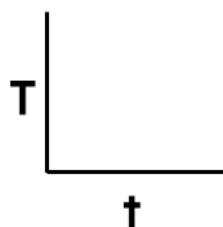


Cooling



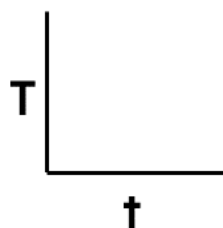
The amount of energy transferred as heat during a temperature change depends on the _____ of the material and its _____.

1. A 4.00 g sample of glass was heated from 274 K to 314 K, a temperature increase of 40. K, and was found to have absorbed 32.0 J of energy as heat. What is the specific heat of this type of glass?



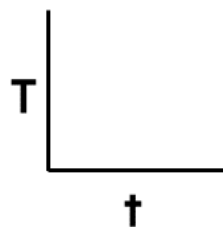
$$c = \frac{q}{m \cdot \Delta T}$$

2. The specific heat of toluene, C_7H_8 , is $1.13 \text{ J/g} \cdot ^\circ\text{C}$. How many joules of heat are released to lower the temperature of 40.0 grams of toluene from 28.0°C to 10.4°C ?



$$c = \frac{q}{m \cdot \Delta T} \rightarrow q = cm\Delta T$$

3. A total of 15.7kJ of heat are added to a 137.6 g sample of silver at 23.0°C . What is the final temperature of the silver? The specific heat of silver is $0.24 \text{ J/g} \cdot ^\circ\text{C}$.



$$c = \frac{q}{m \cdot \Delta T} \rightarrow \Delta T = \frac{q}{mc}$$