

Unit 8 Study Guide: Thermochemistry

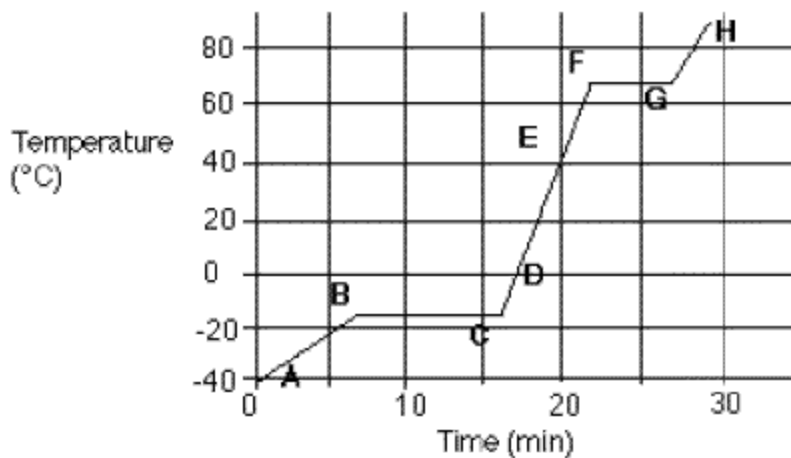
Write whether each of the following words corresponds with Endothermic or Exothermic reactions:

_____ Releases energy/heat
 _____ Absorbs energy/heat
 _____ $+\Delta H$
 _____ $-\Delta H$

_____ Melting
 _____ Condensating
 _____ Vaporizing
 _____ Freezing

On the heating curve to the right, label: solid, liquid, gas, melting, freezing, vaporizing, condensing

What is the melting point of this substance? _____
 What is the boiling point of this substance? _____
 What is the condensation point of this substance? _____
 What phase(s) are at point E? _____
 What phase(s) are at point A? _____
 What is occurring between B and C? _____
 Is the temperature changing between B and C? _____
 What phase(s) are between points B and C? _____
 What is occurring between F and G? _____
 Is the temperature changing between F and G? _____
 What phase(s) are between points F and G? _____
 What is occurring at D? _____



Explain how the Heating Curve for water would look different than the heating curve shown above. Draw a quick sketch of the Heating Curve for water with the important temperatures labeled.

What is specific heat capacity? What are the units? What does it depend on?

What does it mean for a substance to have a high specific heat capacity?

Rank the following items from lowest to highest specific heat: water, sand, air, metal

Describe how you identified your evidence in the Forensic Chemistry Lab.

What does the Innocence Project work to do?

How does a calorimeter work?

Define each of the variables in the equations, their units, and when you would use each equation:

Q=mΔH problems	q=mcΔT problems
Q:	q=
m:	m=
ΔH:	c=
	ΔT=

Given Information for H₂O:

$$\Delta H_{\text{fus}} = 6.01 \text{ kJ/mol}$$

$$\Delta H_{\text{vap}} = 40.8 \text{ kJ/mol}$$

$$c_{\text{(solid)}} \text{ of H}_2\text{O} = 2.06 \text{ J/g}^\circ\text{C}$$

$$c_{\text{(liquid)}} \text{ of H}_2\text{O} = 4.18 \text{ J/g}^\circ\text{C}$$

$$c_{\text{(gas)}} \text{ of H}_2\text{O} = 1.87 \text{ J/g}^\circ\text{C}$$

How many Joules of energy are required to melt 85 grams of water?

Is this process endothermic or exothermic?

How many Joules of energy are required to decrease the temperature of 85 grams of water from 75°C to 30°C?

Is this process endothermic or exothermic?

How many kJ of energy are given off when 170 grams of water are cooled from 45 °C to -15°C?

Is this process endothermic or exothermic?