

- Classify the following systems as open or closed
  - glass of cold water \_\_\_\_\_
  - a gel filled freezer pack \_\_\_\_\_
  - a burning candle \_\_\_\_\_
  - a fluorescent lightbulb \_\_\_\_\_
  - hot water in a sink \_\_\_\_\_
  - coffee-cup with no lid \_\_\_\_\_
- What is a measure of the average kinetic energy of particles?  
(A) heat capacity (B) molar enthalpy (C) specific heat (D) temperature
- Which phase change is endothermic?  
(A) gas to liquid (B) gas to solid (C) liquid to gas (D) liquid to solid
- Samples of two compounds X and Y have identical masses and initial temperatures. They are placed in an insulated container and a quantity of heat is added. What can be concluded if the final temperature of X is lower than that of Y?  
(A) The molar mass of X is greater than that of Y.  
(B) The molar mass of X is less than that of Y.  
(C) The specific heat capacity of X is greater than that of Y.  
(D) The specific heat capacity of X is less than that of Y.
- When the contents of a cold pack are reacted, a cooling effect is observed. How does the energy of the pack and the energy of the surroundings change to get this cooling effect?  
Energy of the pack(system)? → increases OR decreases  
Energy of the surroundings? → increases OR decreases
- Which has the highest average kinetic energy?  
(A) 125 mL of water at 95 °C (C) 463 mL of apple juice at 25 °C  
(B) 341 mL of ethanol at 78 °C (D) 515 mL of orange juice at 15 °C
- What is heat?  
(A) average kinetic energy of the particles of a system  
(B) energy change for a compound produced from its elements  
(C) energy contained in a chemical bond  
(D) transfer of energy between a system and its surroundings
- Initially a large candle is lit at one end. A student decides to light the other end so that she is "burning the candle at both ends." What has doubled in this system?  
(A) amount of energy released (C) molar enthalpy of combustion  
(B) fuel value of the candle (D) temperature of the candle
- Which best describes the chemical and phase changes that occur in a burning candle?  
Chemical Change (burning) → endothermic OR exothermic  
Phase Change (melting) → endothermic OR exothermic