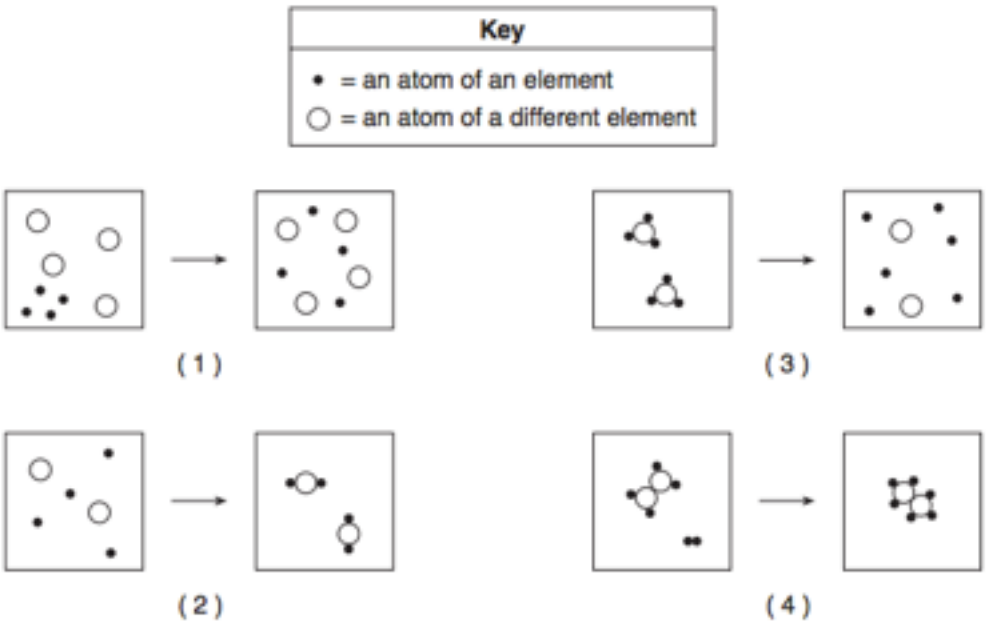
Name: _____ Date: _____

Classwork/Homework 8.1: Phase Changes and Enthalpy (Heat)

Answer in your Interactive Notebook:

1. Which diagram represents a physical change, only?



2. Explain why your answer is a physical change:

3. Explain why the other three choices represent chemical changes (chemical reactions):

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4. The **sublimation** of a sample of CO_2 occurs when the CO_2 changes from

(1) gas to liquid (3) liquid to solid
(2) gas to solid 4) solid to gas

5. Object A at 40C and Object B is at 80C are placed in contact with each other. Which statement describes the heat flow between the objects?
(Hint: Heat flows from which object to the other?)

6. Which sample has particles with the **lowest average kinetic energy**?

(a) 4 L of H_2 at 70°C (c) 3 L of H_2 at 90°C
(b) 3 L of H_2 at 80°C (d) 4 L of H_2 at 100°C

Annotation Strategy for #6:
*What is the measurement for "average kinetic energy"?

7. A person with a body temperature of 37°C holds an ice cube with a temperature of 0°C in a room where the air temperature is 20.°C.
The direction of heat flow is

Annotation Strategy #7:
*Heat flows from warmer to colder objects
*Draw a pic of the person, ice cube, and air, and draw arrows representing heat flow.

(1) from the person to the ice, only
(2) from the person to the ice and air, and from the air to the ice
(3) from the ice to the person, only
(4) from the ice to the person and air, and from the air to the person

8. Which process is a chemical change?
(1) melting of ice (2) boiling of water
(3) subliming of ice (4) decomposing of water

Annotation Strategy #8:
*Phase changes are physical changes.
*Cross off the phase changes.

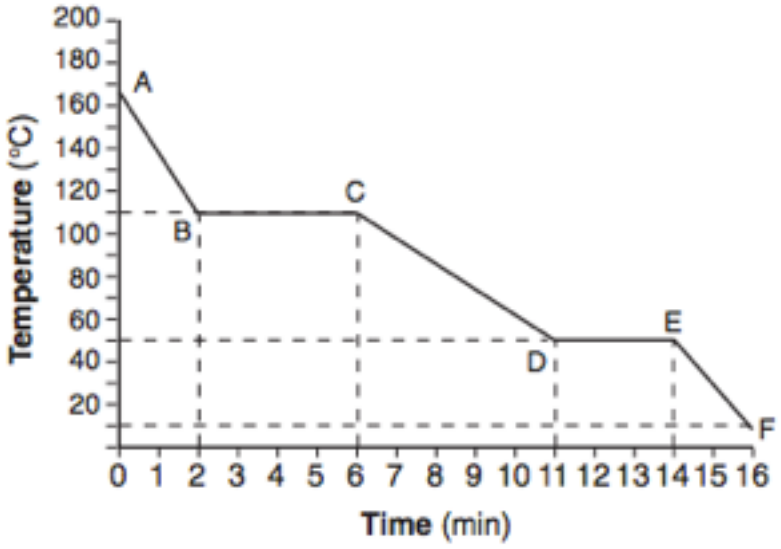
9. Object A at 40°C and Object B is at 80°C are placed in contact with each other.
Which statement describes the heat flow between the objects?
(a) Heat flows from A to B (c) No heat is exchanged
(b) Heat flows from B to A (d) Heat flows from A to B and from B to A

10. Which type of energy is associated with the random motion of the particles in a sample of gas?
(1) chemical energy
(2) gravitational energy
(3) nuclear energy
(4) kinetic energy

11. Which process **decreases enthalpy**?
(1) Boiling of water
(2) Melting of copper
(3) Condensation of ethanol vapor
(4) Sublimation of iodine

Annotation Strategy #11:
*For each choice, write the phase change (like s —>g or g—> l
*For each choice, write if the temp increases or decreases.
***enthalpy** is the amount of **heat**

12.



a) What is the temperature of the melting point for this substance? _____ °C
b) What is the temperature of the boiling point for this substance? _____ °C
c) During which time interval is this substance a **gas, only**?
(a) AB (b) BC (c) CD (d) DE