

## Physical Properties of Matter Review

① solid, liquid, gas, plasma

② (a) - particles are close together

- strong intermolecular forces between particles

(b) - particles are further apart than in a solid

- intermolecular forces weaker than in a solid.

(c) - particles are very far apart

- no intermolecular forces

- collisions are elastic

- particles are in constant motion

③ ionic crystalline

- each ion is surrounded by ions of opposite charge

- strong, brittle

- ex) NaCl, KBr ...

covalent network

- atoms that can form multiple covalent bonds

- ex) C, Si

④ Kinetic energy is directly proportional to temperature.  
(as temperature increases, kinetic energy increases)

⑤ (a) 7 - 9 minutes

(b)  $60^{\circ}\text{C}$

(c)  $100^{\circ}\text{C}$

- ⑥ (a) - particles gain energy (from surroundings or external heat source)
- the energy is absorbed by the particles
  - when the particles gain enough energy to change phase they do.
  - this continues until all the particles have changed phase.

- (b) - particles gain energy
- the energy is absorbed by the particles
  - when the particle has enough energy it changes to a vapor forming a micro-bubble
  - if the vapor pressure is greater than the atmospheric pressure, the bubble rises to the surface and the vapor escapes.

- (c) - particles near the surface with enough energy to escape do
- since those particles have more kinetic energy than the others, the average kinetic energy of the remaining particles decreases.
  - lower average kinetic energy means lower temperature (ie. cooling)

- ⑦ (a) neither  
(b) A  
(c) A

- ⑧ (a) graph on next page  
(b)  $53^{\circ}\text{C}$   
(c) temperature is increasing  
(d) the melting point "plateau" and the boiling point "plateau" would occur at different temperatures.

# Heating Curve

## Physical Properties of Matter Review Question 8(a)

