CHEMISTRY

Chapter 7: The Kinetic Molecular Theory

7.1 STATES OF MATTER

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- _____is anything that has mass and volume.
- _____is the quantity of matter a substance or object contains.
  - Mass is usually measured in grams (g) or kilograms (kg).
- _____is the amount of space taken up by a substance or object.
  - Volume is usually measured in millilitres (mL), litres (L), or cubic centimetres (cm^3).

Comparing the basketball and bowling ball, which has more mass? Volume?

See pages 246 - 247

7.1 STATES OF MATTER

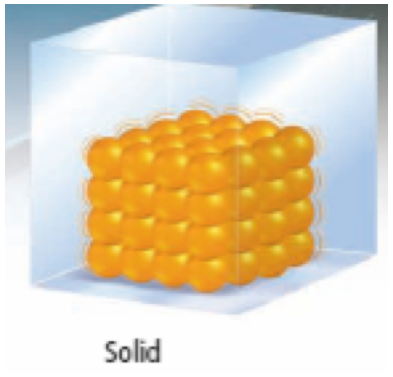
The three familiar states (phases) of matter.

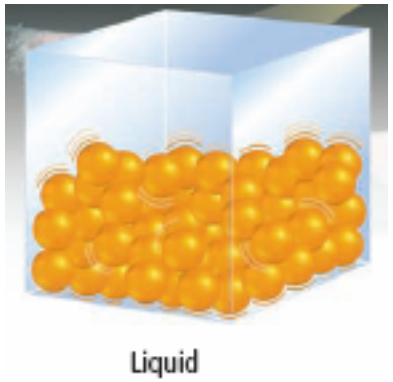
	Fixed mass	Fixed Volume	Fixed Shape
Solid			
Liquid			
Gas			

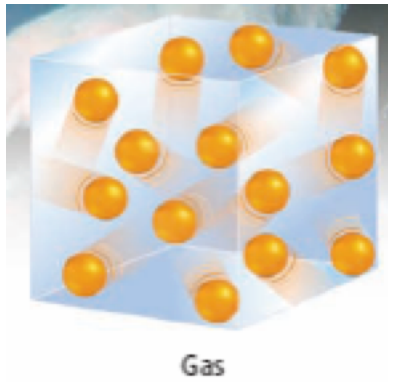
See pages 246 - 247

THE PARTICLE MODEL OF MATTER

1. All matter is made of small _____that are too small to see.
2. There are _____between the particles. The amount of space varies depending upon the _____.
3. The particles are always _____.
4. The particles are _____to one another.


Solid


Liquid


Gas

See page 248

THE KINETIC MOLECULAR THEORY

- _____is the energy due to motion.
- The _____ (KMT) explains what happens to matter when the kinetic energy of the particles _____.
  - A _____provides a scientific explanation based on the results of experimentation.

As the rollercoaster's speed increases, its kinetic energy also increases.

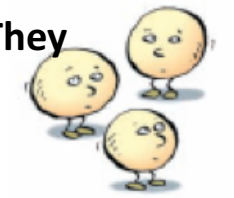
See page 249

THE KINETIC MOLECULAR THEORY

The main points of the kinetic molecular theory include:

1. All matter is made of very _____.
2. There is _____between particles.
3. Particles are _____. The particles are _____with each other and the walls of their container.
4. Energy makes particles _____. The more energy the particles have, the _____they move and _____apart they get.

Solid: Particles are so tightly packed together they cannot move freely. They can only vibrate.



Liquid: Particles are farther apart and they can move by sliding past each other.

Gas: Particles are very far apart and move around quickly.

See page 249

THERMAL EXPANSION AND CONTRACTION

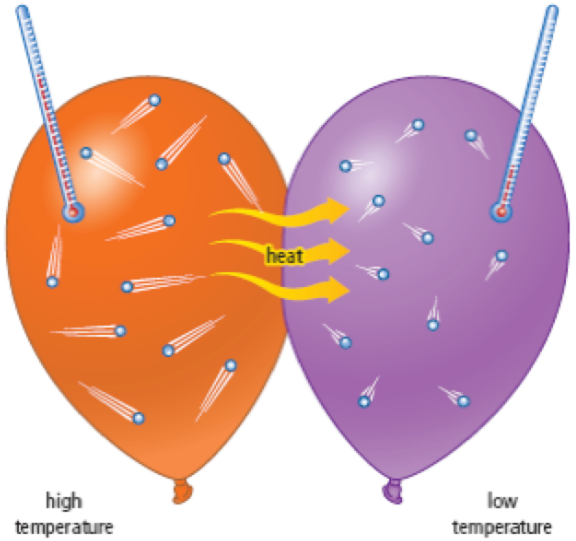
- _____is the increase in volume of a substance when its temperature is _____.
- _____is the decrease in volume of a substance when its temperature is _____.

Can you use the concepts of thermal expansion and contraction to explain how a thermometer works?

See page 250

THE DIFFERENCE BETWEEN HEAT AND TEMPERATURE

- _____is the _____kinetic energy of all the particles in the substance.
- _____is the _____of thermal energy between two material of different temperature.
  - Heat is always transferred from the substance with a higher temperature to the substance of a lower temperature.
- _____is the _____kinetic energy of the particles in a substance.



See page 251

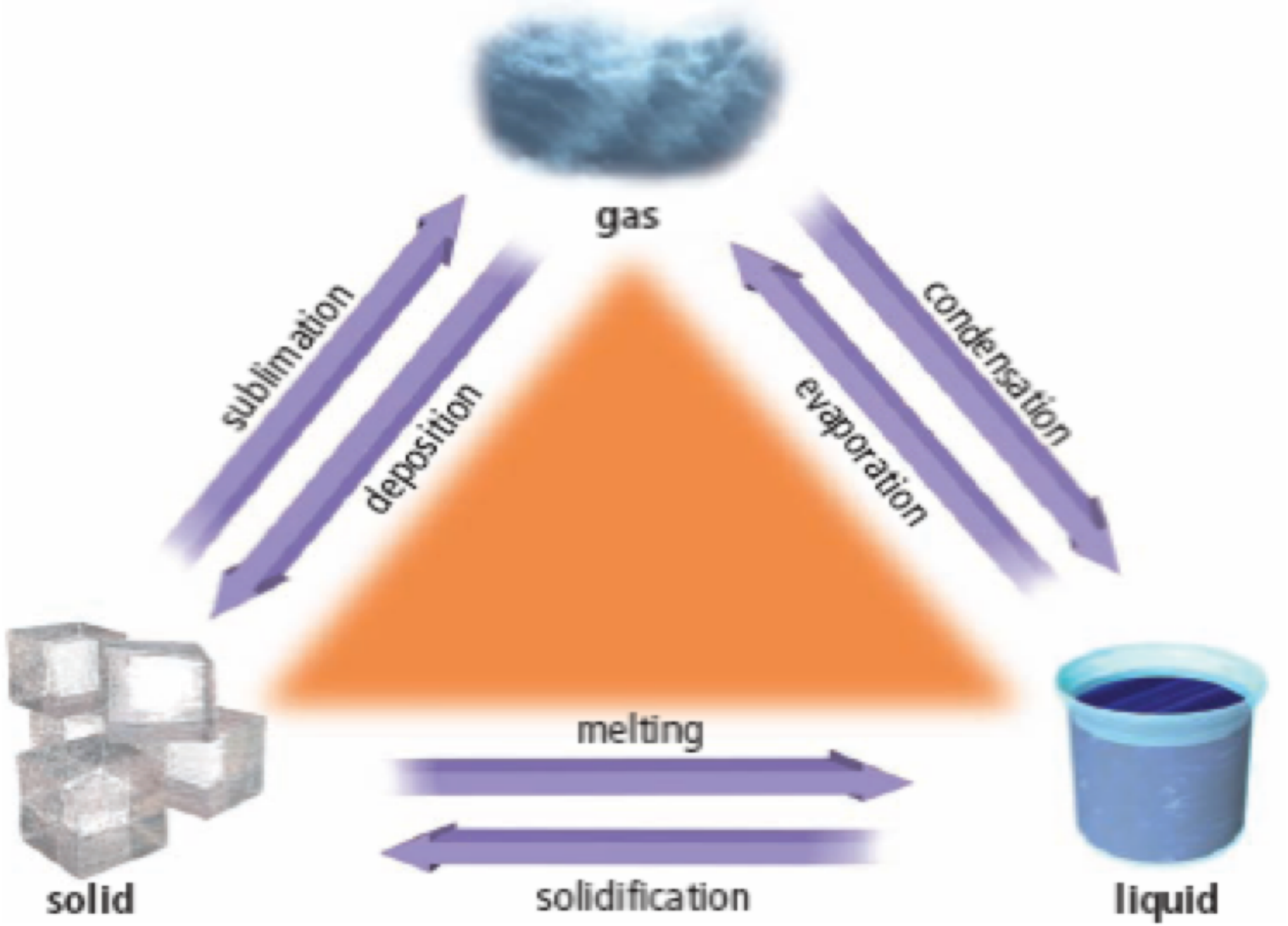
CHANGES OF STATE

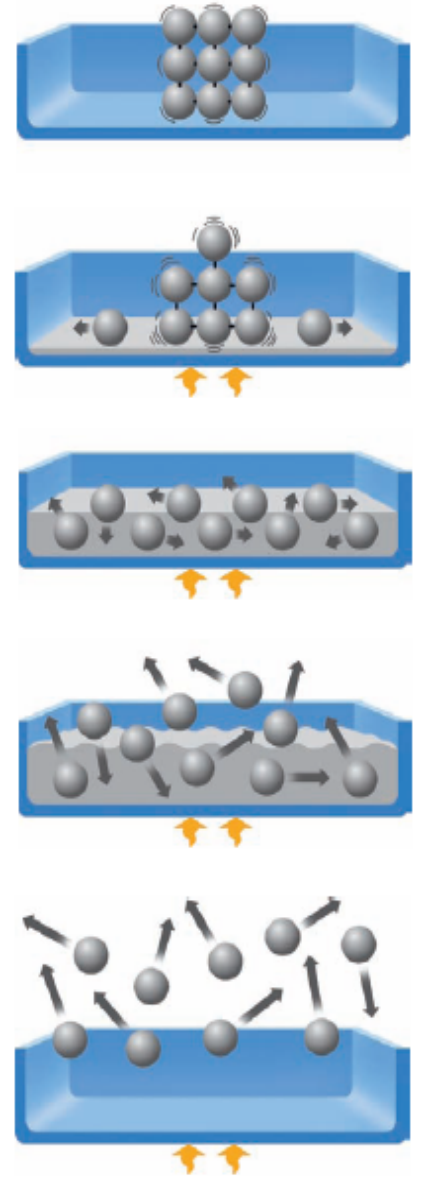
Name	Change of State (from _ to _)	Heat Gained	Heat Lost
	Solid to liquid		
	Liquid to gas		
	Gas to liquid		
	Liquid to solid		
	Solid to gas		
	Gas to solid		

- Melting point is the temperature at which solid turns to liquid.
- Boiling point is the temperature at which liquid turns into gas.

See pages 252 - 253

CHANGES OF STATE





See pages 252 - 253