


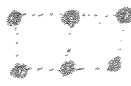

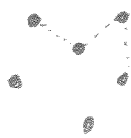
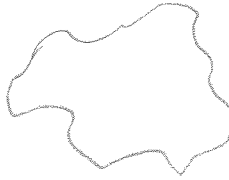

## The Particle Theory of Matter

**Matter** can be classified as anything that has mass and occupies space

### The Particle Theory of Matter states that:

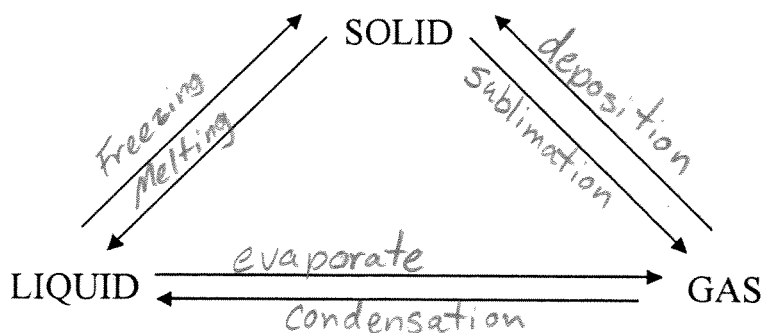
- 1) All matter is made up of tiny particles
- 2) All particles of one substance are the same
  - different substances are made of different particles
- 3) The particles are always moving
  - the more energy the particles have, the faster they move.
- 4) There are strong attractive forces between the particles.
  - these forces are stronger when the particles are closer together.
- 5) Particles at a higher temperature move faster on average than particles at a lower temperature.

### Matter is classified by state:

STATE	CHARACTERISTICS	COMMON FORM	MOLECULAR LEVEL
Solid	<ul style="list-style-type: none"> <li>• particles are <u>closely</u> packed</li> <li>• molecules do not move, they just <u>vibrate</u></li> <li>• they have a <u>definite</u> shape</li> </ul>		
Liquid	<ul style="list-style-type: none"> <li>• particles are <u>farther</u> apart</li> <li>• particles <u>move</u> around</li> <li>• they take the <u>shape</u> of their container</li> </ul>		
Gas	<ul style="list-style-type: none"> <li>• particles are the <u>farthest</u> apart</li> <li>• particles move very <u>fast</u></li> <li>• they take the <u>shape</u> of their container</li> <li>• they can be <u>compressed</u> because the particles are so far apart</li> </ul>		

Date: \_\_\_\_\_

Each state of matter can be changed into one of the other states:



**Fill in the following chart showing changes of state:**

Original State	Final State	Change of State	What is occurring (think in terms of bonds and molecule speed)	Energy required or removed
Solid	Liquid	melting	-faster -further apart -bonds breaking	Energy is required
Solid	Gas/Vapour	sublimation	-faster -further -bonds break	required
Liquid	Solid	freezing	-slower -closer -bonds form	removed
Liquid	Gas/Vapour	evaporation	-faster -further -bonds break	required
Gas/Vapour	Solid	deposition	-slower -closer -bonds form	removed
Gas/Vapour	Liquid	condensation	- " "	" "