Grade 8 Science Unit 3: Fluids & Viscosity

Chapter 7: *Viscosity describes a fluid's resistance to flow*

PTM… A REVIEW *PG. 270*

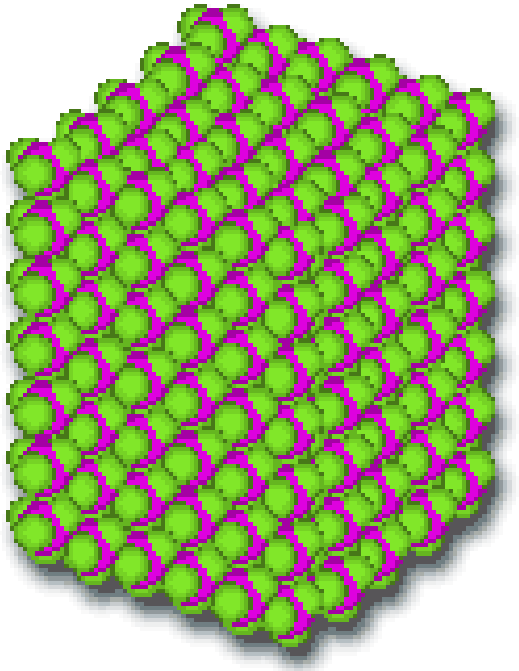
- All matter is made up of very tiny particles.
- All particles in a pure substance are the same but different from another substance.

- There is space between the particles.
- The particles are always moving. They move faster if they gain energy.
- There are attractive forces between the particles. Some strong; some weak.

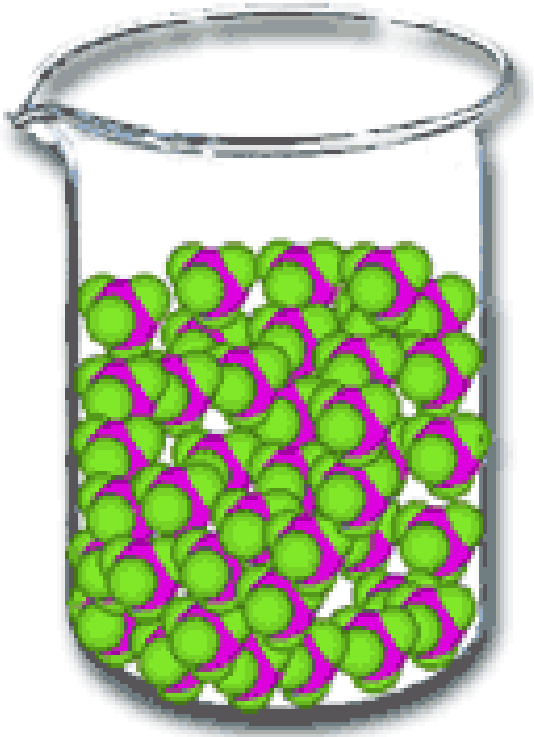
Can You Identify the 3 states of matter?

3 States of Matter… A review

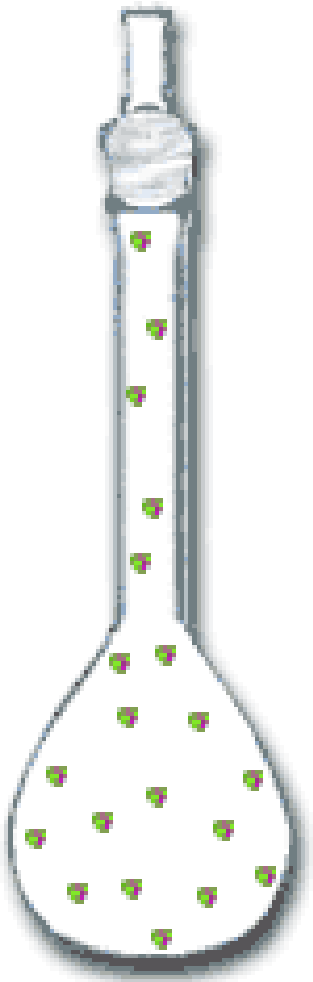
State	Shape	Volume	Particle arrangement	Particle movement
1. Solid	Definite	Definite	Close	Vibrate
2. Liquid	Indefinite	Definite	Close	Free flowing
3. Gas	Indefinite	indefinite	Far Apart	Random



Solid



Liquid



Gas

Fluids

- Any form of matter that flows.
- Since liquids and gases do NOT have a definite shape they are able to flow making them fluids.

We use fluids everyday. For example…

- Food fluids (water, oil, maple syrup, honey, etc)
- Cleaning fluids and creams
- Bodily fluids
- Industrial fluids (compressed air in tires, lubricants, etc)

Viscosity

- A measure of a liquid's resistance to flow.
- The thickness or thinness of a fluid.
- A fluid that is viscous is the one that is NOT "runny" (flows slowly).

Viscosity & *Friction*?

- Friction resists movement.
- The greater the friction, the greater the viscosity.
- The particles are holding on tightly to each other.

Viscosity is Important in our everyday life.

Flow Rate

- The speed at which a fluid flows from one point to another.

Slow	Medium	Fast
Corn syrup	Dishwashing liquid	Water

Core Lab Activity
7-2 B *pg. 282-3*
The Flow Rate of Liquids

Factors that Affect Viscosity

- Temperature:

As you increase temperature, you decrease a fluid's viscosity. As you decrease temperature, you increase a fluid's viscosity.

The opposite is true of gases.

- Concentration:

The amount of a substance dissolved in a specific volume.

Increasing the concentration, increases the viscosity.

- Attractive Forces:

If the attractive forces are strong, it is difficult for the particles to pull away thereby the fluid flows slowly and is more viscous.

- Particle size:

The smaller the particle size, the faster the fluid flows and is less viscous.