

$$\text{Density} = \frac{M}{V}$$



Water = 1 g/ml

float



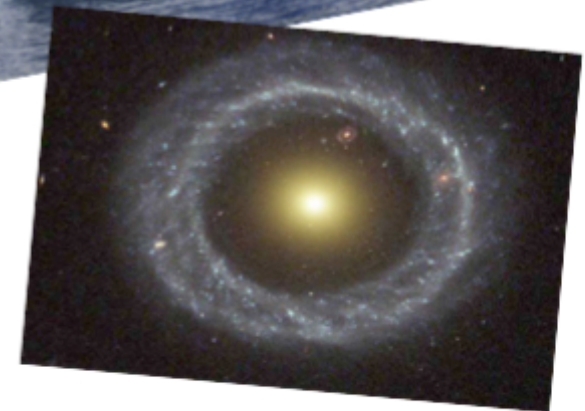
< 1



$\frac{1}{3}$  m ↓ = float  
V ↑

# Matter can exist in 4 phases:

1. **Solid** – crystal – repeating structure  
amorphous – lose shape in certain conditions (like wax)
2. **Liquid** – no definite shape, takes the shape of the container
3. **Gas** – no definite shape, fills available space, regardless of size or shape
4. **Plasma** – stars, and some high energy experiments on earth



# Phase Changes

Heat energy causes the particles to move faster & further apart

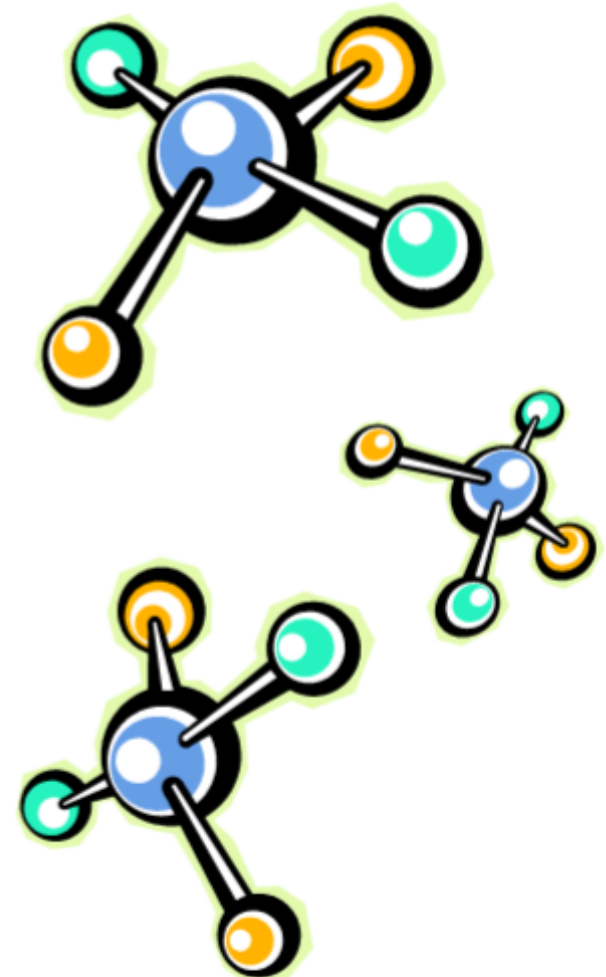
gas > liquid > solid



↓ en.

decreasing energy

Add or take away **energy** to change phase



# Physical Changes

- Melting ( $s \longrightarrow l$ )
- Freezing ( $l \longrightarrow s$ )
- Vaporization ( $l \longrightarrow g$ )
- Condensation ( $g \longrightarrow l$ )
- Sublimation ( $s \longrightarrow g$ )
- deposition ( $g \rightarrow s$ )

Physical properties get altered, but the substance is the same

