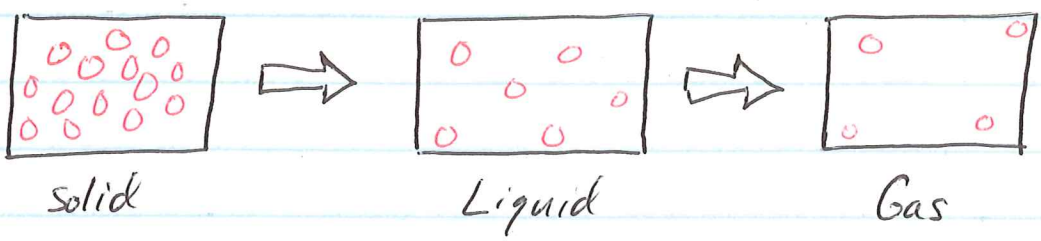
States of Matter Review

What are the 4 main states?

Solid, liquid, gas, plasma

How are their particles arranged?



Which state has the highest energy? Lowest energy?

gas/plasma — Solid

What makes the particles of a solid remain closer together than a liquid or gas?

energy - less kinetic energy & more potential energy

How do you get the particles of a solid to become more spread out?

apply heat or energy to convert to more kinetic energy

How does energy move through media (air, H_2O, etc...)

convection or conduction

Conduction

- Energy transfer that occurs when substances and particles are in direct contact and perpetuate flow & motion.

ex) Molecules of H_2O that help waves to move after earthquakes in the ocean.

occurs by Collisions between molecules.

Convection

- Transferring energy between substances without direct contact - using energy waves

ex) Micro waves, convection ovens, Radiation

Molecule Motion

Molecules are constantly moving (even solids) and their degree of kinetic energy makes degrees of collision occur

3 Main types of molecular motion

↑↓ Vibrational Motion - natural tendancy of atoms to vibrate w/energy
ex) Quakes

Rotational Motion - natural ability for atoms to rotate and turn with additional energy
ex) whirpools

Translational - natural tendancy of substances & their atoms to flow side to side with motion of their surroundings
ex) sloshing of water in bottle

The ability for each object to transfer energy depends on its state of matter & the molecular motion that its atoms experience.

When substance change their state, the arrangement of their particles & potential & kinetic energy will change as well.