

**Matter** –  
anything that takes up space and has mass.

**Particle Theory of Matter**

1. Everything is made of particles (atoms)
2. These particles are always moving
3. Each pure substance has its own type of particle
4. When these particles gain energy, they move faster and need more space
5. When these particles lose energy, they move slower and need less space

**expands** –  
increases in volume “gets bigger”

**contracts** –  
decreases in volume “gets smaller”

**Four states of matter**

Solid, liquid, gas, plasma

**Solidification (freezing)** –  
when a liquid turns into a solid

**Fusion (melting)** –  
when a solid turns into a liquid

**Condensation** –  
when a gas turns into a liquid

**Evaporation** –  
when a liquid turns into a gas

**Sublimation** –  
when a gas turns into a solid or a solid turns into a gas without turning into a liquid.

**Temperature** –  
the measure of the average energy of the particles in a substance.

The average kinetic energy

**Thermometer** –  
A device used to measure temperature.

**Celsius** –  
temperature scale used in Canada

**Fahrenheit** –  
Temperature scale used in the US

**Kelvin** –  
Based on absolute zero

**Freezing temperature**  
0 °C

**Boiling temperature**  
100 °C

**Body temperature**  
37 °C

**Thermocouple** –

a thermometer that uses electricity to measure high temperatures.

**Bimetallic Strip** –  
two different metals bonded together that expand and contract in different amounts.

**Clinical thermometer** –  
used to measure human body temperatures

**Infrared thermogram** –  
a special camera that records different temperatures as different colours.

**Laboratory Thermometer** –  
A thermometer that ranges from minus 20 to 110 degrees Celsius which is a useful range for many different experiments

**Kinetic Energy** –  
energy of moving particles

**Thermal Energy** –  
the total kinetic energy

**Heat** –  
the transfer of thermal energy