**Gas Laws**

Pressure = Force/Area

Pressure is measured in units called Pascals (Pa) or kilopascals (kPa).

Volume, Temperature, and Pressure are all factors that can change and be measured when dealing with gases. Volume – the amount of space that matter fills. For a gas, this would be the same as its container. Temperature – the measure of the average energy of motion of particles. Pressure – outward push divided by the area of the walls of the container.

**Boyle’s Law**

Volume ↑ Pressure ↓

Volume ↓ Pressure ↑ when temperature is held constant

Examples: Letting a helium balloon fly up into the atmosphere, bringing a fish to the surface too quickly, exhaling air bubbles underwater, a scuba diver rocketing to the surface, a plunger being pushed down on a cylinder.

**Charles’s Law**

Temperature ↑ Volume ↑

Temperature ↓ Volume ↓ when pressure is held constant

Examples: Leaving a basketball outside on a cold night, a life raft in tropical waters.

**Pressure and Temperature Relationship**

Temperature ↑ Pressure↑

Temperature ↓ Pressure ↓ when volume is held constant

Examples: Aerosol can in a fire, truck tires on a long drive.