

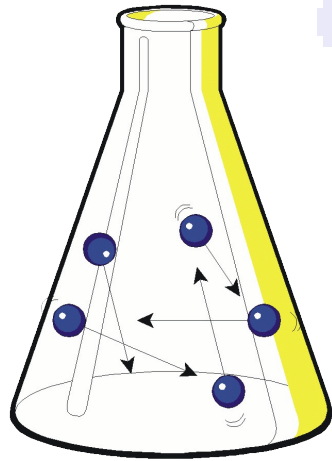
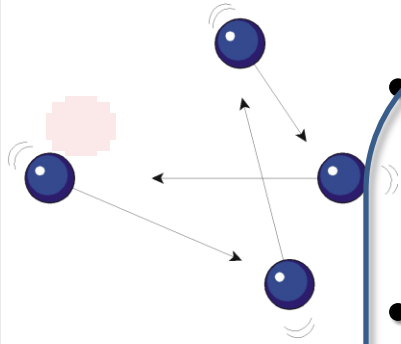
Ideal Gases

The Ideal Gas

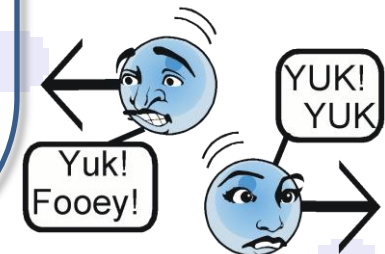
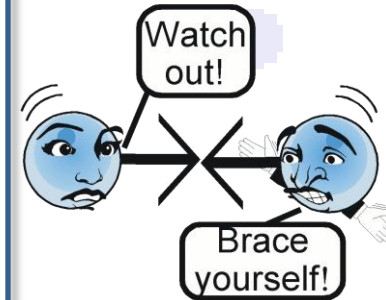
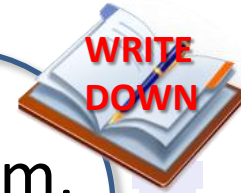


- The gas laws are based on a model known as an *Ideal Gas*.
- The *Ideal Gas* model can only be applied under conditions of **low pressure and high temperature**.
- The *Ideal Gas* model is based on a number of assumptions.

Assumptions of the Ideal Gas Model



- **MOTION** – gas molecules are continuously moving in a random, straight line motion.
- **COLLISION** – when gas molecules collide with each other or with the walls of the container there is no energy lost. Therefore, the total energy of the system never changes.
- **VOLUME** – the actual volume of the molecules is insignificant when compared to the volume of the contained area (the container).
- **ATTRACTION** – no attraction exists between molecules.



Deviations from the Ideal Gas Model

- Gases deviate from the ideal conditions when conditions of **high pressure and low temperature** exist. These conditions lead to confinement and intermolecular attractions begin to act.
 - VOLUME – gas molecules do have a volume of their own.
 - ATTRACTION – there does exist a force of attraction between gas molecules.
- The above factors (deviations) allow for the existence of gases as either solids or liquids under certain conditions.

