

Again, my main focus is on interacting with geometrically "appropriate" molecules. At some point, incorporating other motions would be nice.

In order of priority:

1. Molecular structure.

- Strictly a geometry issue, a mixture of static charge based on electron groups
- expanded octets?
- Geometries only exist around central atoms
- Four Geometries:
 - Linear
 - Trigonal Planar (flat triangle)
 - Tetrahedral
 - Bent-Geometries ()
 - Parametral (tetrahedral with an atom missing)
- Big Atoms -
 - Multiple central atoms

2. Intermolecular interactions - molecules interacting with other molecules. Think "lock and key" or see "hydrogen bonding"

- Explanation: When molecules come into contact with each other they will stick to each other. Not chemical bonding, but an intermolecular attraction. With enough speed, molecules will bounce off each other or fail to stick.
- gas: skips this step
- forces
 - london dispersion (vanderwall) force
 - One side more negative than the other (always in flux)
 - hydrogen bonding
 - Really big dipole (a lot more negative on one side than the other) with hydrogen
 - dipole dipole
 - Permanent separation
 - ionic
 - Bigger separation of force
 - mixed (ie dipole london)

3. Molecular motion through space

- Explanation: Molecule collectables should be moving. Heavier molecules will move slower compared to smaller molecules at the same temperature (Kinetic Energy).

4. Effect of Temperature on motion

- Explanation: Molecules at the same temperature have the same average kinetic energy($KE = .5mv^2$). Heavier molecules will move slower than lighter (mass) molecules.

5. Molecular vibrations

- Explanation: Motion of the atom along a bond. Also between molecules.

6. Molecular rotations

- Explanation: Molecules tumble in space

7. Effect of light on vibrations rotations

- Explanation: Light increases vibrations. Depending on frequency (example was infrared) of light the mode of vibration shifts. With enough vibration stuck together molecules will break apart.
- Microwave waves are set to mode of water.

8. Solvent Dilution

- Explanation: Molecules existing in a solvent

9. Stoichiometry

- Explanation: ratio of atoms and molecules reacting

10. Chemical reactions

- Explanation: Atoms swapping between molecules