The VSEPR Model

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Dependencies

Just one idea is referred to throughout this lesson: electrons do not enjoy being near each-other. Excluding the sites where electron clouds overlap as a result of bonding, electrons not shared between atoms naturally repel due to having the same negative charge.

Lewis Structures

If you are here you likely already know about valence electrons and Lewis structures; If not, I'll tell you about them quickly.

1. Valence electrons are those found in the outermost orbital (and thus are

Molecular Symmetry on a plane

As described on the previous slide, atoms bonded to a single central atom generally fall into a state where they can be as far away from each-other as possible. This means that certain molecules can fall into a states of symmetry. The simpler ones have all atoms on a single plane, and even further, those that are made up of at least 3 atoms and lie on a single line are known as linear. Some examples of those that lie on a single plane are those akin to triangle (trigonal planar) and square (square planar). There is also those molecules like H_20 that don't quite abide by our dependency (but for valid reason), and they are referred to as angular molecules and have less symmetry than others.

Molecular Symmetry in 3D space

Other more interesting ones remind one of certain die shapes; a molecule with 4 atoms attached to a central atom can take on the shape of a tetrahedron