

# Valence Shell Electron Pair Repulsion Theory

## VSEPR

Chapter 10

### Predicting Molecular Shapes

- Molecules and polyatomic ions take on particular shapes based on the number of regions of electron regions in the valence shell of the bonding atoms.
- **VSEPR (Valence Shell Electron Pair Repulsion) Theory** will allow us to analyze the shapes of molecules based on the idea that the electron regions in bonds and lone pairs repel.

## Predicting Molecular Shapes

- In VSEPR theory, each bonding region (single, double, or triple) and lone pair region have approximately equal repulsion for one another and count as one electron **region** each.
- Lone pair regions are somewhat **more** repulsive than other electron regions – that is they take up “more room”. This is because they have only one nucleus anchoring them.
- Of the bonds, triple bonds take up the most space followed by double and single bonds.

## Four electron regions - comparison

