

## CHAPTER OVERVIEW

### 7: Chemical Bonding and Molecular Geometry

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*General Chemistry*

A chemical bond is an attraction between atoms that allows the formation of chemical substances that contain two or more atoms. The bond is caused by the electrostatic force of attraction between opposite charges, either between electrons and nuclei, or as the result of a dipole attraction. All bonds can be explained by quantum theory, but, in practice, simplification rules allow chemists to predict the strength, directionality, and polarity of bonds. The octet rule and VSEPR theory are two examples. More sophisticated theories are valence bond theory which includes orbital hybridization and resonance, and the linear combination of atomic orbitals molecular orbital method. Electrostatics are used to describe bond polarities and the effects they have on chemical substances.

- [7.1: Prelude to Chemical Bonding and Molecular Geometry](#)
- [7.2: Ionic Bonding](#)
- [7.3: Covalent Bonding](#)
- [7.4: Lewis Symbols and Structures](#)
- [7.5: Formal Charges and Resonance](#)
- [7.6: Strengths of Ionic and Covalent Bonds](#)
- [7.7: Molecular Structure and Polarity](#)
- [7.E: Chemical Bonding and Molecular Geometry \(Exercises\)](#)

Thumbnail: Covalently bonded hydrogen and carbon in a molecule of methane. (CC BY-SA 2.5; DynaBlast via Wikipedia)

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