

CHM 101
Chapter 12 Study Guide / Learning Objectives

Chapter 12 discusses the different kinds of chemical bonds and how atoms come together to form ionic compounds and molecules. The structure and shape of molecules is discussed. Since so many biological processes depend on the structure and shape of molecules, understanding this chapter is important for any student interested in biology or medicine.

At the end of chapter 12, you should be able to

[Ionic bonds]

- Define **bond, ionic bond**.
- Describe how ionic bonds form.
- Describe the force that holds ions together.

[Covalent bonds]

- Define **covalent bond, single bond, double bond, triple bond, electron dot structure, electronegativity, polar**.
- Describe what must happen for atoms to **share** electrons.
- Recognize the difference between bonding and non-bonding electrons.
- Use an electronegativity chart to predict whether a bond is polar or nonpolar.

[Molecular structure]

- Draw dot structures for atoms and ions.
- Use dot structures to describe how ionic and covalent bonds form.
- Draw dot structures for simple molecules and polyatomic ions

[Molecular shape]

- Define **bond length, VSEPR**.
- Describe and name the shapes of simple molecules. (See Table 12-4, page 295)
- Predict the shape of simple molecules.

[Practice]

- (p298a-298d) Q&P 2, 4, 8, 12, 14, 24, 32, 34, 38, 56, 60, 62, 70, 82