

## CHAPTER OVERVIEW

### 6: AN OVERVIEW OF ORGANIC REACTIONS

#### LEARNING OBJECTIVES

After you have completed Chapter 6, you should be able to

1. fulfill the detailed objectives listed under each individual section.
2. identify the polarity pattern in the common functional groups, and explain the importance of being able to do so.
3. describe the essential differences between polar and radical reactions, and assign a given reaction to one of these two categories.
4. discuss how kinetic and thermodynamic factors determine the rate and extent of a chemical reaction.
5. use bond dissociation energies to calculate the  $\Delta H^\circ$  of simple reactions, and *vice versa*.
6. draw and interpret reaction energy diagrams.
7. define, and use in context, the new key terms.

This chapter is designed to provide a gentle introduction to the subject of reaction mechanisms. Two types of reactions are introduced—polar reactions and radical reactions. The chapter briefly reviews a number of topics you should be familiar with, including rates and equilibria, elementary thermodynamics and bond dissociation energies. You must have a working knowledge of these topics to obtain a thorough understanding of organic reaction mechanisms. Reaction energy diagrams are used to illustrate the energy changes that take place during chemical reactions, and to emphasize the difference between a reaction intermediate and a transition state.

[6.0: Chapter Objectives](#)

[6.1: Kinds of Organic Reactions](#)

[6.2: How Organic Reactions Occur - Mechanisms](#)

[6.3: Radical Reactions](#)

[6.4: Polar Reactions](#)

[6.5: An Example of a Polar Reaction - Addition of HBr to Ethylene](#)

[6.6: Using Curved Arrows in Polar Reaction Mechanisms](#)

[6.7: Describing a Reaction - Equilibria, Rates, and Energy Changes](#)

[6.8: Describing a Reaction - Bond Dissociation Energies](#)

[6.9: Describing a Reaction - Energy Diagrams and Transition States](#)

[6.10: Describing a Reaction- Intermediates](#)

[6.11: A Comparison between Biological Reactions and Laboratory Reactions](#)

[6.S: An Overview of Organic Reactions \(Summary\)](#)

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