

General Instructional Objectives

Chapter 18: Carbohydrates

18.1 Biochemistry--An Overview

18.2 Occurrence and Functions of Carbohydrates

18.3 Classification of Carbohydrates

18.4 Chirality: Handedness in Molecules

18.5 Stereoisomerism: Enantiomers and Diastereomers

18.6 Designating Handedness Using Fischer Projections

18.7 Properties of Enantiomers

18.8 Classification of Monosaccharides

18.9 Biochemically Important Monosaccharides

18.10 Cyclic Forms of Monosaccharides

18.11 Haworth Projection Formulas

18.12 Reactions of Monosaccharides

18.13 Disaccharides

18.14 General Characteristics of Polysaccharides

18.15 Storage Polysaccharides

18.16 Structural Polysaccharides

18.17 Acidic Polysaccharides

18.18 Glycolipids and Glycoproteins

18.19 Dietary Considerations and Carbohydrates

Instructional Objectives

1. Know the difference between complex and simple carbohydrates and the amounts of each recommended in the daily diet.
2. Know the difference between complex and simple carbohydrates and the amounts of each recommended in the daily diet.
3. Understand the concepts of chirality, enantiomers, stereoisomers, and the D and L-families.
4. Recognize whether a sugar is a reducing or a nonreducing sugar.
5. Discuss the use of the Benedict's reagent to measure the level of glucose in urine. Draw and name the common, simple carbohydrates using structural formulas and Fischer projection formulas.
6. Given the linear structure of a monosaccharide, draw the Haworth projection of its α - and β -cyclic forms and vice versa. Discuss the structural, chemical, and biochemical properties of the monosaccharides, oligosaccharides, and polysaccharides.
7. Know the difference between galactosemia and lactose intolerance.