SUMMARY OF CHAPTER 6

THE HUMAN ORGANISM AND THE IMPORTANCE OF NUTRITION

1. FOOD AND ITS USE BY THE BODY

- Food is any substance that is ingested and sustains life (p. 160).
- A nutrient is a substance found in food that is used by the body to meet important needs (p. 161).
- There are six types of nutrients: proteins, carbohydrates, fats, water, vitamins and minerals (p. 161).
- Carbohydrates and fats are the body's major sources of energy (p. 164).
- Proteins are used mostly to build and repair body tissue (p. 164).
- Water, vitamins and minerals are not sources of energy (p. 164).
- Digestion involves the transformation of food into nutrients that can be used by the body (p. 168).
- Mechanical transformation consists of physically breaking down food into smaller substances in preparation for subsequent chemical transformation (p. 169).
- Chemical transformation breaks down the complex molecules of food into simpler molecules. These changes occur with the help of secretions from the digestive glands (p. 170).
- Nutrients are foods that can be absorbed by the body (p. 170).
- Absorption is the passage of nutrient molecules from the digestive tract into the blood or lymph (p. 171).

2. RESPIRATION

- In the process of cellular respiration, cells extract the energy they need from nutrients such as glucose (p. 172).
- The respiratory system is made up of the respiratory tract and the lungs (p. 173).
- The respiratory tract is composed of the nasal passages, the pharynx, the larynx, the trachea and the bronchi (p. 173).
- The goal of respiration is to extract oxygen from the air and expel carbon dioxide (p. 174).
- The oxygen absorbed by the lungs reaches the cells of the body through the circulation of the blood (p. 175).
- The blood also carries carbon dioxide, a waste product of cellular respiration, to the lungs (p. 175).
- In the lungs, the alveoli—miniature cavities filled with air and surrounded by tiny blood vessels—are responsible for the gas exchange between the oxygen-rich air and the carbon dioxide in the blood vessels (p. 175).

3. BLOOD AND LYMPH CIRCULATION

- Blood, red and viscous, is the only fluid tissue in the body. Blood is made up of plasma, red blood cells, white blood cells and platelets (p. 177).
- A blood transfusion entails the injection of blood into a person (p. 180).
- A blood donor is a person who gives blood for the purpose of a transfusion (p. 180).
- A blood recipient is a person who receives blood from a transfusion (p. 180).
- Blood compatibility means that one person can receive blood from another person (p. 181).
- Blood vessels are divided into three categories: arteries, capillaries and veins (p. 182).
- An artery is a blood vessel that carries blood from the heart to other parts of the body (p. 183).
- A capillary is a blood vessel with a small diameter and very thin walls through which occur exchanges between the blood and the cells of organs (p. 183).
- A vein is a blood vessel that carries blood back to the heart (p. 183).

- The heart is the organ that stimulates the movement of blood. It is the pump of the cardiovascular system (p. 184).
- Diastole is the phase when the heart fills with blood (p. 185).
- Systole is the contraction phase when the heart expels the blood (p. 185).
- Extracellular fluid is a clear liquid that surrounds the cells and contains water and other substances from blood plasma. It also contains white blood cells (p. 187).
- Lymph is the fluid derived from extracellular fluid that circulates inside lymphatic vessels evacuating cell waste (p. 187).
- Phagocytosis is the mechanism whereby white blood cells ingest and destroy certain microorganisms (p. 189).
- An antibody is a substance secreted by white blood cells to neutralize invaders (p. 189).
- An antigen is a substance recognized as foreign by the body and that triggers the body's white blood cells to produce antibodies (p. 189).

4. THE ELIMINATION OF WASTE

- Excretion is the process by which waste products are eliminated from the body (p. 190).
- The elimination of waste is carried out mainly by the lungs, the kidneys and the sweat glands (p. 190).
- Sweat glands discharge their secretion, sweat, by means of channels that open to the skin surface (p. 191).
- The urinary system is comprised of the kidneys, the ureters, the bladder and the urethra (p. 191).
- Kidneys are the organs that filter the blood (p. 192).
- Urea is the chief waste product from the blood (p. 192).
- Urine is made up of mainly water, urea, minerals and substances that are in excess in the blood (p. 192).