SUMMARY OF CHAPTER 7

THE HUMAN ORGANISM AND THE EXTERNAL WORLD

1. THE NERVOUS SYSTEM

- The human nervous system coordinates bodily functions so that they work in harmony (p. 202).
- The nervous system receives, processes, stores and transmits information from both inside and outside the body (p. 203).
- A neuron is a specialized nerve cell in the nervous system that receives and transmits messages (p. 203).
- A stimulus is anything that can be perceived by a living organism and that can trigger a reaction. Sound, light, heat, electrical shocks, odours and hormones are examples of stimuli (p. 203).
- A nerve impulse is an electrical signal transmitted by a neuron (p. 203).
- Neurotransmitters are chemical substances secreted by axon terminals across the narrow space, or synapse, between two neurons (p. 204).
- A synapse is the transition zone between two neurons that allows a nerve impulse to be transmitted (p. 204).
- A nerve is a structure that helps transmit information between the central nervous system and various regions of the body (p. 205).
- The peripheral nervous system connects different parts of the body to the central nervous system (p. 205).
- A sensory receptor picks up stimuli and transforms the stimuli into nerve impulses (p. 205).
- Sensory nerves transmit information in the form of nerve impulses from sensory receptors to the central nervous system (p. 206).
- Motor nerves transmit impulses from the central nervous system to the muscles in order to produce voluntary and involuntary movements (p. 206).
- The central nervous system coordinates a major part of the activities of the nervous system. It is made up of the brain and the spinal cord (p. 206).
- The brain is made up of the organs of the nervous system in the skull, including the cerebrum, the hypothalamus cerebellum and the brain stem (p. 206).
- The cerebrum is the control centre of voluntary movement, sensory interpretation and intelligence. It is also the centre of emotion (p. 208).
- The cerebellum is the centre of balance and movement coordination (p. 210).
- The brain stem is the control centre of internal stimuli as well as of involuntary movement (p. 211).
- The spinal cord is a nervous system organ that carries information from the various parts of the body to the brain. It is also the centre for a number of reflexes (p. 211).
- A reflex is a rapid and involuntary reaction to a stimulus (p. 212).
- A reflex arc is the path taken by a nerve impulse during a reflex (p. 212).

2. THE SENSORY ORGANS

- The eye is the sensory organ related to vision. It picks up light rays given off by light sources or reflected by objects (p. 213).
- The ear is the sensory organ associated with hearing. It picks up sounds and converts them into nerve impulses (p. 215).
- The skin is the sensory organ associated with touch. It covers the entire surface of the body (p. 217).
- Sensory receptors in the skin allow for the experiencing of different sensations: tactile sensations (touch, pressure), thermal sensations (heat, cold) and painful sensations (pain) (p. 218).

- The nose is the sensory organ associated with smell. Nerve cells sensitive to odours are located in the upper wall of the nasal cavity (p. 219).
- The tongue is a muscle scattered with sensory receptors for taste (p. 220).

3. THE MUSCULOSKELETAL SYSTEM

- The musculoskeletal system makes movement possible. It includes all of the bones, muscles and joints (p. 221).
- A bone is a hard, solid organ that forms part of the skeleton (p. 222).
- A joint is the junction between two or more bones (p. 223).
- Muscles have the ability to contract, causing the body or internal organs to move (p. 226).
- The skeletal muscles are the only voluntary muscles. They are attached to the bones of the skeleton and contract to move the bones (p. 227).
- Smooth muscle makes up the walls of certain internal organs. They are involuntary muscles (p. 227).
- The cardiac muscle makes up the heart. It is a unique involuntary muscle found nowhere in the body (p. 228).