

# Lesson 1: The Digestive System

## Introduction

You eat all the time: three times a day, in fact. Food enters your mouth, is chewed and swallowed. Several hours later, it exits your body as waste. But what happens in between? What does your body do to the food that changes it so drastically?

As we will soon see, your body is more than just a black box into which food enters and out of which wastes exit. The body uses an entire digestive system where food is processed into the nutrients that you need and the wastes that you don't.

In this lesson, you will learn about the human digestive system and all of its parts.

## Objectives

After completing this lesson you will be able to:

- Understand the importance of why we eat and why we need to digest food.
- Identify the organs of the digestive tract.
- Explain the role that each organ plays in digestion.
- Match digestive enzymes with the types of molecules that they digest.
- Outline the process that food undergoes from the time it is eaten to the time it is expelled.
- Give examples of digestive disorders, their causes and their treatments.

## List of Sections

This lesson includes the following sections:

- The Chemical Composition of Your Diet
- The Digestive Tract
- Common Disorders of the Digestive System

## Lesson 2: The Cardiovascular System

### Introduction

How do you breathe? I mean really breathe? We know that all cells require oxygen in order to live and perform activities. We also know that they release carbon dioxide as a waste product. Unicellular organisms like bacteria rely on simple diffusion for gas exchange. But how does each and every cell in a complex organism like the human body get the precious O<sub>2</sub> that it needs? How does a cell in the middle of your liver receive oxygen just like a skin cell on the tip of your nose? The answer to all of these questions can be found in the cardiovascular system.

### Objectives

After completing this lesson you will be able to:

- The Blood
- The Blood Vessels
- The Heart
- The Cardiac Cycle
- Cardiovascular Disorders

### List of Sections

This lesson includes the following sections:

- Identify the components of the cardiovascular system.
- Differentiate between the different cells found in blood.
- Understand the importance of hemoglobin in blood.
- Compare and contrast the different blood vessels.
- Label the various chambers and valves of the heart.
- Order the steps in the cardiac cycle.
- Identify several types of cardiovascular disorders, their causes and their treatments.

## Lesson 3: The Integumentary System

### Introduction

This lesson only goes skin deep. In fact, the integumentary system is exactly that: skin! More specifically, the integumentary system is made up of skin and all of its components.

### Objectives

After completing this lesson you will be able to:

- Recognize the importance of skin and its functions.
- Distinguish between the skin's tissues and the cell types and proteins in those tissues.
- Describe the way skin is repaired and renewed.
- Make conclusions about the different shades of hair and skin color.
- Outline the dangers involved in prolonged exposure to the sun and how it negatively affects the skin.

### List of Sections

This lesson includes the following sections:

- Skin and the different tissue types of skin
- Modified skin types
- The functions of skin
- Pigmentation and coloration of skin and hair
- Disorders of the integumentary system
- Objectives

## Lesson 4: The Endocrine System

### Introduction

The endocrine system is all about balance. It is the way that your body maintains homeostasis, or a balance of all chemicals in the body.

### Objectives

After completing this lesson you will be able to:

- Define the meaning of the terms hormone and gland.
- Distinguish between the different types of hormone action.
- Name and identify the organs involved in the endocrine system, the hormones that they secrete, and their target tissues.
- Compare and contrast the two types of feedback mechanisms.

- Identify and make conclusions about the ways that hormone concentrations in the blood are regulated.
- Identify and describe several types of endocrine disorders.

## List of Sections

This lesson includes the following sections:

- Hormones
- The organs of the Endocrine System
- The Regulation of Hormone Levels
- Endocrine Disorders

## Lesson 5: The Reproductive System

### Introduction

You begin life as a gamete, the fusion of your father's sperm cell and your mother's egg cell. Nine months later, you exit your mother's womb as a complete human being. You emerge so complete, that with only the proper nutrition and care, you develop into a fully functional adult. How is it even possible that from a single fused cell you become a breathing, thinking, human with your own ability to reproduce?

The ultimate evolutionary goal of the human species is to produce more humans. In order to accomplish this, humans rely on the reproductive system. The reproductive system involves not only the production of another human; it also involves the development of that same human. In this lesson, we will look at both the male and female reproductive systems, as well as the fetal and sexual development.

### Objectives

After completing this lesson you will be able to:

- Identify and explain the function of the organs of the male and female reproductive systems.
- Distinguish between the structure and function of the male and female reproductive systems.
- Break down the steps of the menstrual and ovarian cycles.
- Summarize the steps that occur from conception of a new human to birth.
- Describe what a sexually transmitted disease (STD) is and identify several STD's from their symptoms

## List of Sections

This lesson includes the following sections:

- Sexual Reproduction
- The Male Reproductive System
- The Female Reproductive System
- Conception and Pregnancy
- Puberty and Sexual Development
- Sexually Transmitted Diseases