

# Chapter 37 Class Outline

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## Lesson 37-1: The Circulatory System

### I. The Functions of the Circulatory System

- 1.) Problem of Transport
- 2.) Circulatory System as Transportation System
- 3.) Structure/Function Relationships

### II. The Heart

- 1.) structure/ function
- 2.) myocardium
- 3.) septum
  - a) atrium
- 4.) ventricle
- a. Circulation Through the Body
  - 1.) pulmonary circulation
  - 2.) systemic circulation
- b. Circulation Through the Heart
- c. Heart Beat
  - 1.) two networks of muscle fibers
  - 2.) pacemaker
  - 3.) two-step pattern of contraction
  - 4.) heart rate

### III. Blood Vessels

- 1.) aorta
- a. Arteries
- b. Capillaries
- c. Veins

### IV. Blood Pressure

- a. pumps and pressure
- b. sphygmomanometer
- c. systolic pressure
- d. diastolic pressure
- e. regulating blood pressure

### V. Diseases of the Circulatory System

- a. High Blood Pressure
- b. Consequences of Atherosclerosis
- c. Circulatory System Health

### VI. Biology and History

# Lesson 37-2: Blood and the Lymphatic System

## I. Blood Plasma

- a. blood
  - 1.) blood composition
- b. plasma
- c. plasma proteins
  - 1.) albumins
  - 2.) globulins
  - 3.) fibrinogen

## II. Blood Cells

- a. red blood cells
  - 1.) structure/ function
  - 2.) hemoglobin
- b. white blood cells
  - 1.) structure/ function
  - 2.) lymphocytes
- c. platelets and blood clotting
  - 1.) platelet
  - 2.) blood clotting

## III. The Lymphatic System

- a. lymph
- b. lymph nodes
- c. lymph vessels
- d. thymus and spleen

# Lesson 37-3: The Respiratory System

## I. What is respiration?

- a. Two Senses (Levels of Organization)
  - 1.) Cellular Level (Cellular Respiration)
  - 2.) Organism Level (Respiration)

## II. The Human Respiratory System

- a. Entering the Respiratory System
  - 1.) breathing
  - 2.) pharynx
  - 3.) trachea
- b. Protective Measures
  - 1.) pulmonary tissue (lung tissue)
  - 2.) healthy conditions (warm, moistened, and filtered)
  - 3.) mucus
- c. Respiratory Passageways
  - 1.) larynx
  - 2.) bronchi
  - 3.) bronchioles
  - 4.) alveoli

## III. Gas Exchange

- a. Diffusion
  - 1.) alveoli
  - 2.) capillaries
- b. Air Composition
  - 1.) inhaled air
  - 2.) exhaled air
- c. Role of Hemoglobin

## IV. Breathing

- a. Force of Air Movement
  - 1.) lungs
  - 2.) pleural membranes in chest cavity
  - 3.) diaphragm
  - 4.) partial vacuum
- b. Inhaling
- c. Exhaling

## V. How Breathing is Controlled

- a. Voluntary and Involuntary Control
- b. Medulla Oblongata
  - 1.) levels of carbon dioxide
  - 2.) problems at high altitudes

## VI. Tobacco and the Respiratory System

- a. Substances and the Respiratory System
- b. Diseases Caused by Smoking
- c. Smoking and the Nonsmoker
- d. Dealing with Tobacco