

Area of Focus: Medical Anatomy/Physiology

Learning Objective 1: BODY PLAN AND ORGANIZATION-Students will explore and describe the body plan, organization, and homeostasis.

Teaching Methods and Process:

Research:

- Describe the six levels of structural organization of the human body and give an example of each level.
- Identify the body cavities and locate the following organs within each cavity.
- Identify the major organ(s) in each abdominal quadrant.

Reason

- Examine the relationship between homeostasis and stress.
- Differentiate between negative and positive mechanisms

Relate

- Apply directional terms used in human anatomy.
- Apply commonly used planes to divide the body

Record

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 2 BASIC PRINCIPLES OF BODY CHEMISTRY-Students will explain basic principles of body chemistry.

Teaching Methods and Process:

Research:

- Review the relevant terms and concepts.
- Identify the four major elements in the body.
- Describe the characteristics of bonds. Define pH.

Reason:

- Distinguish between "neutral" pH and the "average" pH range of the blood.
- Describe the properties of water and how it is utilized in the human body.
- Describe how the body produces energy during cellular respiration.

Relate:

- Apply principals of chemistry to homeostasis in living systems.
- Compare the structures and functions of the following
 - Carbohydrates
 - Proteins
 - Lipids
 - Nucleic acids, RNA, DNA

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

Area of Focus: Medical Anatomy/Physiology**Learning Objective 3:**

CELLS-Students will describe basic concepts of structures and functions of cells.

Teaching Methods and Process:**Research:**

- Identify the four principle parts of a generalized animal cell and their functions.
- Describe the structure and function of the cell membrane.
- Describe a selectively permeable membrane and factors which influence permeability.
- Describe cellular transport processes and classify them as active or passive.
- Describe the function of structures within the cell.

Reason:

- Contrast intracellular and extracellular fluid in terms of location and composition.

Relate:

- Isotonic solution, Hypotonic solution, Hypertonic solution
- Compare and contrast:

- Mitosis, Meiosis

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 4:

HISTOLOGY & INTEGUMENTARY SYSTEM-Students will describe basic concepts of structures and functions of histology, and the integumentary system.

Teaching Methods and Process:

Research:

- Identify the general characteristics and functions of each of the four principle types of tissues.
- Describe the structures and functions of the integumentary system components. Describe the major layers of skin.

Reason:

- Contrast the following: Exocrine glands, Endocrine glands
- Differentiate between the four basic types of membranes.

Relate:

- Identify diseases and disorders of the integumentary system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.

- One on One oral comprehension assessment with instructor.

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Learning Objective 5:

SKELETAL SYSTEM-Students will describe the structures and functions of the skeletal system and its components.

Teaching Methods and Process:

Research:

- Identify the general functions of the skeletal system
- Describe the features of a long bone.
- Identify the four shapes of bones with characteristics and examples of each.
- Describe and locate the following bone markings.
- Identify all major bones in the human skeleton.
- Identify the roles of the following in bone growth and ossification:
 - Osteoblasts, Osteocytes, Osteoclasts

Reason:

- Contrast the axial and appendicular skeletons.
- Contrast the average number, location, and function of each of the five groups of vertebrae.
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- Describe and differentiate between the following terms:
 - Suture, Fontanel

Relate:

- Understand common diseases and disorders of the skeletal system.
- Explain the structural and functional classifications of articulations.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.
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Learning Objective 6:

MUSCULAR SYSTEM-Students will describe the structures and functions of the muscular system and its components.

Teaching Methods and Process:

Research:

- Identify the general functions of the muscular system.
- Describe the four characteristics of muscle tissue.
- Describe the sliding-filament theory of muscle contraction.
- Describe what occurs at the neuromuscular junction.
- Describe the locations and functions of major skeletal muscles.

Reason:

- Contrast the general location, microscopic appearance, control, and functions of the three specific types of muscle tissue.
- Contrast thick and thin myofilaments.
- Compare: Prime movers (agonists), Antagonists, Synergist, Fixators

Relate:

- Understand diseases and disorders of the muscular system.
- Compare and Contrast Sprain vs. Strain.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 7:

NERVOUS SYSTEM/SPECIAL SENSES-Students will describe the structures and functions of the nervous system and special senses.

Teaching Methods and Process:

Research:

- Describe the general organization of the nervous system.

- List the functions and structures of neurons and neuroglial cells.
- Describe the location and function of CSF.
- Identify the structures responsible for the maintenance and protection of the central nervous system.
- Identify the structures responsible for the maintenance and protection of the central nervous system.
- Identify the four principle parts of the brain. Cerebrum, Cerebellum, Brain stem, Diencephalon.
- Describe the functions of the three structures of the brain stem.
- Describe the structures and functions of the diencephalon.
- Describe the locations and functions of the four lobes of the cerebrum.
- Describe the principle anatomical structures of the eye.
- Describe the principle anatomical structures of the ear.

Reason:

- Contrast white and gray matter of nervous tissue.
- Explain the major functions of the cerebellum.
- Sequence the major events when the nerve impulse (action potential) is initiated and transmitted through a neuron.
- Explain the role of each of the components of a reflex arc

Relate:

- Understand diseases and disorders of the nervous system.
- Understand diseases and disorders associated with special senses.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
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Learning Objective 8:

ENDOCRINE SYSTEM-Students will describe the structures and functions associated with the endocrine system.

Teaching Methods and Process:**Research:**

- Identify the general functions of the endocrine system.
- Describe a "hormone" and how it functions in the body.
- Describe the locations, secretions, and functions of the major endocrine glands. Know the hormones and their target.

Reason:

- Apply principals of the endocrine system to homeostasis and growth in living systems.

Relate:

- Identify diseases and disorders of the endocrine system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

Area of Focus: Medical Anatomy/Physiology**Learning Objective 9:**

BLOOD-Students will describe the components and functions associated with blood.

Teaching Methods and Process:**Research:**

- Identify the components of blood and their functions.
- Describe erythrocytes, including the structure of hemoglobin.
- Define leukocyte and list the two major groups with their cell types and their function.
- Describe the process of hemostasis.

Reason:

- Contrast a thrombus and an embolus.
- Identify the antigens found on the erythrocytes and the antibodies that determine the ABO blood types and the Rh factor.

Relate:

- Identify diseases and disorders associated with the blood.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.
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Area of Focus: Medical Anatomy/Physiology**Learning Objective 10:**

LYMPHATIC SYSTEM-Students will describe the structures and functions of the lymphatic system.

Teaching Methods and Process:**Research:**

- Identify the components of the lymphatic system.

Reason:

- Describe how lymph is moved through the body.
- Contrast antigens and antibodies.
- Describe the general roles of T-cells and B-cells in the immune response.
- Distinguish between active and passive immunity and natural vs. artificial acquisition of immunity.

Relate:

- Identify diseases and disorders associated with the lymphatic system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 11:

CARDIOVASCULAR SYSTEM-Students will describe the structures and functions of the cardiovascular system.

Teaching Methods and Process:

Research:

- List the general functions of the cardiovascular system.
- Identify the chambers of the heart.
- Locate the great blood vessels of the heart.
- Identify the valves of the heart.

Reason:

- Describe the layers of the heart.
- Identify the components of the conduction system of the heart and trace the pathway.
- Sequence the principle events of the cardiac cycle in terms of systole and diastole.
- Define cardiac output and identify factors that influence it.
- Contrast the structures and functions of arteries, capillaries, and veins.
- Describe blood pressure and how to measure it.
- Contrast pulmonary and systemic circulation.

Relate:

- Define pulse and identify the general location of arteries where pulse may be felt.
- Identify diseases and disorders of the cardiovascular system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

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- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 12:

RESPIRATORY SYSTEM-Students will describe the structures and functions associated with the respiratory system.

Teaching Methods and Process:

Research:

- Identify the general functions of the respiratory system
- Identify the three regions of the pharynx.
- Identify the anatomical features of the larynx.
- Identify the coverings of the lungs and the gross anatomical features of the lungs.
- Identify the site at which gas exchange occurs in the lungs (alveoli).
- Identify the volumes and capacities of air exchanged during ventilation.
- Describe the effects of carbon dioxide on ventilation.

Reason:

- Sequence the organs of the respiratory system in the order in which air will pass through them from the exterior.
- Differentiate between ventilation, external and internal respiration.

Relate:

- Identify diseases or disorders of the respiratory system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 13:

DIGESTIVE SYSTEM-Students will describe the structures and functions associated with the digestive system.

Teaching Methods and Process:

Research:

- Identify the general functions of the digestive system.

- Describe the functions of saliva and salivary amylase in digestion.
- Identify the parts of a typical tooth.
- Identify the anatomical features of the stomach.
- Identify the basic components and functions of gastric juice.
- Identify the location and digestive functions of the pancreas.

Reason:

- Contrast chemical and mechanical digestion.
- Describe the function of bile (emulsification).
- Identify the three sections of the small intestine and describe the functions.
- Identify the structures and sections of the large intestine and describe the functions.

Relate:

- Identify diseases and disorders of the digestive system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

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Learning Objective 14:

URINARY SYSTEM-Students will describe the structures and functions associated with the urinary system.

Teaching Methods and Process:

Research:

- Identify the general functions of the urinary system.
- Identify the four major organs of the urinary system.
- Identify the gross anatomy of the kidney.
- Identify the microscopic structures of the nephron.
- Describe the methods of fluid intake and output.

Reason:

- Describe the three basic physiological processes and the structures involved in urine formation.
- Identify abnormal constituents of urine and possible causes of each..

Relate:

- Identify diseases and disorders associated with the urinary system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

Area of Focus: Medical Anatomy/Physiology**Learning Objective 15:**

REPRODUCTIVE SYSTEM-Students will describe the structures and functions associated with the reproductive system. Constraints of time don't often allow coverage of this objective.

Teaching Methods and Process:**Research:**

- Identify the general functions of the reproductive system.

Record:

- Frequent journal entries summarizing learning experiences.
- Daily note taking.

Learning Evaluation:

- Summative assessments including multiple response, open answer and written response tests and quizzes.
- Lab and Practical Assessment
- Original content journal entries, presentations, and writing.
- One on One oral comprehension assessment with instructor.

