

Unit	Lesson	Lesson Objectives
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The Human Body and Genetics**Introduction to Anatomy and Physiology**

- Analyze how the study of anatomy and physiology is used by medical professionals
- Define anatomy and physiology
- Describe the elements that all living things need to survive
- Explain the goals of anatomy and physiology
- List the characteristics that all living things share

Organization of the Body

- Analyze the basic structural organization of the body
- Analyze the relationship of the levels of structural organization of the body
- Describe the major systems of the body

Areas of Study within Anatomy

- Analyze the purpose of each area of study within anatomy
- Differentiate between examples from different areas of study within anatomy
- Identify the major areas of study within anatomy

Atoms and Molecules

- Analyze the atomic composition of the human body
- Describe the structure of atoms and molecules
- Explain how atoms join to form larger structures

The Chemistry of Life

- Analyze the chemical processes that maintain life
- Explain the chemical composition of the human body
- Identify the chemical elements of the body

DNA

- Analyze the structure and components of DNA
- Define DNA and describe its overall function
- Describe the process of DNA replication
- Explain DNA mutation

Genetics

- Analyze the process in which RNA contributes to DNA replication
- Define genetics
- Explain the possible future uses of the Human Genome Project
- Identify the enzymes that enable DNA replication

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Genetic Diseases and Disorders

- Analyze the role of human genetics in contributing to certain genetic diseases and disorders
- Describe the pathology of common genetic diseases and disorders
- Identify different types of genetic diseases and disorders

Heredity and Heritability

- Analyze how traits are transmitted between generations
- Describe the difference between phenotypes and genotypes
- Explain how to estimate heritability

Cells

Cells

- Analyze the function of different cell structures
- Analyze the structure of cells
- Describe cells as the building blocks of human life
- Explain how the condition of cells can be indicators of health

Cell Functions

- Analyze the processes of growth, metabolism, cell division, and protein synthesis
- Describe the primary functions of cells

The Study of Cells

- Analyze common tools and methods used to study cells
- Describe major findings in cell research
- Describe the history of cell research

Cell Growth and Organization

- Analyze how the cell cycle is regulated
- Explain the role of cell inhibitors
- Explain why it is important that cells grow and divide
- Identify the four stages of the cell cycle

Cell Division and Mitosis

- Analyze the steps of mitosis
- Compare mitosis in plant and animal cells
- Describe examples of asexual reproduction
- Explain why mitosis is important

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		<p>Moving Cellular Material</p> <ul style="list-style-type: none"> Analyze how the processes of diffusion and osmosis move molecules in living cells Describe the function of a selectively permeable membrane Explain how passive transport and active transport differ <p>Sexual Reproduction and Meiosis</p> <ul style="list-style-type: none"> Analyze the stages of meiosis and how sex cells are produced Explain how fertilization occurs in sexual reproduction Explain why meiosis is needed for sexual reproduction List the cells that are involved in fertilization <p>Energy</p> <ul style="list-style-type: none"> Analyze the types of energy used by the body Define fermentation Identify and describe some energy processes of the cell <p>Organic Substances and Compounds</p> <ul style="list-style-type: none"> Analyze the relationship between compounds and substances Differentiate between organic and inorganic compounds Identify common biomolecules
Tissues, Organs, and Systems		
		<p>Tissue</p> <ul style="list-style-type: none"> Analyze the relationship between the structure and function of cells and tissues Explain the location and functions of each type of tissue List the four main types of tissues <p>Diseased Tissues</p> <ul style="list-style-type: none"> Analyze how healthy tissue becomes diseased tissue Define diseased tissue Explain how cells in diseased tissue differ from those in healthy tissue Identify types of tissue disease <p>Injuries</p> <ul style="list-style-type: none"> Analyze the cause and treatment of various types of external and internal injuries Identify types of external injuries Identify types of internal injuries

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		Body Cavities <ul style="list-style-type: none">Identify body cavitiesIdentify the organs that are housed in various body cavitiesUse the proper terminology to identify body cavities
		Membranes and Glands <ul style="list-style-type: none">Analyze the functions of membranes and glandsAnalyze the structure of membranes and glandsDefine membranes and glandsIdentify types of membranes and glands
		Organs <ul style="list-style-type: none">Analyze organ diseases and disorders, and explain organ transplantationDefine organsIdentify organs in the human body
		Organ Systems <ul style="list-style-type: none">Analyze the ways in which the organ systems work together to support lifeExplain how an organ system worksIdentify the major organ systems of the body
		Homeostasis <ul style="list-style-type: none">Analyze ways in which the internal human body maintains homeostasisDefine homeostasisExplain the importance of homeostasis in the human body
		Homeostatic Processes <ul style="list-style-type: none">Analyze the role of homeostasis and its mechanisms as they relate to the body as a wholeDescribe the biological processes that maintain homeostasisDescribe the chemical processes that maintain homeostasis
		Homeostatic Disorders <ul style="list-style-type: none">Analyze the symptoms and treatments of common homeostatic disordersExplain methods of preventing common homeostatic disordersIdentify common homeostatic disordersPredict the consequences of the failure to maintain homeostasis

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Diseases and Disorders**Disease**

- Analyze the relationship between disease pathology, diagnosis, treatment, and prevention
- Describe common diseases and disorders
- Differentiate between diseases, illnesses, and disorders

Causes of Disease

- Define etiology
- Differentiate between direct and indirect causes of disease
- Identify and analyze the direct causes of disease
- Identify and analyze the indirect causes of disease

Chain of Infection

- Analyze how to destroy or control the spread of infections
- Explain the chain of transmission of infection
- Explain why the blood and other body fluids are carriers for disease transmission
- Identify common hospital-acquired infections

Cancer

- Analyze causes of cancer, including behaviors that can increase risk of cancer
- Describe the importance of early cancer detection
- Explain methods for treating cancer
- Identify types of cancer

Bloodborne Diseases

- Analyze how bloodborne diseases are transmitted
- Define bloodborne disease
- Demonstrate knowledge of the legal aspects of AIDS, including testing
- Describe how bloodborne diseases are treated
- Identify common types of bloodborne diseases

Physical Disorders

- Analyze ways of treating and adjusting to disorders
- Define physical disorder
- Explain the psychological uses of the term disorder
- Identify common disorders and their causes

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		<p>Psychosomatic Diseases and Stress-Related Physical Ailments</p> <ul style="list-style-type: none"> Analyze positive ways of managing stress Define psychosomatic disease Describe common somatoform disorders Describe positive and negative reactions to stress Explain criteria for classifying psychosomatic diseases <p>Treatment of Diseases and Disorders</p> <ul style="list-style-type: none"> Analyze common therapeutic methods for treating diseases and disorders Describe common medications used to deal with physical pain associated with diseases and disorders Describe common medications used to deal with stress and anxiety associated with diseases and disorders <p>Monitoring Diseases</p> <ul style="list-style-type: none"> Analyze processes for monitoring diseases in the United States and around the world Describe the purpose of monitoring diseases Differentiate between the prevalence and incidence of diseases <p>Disease Prevention</p> <ul style="list-style-type: none"> Analyze the various stages of disease prevention Describe the elements of wellness and stress control planning that can be used in personal and professional life Identify fundamental disease prevention strategies
		<p>Anatomy of the Body</p> <p>Exploring Health Science Careers</p> <ul style="list-style-type: none"> Analyze and compare health science careers within the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems Describe the major career fields in health and medical sciences Identify career requirements for health science careers Identify health careers related to each body system <p>Studying Health Science</p> <ul style="list-style-type: none"> Analyze the best method of study and recall for different types of health science content Describe effective methods of studying health science content Explain the types of information a health science worker studies <p>Basic Medical Terminology</p> <ul style="list-style-type: none"> Use anatomical terminology to describe the parts and areas of the body Use anatomical terminology to describe the relationships between parts of the body <p>Basic Medical Prefixes, Suffixes, and Root Words</p> <ul style="list-style-type: none"> Analyze how common roots, prefixes, and suffixes are combined to form medical terms Identify common roots, prefixes, and suffixes used in health science fields, including common anatomical structures

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Basic Medical Abbreviations

- Explain why medical terminology is often abbreviated in the healthcare industry
- Identify common abbreviations for diseases and disorders
- Identify common patient status abbreviations
- Identify common pharmacy abbreviations

The Anatomical Position and Surface Anatomy

- Define and explain the purpose of the anatomical position
- Explain surface anatomy
- Identify superficial landmarks on the body and analyze their purpose
- Identify the areas of the body indicated on the anatomical position

Planes of the Body

- Describe anatomical planes on the body and explain their use when studying anatomy
- Identify types of planes of the body
- Use the proper terminology to identify the planes of the body

Directions of the Body

- Distinguish between the terms used to refer to direction of the body
- Identify the terms used to refer to directions of the body
- Use directional terms to refer to directions of the body

Axial Regions of the Body

- Define the regional terms used to refer to the parts of the axial regions of the body
- Explain the rationale for having regional terms for the human body
- Identify axial regions of the body using proper regional terminology

Appendicular Regions of the Body

- Define the regional terms used to refer to the parts of the appendicular regions of the body
- Explain the rationale for having regional terms for the human body
- Identify appendicular regions of the body using proper regional terminology

Musculoskeletal System

The Skeletal System

- Analyze the functions of the skeletal system
- Describe the components of the skeletal system, including connective tissues
- Identify the major organs of the skeletal system

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		Bones <ul style="list-style-type: none">Analyze the structure and anatomy of bonesDescribe the four functions of bonesExplain how bones form and growExplain the composition and properties of bones
		Bones of the Axial Skeleton <ul style="list-style-type: none">Analyze the structural purpose of the bones of the axial skeletonIdentify the axial region of the bodyIdentify the bones of the axial skeleton
		Bones of the Appendicular Skeleton <ul style="list-style-type: none">Analyze the structural purpose of the bones of the appendicular skeletonIdentify the appendicular regions of the bodyIdentify the bones of the appendicular skeleton
		Joints <ul style="list-style-type: none">Analyze the types of motion possible in various types of jointsDescribe the types of joints that connect the human skeletonIdentify the locations of the joints on the human body
		The Muscular System <ul style="list-style-type: none">Analyze the structure and function of muscles in the muscular systemExplain the function of connective tissue in the muscular systemExplain the functions of the muscular systemIdentify the different muscles of the muscular systemIdentify the types of connective tissue in the muscular system
		Skeletal, Cardiac, and Smooth Muscles <ul style="list-style-type: none">Analyze the function of the three types of muscleDescribe the anatomy of musclesDifferentiate between the three types of muscleExplain muscle growth and atrophy
		Articulations and Body Movement <ul style="list-style-type: none">Analyze the way connective tissue attaches muscle to bone and cartilage in the bodyDefine articulationsExplain how the musculoskeletal system allows the human body to move

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Common Diseases and Disorders of the Musculoskeletal System

- Analyze the symptoms and treatments of common diseases and disorders of the musculoskeletal system
- Explain methods of preventing common diseases and disorders of the musculoskeletal system
- Identify common diseases and disorders of the musculoskeletal system

Musculoskeletal System Career Specialties

- Analyze a variety of health science careers that specialize in musculoskeletal systems
- Explain the career pathways for musculoskeletal careers
- Identify specialized trainings and certifications necessary for specialists in musculoskeletal systems

Nervous and Sensory Systems

The Nervous System

- Analyze the structure and functions of the central nervous system
- Analyze the structure and functions of the peripheral nervous system
- Define neurons and glial cells
- Explain how the peripheral and central nervous systems function together

Nerves

- Analyze the function of the motor nerves
- Analyze the function of the sensory nerves
- Define nerves and explain their basic structure
- Explain the difference between spinal nerves and cranial nerves

The Brain and Spinal Cord

- Analyze the structure and function of the spinal cord
- Describe the left and right hemispheres of the cerebral cortex
- Explain the importance of the skull
- Identify the primary parts of the brain

Common Diseases and Disorders of the Nervous System

- Analyze the symptoms and treatments of common neurological diseases and disorders.
- Explain methods of preventing common neurological diseases and disorders.
- Identify common neurological diseases and disorders

Nervous System Career Specialties

- Analyze a variety of health science careers that specialize in the nervous system
- Explain the career pathways for neurology careers
- Identify specialized trainings and certifications necessary for neurology specialists
- Identify the human sensory receptors

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The Sensory System

Analyze the functions of the sensory system in relation to the nervous system

Define stimulus

Identify the five human senses

Common Diseases and Disorders of the Sensory System

Analyze the symptoms and treatments of common diseases and disorders of the sensory system

Explain methods of preventing common diseases and disorders of the sensory system

Identify common diseases and disorders of the sensory system

Sensory System Career Specialties

Analyze a variety of health science careers that specialize in the sensory system

Explain the career pathways for careers related to the sensory system

Identify specialized trainings and certifications necessary for specialists in sensory systems

Cardiovascular System

The Cardiovascular System

Analyze the functions of the cardiovascular system

Analyze the structure of the cardiovascular system and its components, including the heart, blood, and blood vessels

Explain the important role the respiratory system plays in the cardiovascular system

The Heart

Analyze the function of the human heart

Analyze the structures of the human heart

Describe the role of the heart in circulation

Blood

Analyze the functions of blood

Analyze the structure and function of blood vessels

Explain how blood circulates through the human body

Identify the components of blood

Blood Pressure

Define blood pressure and explain its importance to the cardiovascular system

Describe high blood pressure and analyze its causes

Describe low blood pressure and analyze its causes

Differentiate between systolic and diastolic pressure

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Disorders of the Blood

- Analyze symptoms and treatments for some blood disorders
- Define blood disorder
- Identify common blood disorders

Myocardial Infarction

- Analyze common symptoms and treatments for myocardial infarctions
- Define myocardial infarction
- Describe the common causes of myocardial infarctions

Common Diseases and Disorders of the Cardiovascular System

- Analyze the symptoms, causes, and treatments of common diseases and disorders of the cardiovascular system
- Explain methods of preventing common diseases and disorders of the cardiovascular system
- Identify common diseases and disorders of the cardiovascular system

Cardiovascular System Career Specialties

- Analyze a variety of health science careers that specialize in the cardiovascular system
- Explain the career pathways for careers related to the cardiovascular system
- Identify specialized trainings and certifications necessary for careers in the cardiovascular system

Respiratory System

The Respiratory System

- Analyze the structure and functions of the respiratory system
- Define and describe ventilation
- Describe the functions of the lungs and capillaries in introducing oxygen into the human body
- Explain the relationship between the respiratory system and the circulatory system

Anatomy of the Upper Respiratory System

- Analyze the functions of the upper respiratory system
- Analyze the structure of the upper respiratory system
- Explain the upper respiratory system's role in respiration

Anatomy of the Lower Respiratory System

- Analyze the functions of the lower respiratory system
- Analyze the structure of the lower respiratory system
- Explain the role of the lungs' lobes

Circulation and Respiration

- Analyze the function and pathway of each type of circuit, and how they impact respiration
- Define pulmonary, systemic, and coronary circulation

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Gas Exchange

- Analyze the carbon dioxide transport pathway
- Define hemoglobin
- Describe how oxygen is transported from the lungs to the blood
- Identify two ways oxygen is carried in the blood

Common Diseases and Disorders of the Respiratory System

- Analyze the symptoms and treatments of common diseases and disorders of the respiratory system
- Explain methods of preventing common diseases and disorders of the respiratory system
- Identify common diseases and disorders of the respiratory system

Respiratory System Career Specialties

- Analyze a variety of health science careers that specialize in the respiratory system
- Explain the career pathways for careers related to the respiratory system
- Identify specialized trainings and certifications necessary for specialists in respiratory health

Integumentary, Lymphatic, and Immune Systems

The Integumentary System

- Analyze the functions of the integumentary system
- Analyze the structure of the integumentary system
- Describe the three layers of skin
- Explain how the integumentary system helps achieve homeostasis

Common Diseases and Disorders of the Integumentary System

- Analyze the symptoms and treatments of common diseases and disorders of the integumentary system
- Explain methods of preventing common diseases and disorders of the integumentary system
- Identify common diseases and disorders of the integumentary system

Integumentary System Career Specialties

- Describe a variety of health science career specialties related to the integumentary system
- Explain the career pathways for careers related to the integumentary system
- Identify specialized trainings and certifications necessary for specialists in integumentary systems

The Lymphatic System

- Analyze the functions of the lymphatic system
- Analyze the structure of the lymphatic system
- Define lymph nodes and identify lymphatic organs
- Explain why the lymphatic system is considered part of the circulatory system

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Common Diseases and Disorders of the Lymphatic System

- Analyze the symptoms and treatments of common diseases and disorders of the lymphatic system
- Explain methods of preventing common diseases and disorders of the lymphatic system
- Identify common diseases and disorders of the lymphatic system

The Immune System

- Analyze the structure and functions of the immune system
- Define and describe immunizations
- Explain how the lymphatic system is related to immunity
- Identify the different types of immunity and immune responses

Common Diseases and Disorders of the Immune System

- Analyze the symptoms and treatments of common diseases and disorders of the immune system
- Explain methods of preventing common diseases and disorders of the immune system
- Identify common diseases and disorders of the immune system

Immune System Career Specialties

- Analyze a variety of health science careers that specialize in the immune system
- Explain the career pathways for careers related to the immune system
- Identify specialized trainings and certifications necessary for specialists in immune systems

Digestive, Urinary, and Endocrine Systems

The Digestive System

- Analyze the functions of the digestive system
- Describe the upper and lower gastrointestinal tracts
- Explain the digestive process

Common Diseases and Disorders of the Digestive System

- Analyze the symptoms and treatments of common diseases and disorders of the digestive system
- Explain methods of preventing common diseases and disorders of the digestive system
- Identify common diseases and disorders of the digestive system

Digestive System Career Specialties

- Analyze a variety of health science careers that specialize in the digestive system
- Explain the career pathways for careers related to the digestive system
- Identify specialized trainings and certifications necessary for specialists in the digestive system

The Urinary System

- Analyze the structure and function of the urinary system
- Describe the role of the kidneys
- Explain urine production and analyze factors that can impact it

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Common Diseases and Disorders of the Urinary System

- Analyze the symptoms and treatments of common diseases and disorders of the urinary system
- Explain methods of preventing common diseases and disorders of the urinary system
- Identify common diseases and disorders of the urinary system

Urinary System Career Specialties

- Analyze a variety of health science careers that specialize in the urinary system
- Explain the career pathways for careers related to the urinary system
- Identify specialized trainings and certifications necessary for specialists in the urinary system

The Endocrine System

- Analyze life span changes that are controlled by the endocrine system
- Analyze the structure and functions of the endocrine system
- Describe the role of hormones in the endocrine system
- Identify some hormones that are secreted by organs and glands

Common Diseases and Disorders of the Endocrine System

- Analyze the symptoms and treatments of common diseases and disorders of the endocrine system
- Explain methods of preventing common diseases and disorders of the endocrine system
- Identify common diseases and disorders of the endocrine system

Endocrine System Career Specialties

- Analyze a variety of health science careers that specialize in the endocrine system
- Explain the career pathways for careers related to the endocrine system
- Identify specialized trainings and certifications necessary for specialists in the endocrine system

Human Reproduction and Development

The Reproductive System

- Analyze the structure and functions of the female reproductive system
- Analyze the structure and functions of the male reproductive system
- Define reproductive system

Male Reproductive System

- Analyze the anatomy and functions of the male reproductive system
- Explain the changes that occur in the male reproductive system during older adulthood

Female Reproductive System

- Analyze the anatomy and functions of the female reproductive system
- Explain the changes that occur in the female reproductive system during older adulthood

Unit	Lesson	Lesson Objectives
		<p>Reproduction</p> <ul style="list-style-type: none"> Analyze the process of conception Explain possible reasons that conception may not occur Identify the sex cells that are central to reproduction in humans <p>Pregnancy</p> <ul style="list-style-type: none"> Analyze the physical and emotional effects of childbirth on the mother Analyze the stages of pregnancy Identify cultural practices related to pregnancy and childbirth Summarize how human life begins from conception <p>Common Diseases and Disorders of the Reproductive System</p> <ul style="list-style-type: none"> Analyze the symptoms and treatments of common diseases and disorders of the reproductive system Explain methods of preventing common diseases and disorders of the reproductive system Identify common diseases and disorders of the reproductive system <p>Reproductive System Career Specialties</p> <ul style="list-style-type: none"> Analyze a variety of health science careers that specialize in the reproductive system Explain the career pathways for careers related to the reproductive system Identify specialized trainings and certifications necessary for specialists in the reproductive system <p>Human Growth and Development</p> <ul style="list-style-type: none"> Analyze the developmental changes that occur during childhood, adolescence, and adulthood Describe the importance of childhood development <p>Death and Dying</p> <ul style="list-style-type: none"> Analyze various causes of death Describe the loss of body function that results in death Explain the biological factors of life extension Explain the biological process of death and dying