

Wyoming Department of Education Required Virtual Education Course Syllabus

BIG HORN COUNTY SCHOOL DISTRICT #1

Program Name	WYCA	Content Area	Science
Course ID	CAOT78789	Grade Level	9, 10, 11, 12
Course Name	Anatomy and Physiology	# of Credits	0.5
SCED Code	03053G0.5011	Curriculum Type	Connections Academy

COURSE DESCRIPTION

In this course the student will learn about anatomical structures and physiology of the human body. Body systems are discussed in terms of how each participates in homeostasis of the body. Students learn about selected major pathologies, including causes, symptoms, diagnostic procedures, and treatments, as well as common changes that occur through the life span. By the end of the course the student will be able to

- Describe the organization of the human body
- Explain the contribution that each body system makes to homeostasis of the body
- Identify the major anatomical structures and the purposes of each body system
- Explain the basic physiological processes in each of the body systems
- Describe selected human diseases in terms of definition, cause, signs and symptoms, diagnostic procedures
- Describe common issues or changes that occur in each body system throughout the lifespan

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK
HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multi-cellular organisms.
HS-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.
HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of sugar molecules are broken and the bonds in new compounds are formed

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES
<p>Lesson 1: Body Structure and Organization In this lesson, students learn to define homeostasis and its importance to the human body. Structures and functions of the organelles of a typical human cell are explored as well as body planes, cavities, regions, and directional terms.</p>	HS-LS1-2, HS-LS1-4	<ul style="list-style-type: none"> • Define homeostasis and its importance to the human body • Outline the levels of organization of the body, including the body systems • Identify the structures and functions of the organelles of a typical human cell • Describe body planes, cavities, regions, and directional terms
<p>Lesson 2: Integumentary System In this lesson, students learn how the integumentary system interacts with other organ systems to maintain homeostasis. They learn that skin is a complex organ made up of 3 different layers and tissues and how the structure and quality change at every stage of life.</p>	HS-LS1-2	<ul style="list-style-type: none"> • Explain the functions of the skin, including its contribution to homeostasis • Identify the anatomical structures of the skin • Describe selected integumentary system diseases • Describe issues and changes related to the integumentary system at different points in the life span
<p>Lesson 3: Skeletal System: Structure and Function In this lesson, students learn about the 206 bones of the human skeleton and that the look of the human face is based on the size and shape of 14 of those bones.</p>	HS-LS1-2	<ul style="list-style-type: none"> • Describe the organization of the skeletal system • Explain the functions of bone, including its contribution to homeostasis • Identify the anatomical structures of the skeletal system, including the major bones of the body
<p>Lesson 4: Skeletal System Disorders In this lesson, students study the most common ailment, fractures, and joint disorders that impact human health.</p>		<ul style="list-style-type: none"> • Describe selected skeletal system diseases and disorders • Describe issues and changes related to the skeletal system at different points in the lifespan
<p>Lesson 5: The Muscular System In this lesson students learn how muscle cells are uniquely structured to contract repeatedly. The major skeletal muscles are explored as well as common muscular system disorders.</p>		<ul style="list-style-type: none"> • Identify the anatomical structures of the muscular system, including the major muscles of the body • Explain the basic concept of muscle contraction • Describe how the muscular system contributes to homeostasis of the body • Describe selected muscular system diseases and disorders • Describe issues and changes related to the muscular system at different points in the lifespan
<p>Lesson 6: The Nervous System and Special Senses In this lesson, students learn about the billions of neurons that exist in the human body. The complexity of the central and peripheral nervous systems are presented. Special senses are explored including how the eye's retina forms images and common nervous system disorders are explored.</p>	HS-LS1-2	<ul style="list-style-type: none"> • Describe the organization of the nervous system and how the nervous system contributes to homeostasis • Identify the anatomical structures of the nervous system and special senses and their functions • Explain how an electrical impulse is conducted through a nerve
<p>Lesson 7: The Cardiovascular System: Heart and Blood Vessels This lesson introduces the heart, blood vessels and blood. Students learn about the vast network of blood vessels and how blood carries nutrients and oxygen to and from organs and tissues.</p>	HS-LS1-7	<ul style="list-style-type: none"> • Identify the anatomical structures of the cardiovascular system • Explain how blood flows through the heart, lungs, and body • Describe the electrical conduction system of the heart • Explain the cardiac cycle, including how the cardiovascular system contributes to the homeostasis of the body • Describe the different types of blood vessels and their function
<p>Lesson 8: The Cardiovascular System: Blood and Disorders Students continue to learn about the vast network of blood vessels and how blood carries nutrients and oxygen to and from organs and tissues. Common circulatory system disorders are also explored.</p>		<ul style="list-style-type: none"> • Describe the composition and functions of blood • Describe selected cardiovascular system diseases and disorders • Describe issues and changes related to the cardiovascular system at different points in the lifespan
<p>Lesson 9: The Immune System This lesson emphasizes the importance of the lymphatic system in relation to the cardiovascular and immune system. Viruses, bacteria, fungi and the physiology of the immune system are explored. Common immune system disorders are also discussed.</p>		<ul style="list-style-type: none"> • Identify the anatomical structures of the immune system • Describe how immunity works • Explain how the immune system contributes to the homeostasis of the body • Describe selected immune system diseases and disorders • Describe issues and changes related to the immune system at different points in the lifespan

<p>Lesson 10: The Respiratory System In this lesson, the anatomy of the respiratory system and its impact on major organs is explored. Students learn how the respiratory system supplies the body with oxygen and discards carbon dioxide.</p>	HS-LS1-2, HS-LS1-7	<ul style="list-style-type: none"> •Identify the anatomical structures of the respiratory system and their functions •Explain the mechanics of breathing and internal and external respiration •Explain how the respiratory system contributes to the homeostasis of the body
<p>Lesson 11: Common Disorders of the Respiratory System Students continue to learn how the respiratory system supplies the body with oxygen and discards carbon dioxide. Common respiratory system disorders are also discussed.</p>		<ul style="list-style-type: none"> •Describe selected respiratory system diseases and disorders •Describe issues and changes related to the respiratory system at different points in the lifespan
<p>Lesson 12: The Digestive System This lesson discuss the anatomy of the digestive system and students learn about the body's major digestive organ. The physiology of the digestive system is explored and how foods are broken down and absorbed are explained. Common digestive system disorders are also discussed.</p>		<ul style="list-style-type: none"> •Identify the anatomical structures of the digestive system and their functions •Explain the physiology of digestion through the system •Explain how the digestive system contributes to the homeostasis of the body •Describe selected digestive system diseases and disorders •Describe issues and changes related to the digestive system at different points in the life span
<p>Lesson 13: The Urinary System In this lesson, students study the anatomy of the urinary system. They learn about the heart and kidney as the hardest-working organ in the entire body. The physiology of the urinary system and diagnostic tools are explored as well as common urinary system disorders.</p>		<ul style="list-style-type: none"> •Identify the anatomical structures of the urinary system and their functions •Describe the composition of urine and the physiology of the urinary system •Explain how the urinary system contributes to the homeostasis of the body •Describe selected urinary system diseases and disorders •Describe issues and changes related to the urinary system at different points in the lifespan
<p>Lesson 14: The Endocrine System, Part 1 This lesson introduces how hormones target organs with recognition sites. The pituitary, hypothalamus, pineal, thyroid, parathyroid, and thymus glands are explored. Students learn the pancreas is the only organ to hold both endocrine and exocrine functions and male and female organs are discussed.</p>		<ul style="list-style-type: none"> •Identify the anatomical structures and the functions of the endocrine system •Describe selected endocrine system diseases and disorders
<p>Lesson 15: The Endocrine System, Part 2 This lesson continues to explore hormones. The pituitary, hypothalamus, pineal, thyroid, parathyroid, and thymus glands are explored further as well as the male and female organs.</p>	HS-LS1-2	<ul style="list-style-type: none"> •Identify the anatomical structures and the functions of the endocrine system •Describe selected endocrine system diseases and disorders •Explain how the endocrine system contributes to the homeostasis of the body
<p>Lesson 16: The Female Reproductive System In this lesson, students learn about the complexity of the female reproductive system including the menstrual cycle and childbirth.</p>		<ul style="list-style-type: none"> •Identify the anatomical structures of the female reproductive system •Describe selected female reproductive system diseases and disorders •Describe issues and changes related to the reproductive system at different points in the lifespan •Explain the menstrual cycle and the physiology of reproduction
<p>Lesson 17: The Male Reproductive System This lesson is a continuation of the previous. Students study the male reproductive system.</p>		<ul style="list-style-type: none"> •Identify the anatomical structures of the male reproductive system •Describe selected male reproductive system diseases and disorders •Describe issues and changes related to the reproductive system at different points in the lifespan
<p>Lesson 18: Anatomy and Physiology Final Exam Students demonstrate their understanding of the topics studied in this course.</p>		<ul style="list-style-type: none"> •Complete the final exam