Effective Date: 2008-2009

Hamburg Area School District

Name of Course: Anatomy & Physiology
Department: Science

Grade Level: 10 - 12
Instructional Time: One period
Length of Course: Full Year
Period Per Cycle: 6
Length of Period: 42 min.

Texts and Resources:
The Human Body in Health & Disease
Memmler et. al.
Lippincott, Williams & Wilkins

Assessments:
Tests
Quizzes
Laboratory Reports
Projects

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Course Name: Anatomy & Physiology
Unit: Organization of the Human Body **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are anatomy, physiology and pathology?	-Define anatomy, physiology and pathology. -Explain how knowledge of this subject area relates to real life experiences.	S11.A.3.3.1
How is the human body organized?	-Describe organization within the body from the chemical level to the whole organism. -Differentiate between the functions of the ten body systems.	S.11.B.1.1.1
What are the main directional terms in the body?	-List and define the main directional terms and planes of the body. -Name the subdivisions of the ventral and dorsal cavity. -Perform an autopsy on a dill pickle. -Write an autopsy report using the directional terms of the body.	S.11.B.1.1.2
What is metabolism?	-Differentiate between anabolic and catabolic reactions. -Demonstrate how muscle fatigue is related to work output.	S11.A.1.3.1 S11.A.3.1.2 S11.A.1.3.2 S11.A.3.1.3 S11.A.2.1.3 S11.A.3.1.4 S11.A.2.1.5 S.11.B.1.3.3 S.11.B.3.1.5

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Course Name: Anatomy & Physiology
Unit: Cells and Their Functions **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are the functions of the main organelles in the cell?	-Differentiate between the functions of the cell organelles. -Describe how organisms work together to complete a task.	S11.A.1.1.5
How do cells make proteins?	-Assemble a series of cards to demonstrate transcription and translation. -Contrast transcription and translation. -Explain the importance of protein synthesis in genetic engineering.	S11.B.1.1.3 S11.B.2.1.2 S11.B.2.1.3 S11.B.2.2.2
What are the stages of cell division?	-Explain the importance of the cell cycle. -Differentiate between the different stages of mitosis using an onion root tip slide.	S11.B.1.1.3 S11.B.2.2.2
How does osmosis affect cells?	-Explain how a cell reacts to a hypertonic, hypotonic and isotonic solution. -Evaluate glucose solutions to determine isotonicity.	S.11.A.2.1.2

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Course Name: Anatomy & Physiology
Unit: Tissues, Glands & Membranes **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are the four main groups of tissues?	-Identify the main tissue groups with respect to structure and function. -Contrast the functions of the main groups of tissues	S11.A.1.1.5 S11.B.1.1.1
Can you identify examples of tissues?	-Locate the tissue samples using prepared slides. -Differentiate between the examples of the four main groups of tissues using prepared slides.	S11.A.3.3.1 S11.A.3.3.2 S11.B.1.1.1
What are glands?	-Describe the differences between endocrine and exocrine glands with respect to structure, function and location.	S11.A.3.3.2 S11.B.1.1.1
Why are membranes important?	-Differentiate between the various membranes with respect to location.	S11.A.3.3.2 S11.B.1.1.1

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Course Name: Anatomy & Physiology
Unit: The Skin and its Appendages **Time Line: 2 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are the layers of the skin?	-Differentiate between the epidermis, dermis and subcutaneous with respects to the structures they contain.	S11.A.1.1.5 S11.A.3.2.1
What are the functions of the skin layers and their associated structures?	-Identify the associated structures of the skin. -Contrast the functions of the associated structures of the skin.	S11.A.1.1.5 S11.B.1.1.2 S11.A.3.2.1 S11.A.3.3.1 S11.B.1.1.1
What are the main disorders of the skin?	-Evaluate symptoms to diagnose common skin disorders. -Discuss ways to prevent skin disorders from occurring.	S11.A.1.1.5 S11.A.1.3.2 S11.A.2.3.1 S11.A.3.1.3
How can you identify the various forms of skin cancer?	-Examine various moles to determine suspicious moles. -Discuss ways to prevent skin cancer from occurring.	S11.A.1.1.5 S11.A.1.3.2 S11.A.2.3.1 S11.A.3.1.3

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Course Name: Anatomy & Physiology
Unit: The Skeleton, Bones and Joints **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
Why are bones important?	-Explain the functions of bones. -Differentiate between compact and spongy bone with respect to structure and function. -Differentiate between red and yellow matter with respect to location and function. -Examine a long bone and identify the main parts.	S11.A.3.3.2 S11.B.1.1.1
What are the bones of the human body?	-Identify the main bones of the human body. -Compare and contrast human and fetal pig bones.	S11.A.3.3.1 S11.A.3.3.2 S11.B.1.1.1 S11.B.1.1.2
How are the different types of articulations related to their locations and functions?	-Differentiate between synarthroses, diarthroses and amphiarthroses with respect to location and direction of movement.	S11.A.3.3.2 S11.B.1.1.1
What are some common disorders of the skeletal system?	-Predict some common skeletal system disorders when given symptoms.	S11.A.3.1.2 S11.A.3.1.3 S11.B.1.1.2

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Course Name: Anatomy & Physiology
Unit: The Muscular System **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are the three types of muscle tissue?	-Identify the three types of muscle tissue. -Differentiate between the three types of muscle tissue with respect to their function.	S11.A.3.3.2 S11.B.1.1.1
How does a muscle contract?	-Identify the substances needed for a muscle contraction. -Explain how a muscle contracts. -Test rabbit muscle to determine the chemicals necessary for contraction.	S11.3.3.1 S11.A.3.3.2 S11.B.1.1.1 S11.B.1.1.2
What are the major muscles of the body?	-Locate the major muscles of the human body. -Compare and contrast human and fetal pig muscles.	S11.A.3.1.2 S11.B.1.1.1 S11.B.1.1.3
What are some common muscular disorders?	-Predict common muscle disorders when given symptoms.	S11.A.3.1.2 S11.A.3.1.3 S11.B.1.1.2

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Course Name: Anatomy & Physiology
Unit: The Digestive System **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
How does digestion occur?	-Describe the organs of the digestive tract. -Compare the digestive organs of the human with those of the fetal pig. -Contrast mechanical and chemical digestion. -Demonstrate chemical and mechanical digestion in the mouth. -Differentiate between the digestive enzymes and how they function.	S11.A.3.3.1 S11.B.1.1.1 S11.B.1.1.2 S11.B.1.1.3
How does absorption occur?	-Explain how villi and lacteals function in digestion.	S11.B.1.1.3
What are some major digestive system disorders?	-Predict common digestive system disorders when given a list of symptoms.	S11.A.3.1.2 S11.A.3.1.3 S11.B.1.1.2

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Course Name: Anatomy & Physiology
Unit: The Urinary System **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
How is urine produced?	- Describe the parts of the urinary system. - Compare and contrast human and fetal pig urinary tract organs.	S11.B.1.1.1 S11.B.1.1.2
How does a nephron function?	- Design a kidney model to demonstrate reabsorption. - Trace a drop of blood as it is purified in the nephron.	S11.B.1.1.1 S11.B.1.1.3 S11.A.3.1.1
What are some common disorders of the urinary system?	- Predict common urinary system disorders. - List six signs of common renal failure.	S11.B.1.1.2 S11.A.3.1.2
Why is urinalysis important?	-Analyze urine samples -Predict metabolic disorders using urinalysis.	S11.A.1.3.1 S11.A.1.3.2 S11.A.2.1.3 S11.A.3.1.3

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Course Name: Anatomy & Physiology
Unit: The Reproductive System **Time Line: 4 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are the organs of the male and female reproductive systems?	-Identify the male and female reproductive organs. -Compare and contrast human and fetal pig reproductive organs.	S11.B.1.1.1 S11.B.1.1.2
How do hormones assist in reproduction?	-Distinguish between male and female reproductive hormones. -Estimate when major events occur in the average menstrual cycle.	S11.A.1.3.2 S11.A.2.1.3
What are the major disorders of the male and female reproductive systems?	-Predict some common reproductive system disorders when given symptoms.	S11.B.1.1.2 S11.A.3.1.2 S11.A.1.3.2

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Course Name: Anatomy & Physiology
Unit: The Heart and Circulation **Time Line: 3 Cycles**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
How does the heart work?	-Trace the path of a drop of blood through the heart. -Compare the human heart with the fetal pig heart.	S11.A.3.3.1 S11.B.1.1.1 S11.B.1.1.2
What are some common heart and circulatory diseases?	-Describe several types of heart disease. -Predict the effect several common factors have on blood pressure.	S11.A.1.3.1 S11.A.1.3.2
What are the major vessels of circulation?	-Differentiate between the three main types of blood vessels with regard to structure and function. -Name the main vessels that drain into the superior and inferior vena cava.	S11.A.3.1.2
How does blood circulate through the body?	-Trace the path of a drop of blood through the human body. -Differentiate between human circulation and fetal pig circulation.	S11.A.3.3.1 S11.B.1.1.1 S11.B.1.1.2

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Course Name: Anatomy & Physiology
Unit: Medical Terminology **Time Line: On-going**

Essential Content/ Essential Questions	Performance Objectives	Standards/Anchors
What are the definitions of some common prefixes and suffixes used in medical terminology?	-Identify the meaning of common medical prefixes and suffixes. -Construct words using common medical prefixes and suffixes.	R11.A.2.1
How can I determine the meanings of common medical terms?	-Analyze common medical terms to determine their meanings.	R11.A.2.1