EAST PENN SCHOOL DISTRICT

Human Anatomy
July 14, 2025

Human Anatomy Unit 1 - Human Body Orientation

STAGE 1 | DESIRED RESULTS
Context and relevance for student learning

Standards

3.1.9-12.B Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

3.1.9-12.C Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Transfer

Students will be able to independently use their learning to...(make purpose-takeaway in 5 years)

- ☐ Approach science as a reliable and tentative way of knowing and explaining the natural world and designed world.
- ☐ Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions.
- ☐ Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions.
- ☐ Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system.
- ☐ Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences.

Meaning

UNDERSTANDINGS
Students will understand that...

- ☐ Organisms have characteristic structures which enable functions and behaviors that allow them to grow, reproduce, and die
- ☐ The structures, functions, and behaviors of organisms allow them to obtain, use, transport, and remove the matter and energy needed to live.

ESSENTIAL QUESTIONS
Students will keep considering...

- ☐ How do the structures of organisms enable life's functions?

Acquisition(need to align with above and standards)

Students will know...

- ☐ Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.
- ☐ Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and

Students will be skilled at...

- ☐ Navigating a model of the human body and analyzing its hierarchical structural organization as they relate to biological systems.
- ☐ Planning and carrying out investigations to collect data to serve as the basis for evidence

	functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.	to evaluate the effects of exercise on homeostasis. ☐ Designing a model and manipulating it to illustrate planes, cavities, and directional terms. ☐ Communicating and following directives through the use of correct directional and regional terms. ☐ Proposing techniques for diagnosing homeostatic imbalances. ☐ Analyzing and interpreting feedback mechanisms which help living things maintain homeostasis. ☐ Identifying, comparing, and making inferences between the four types of tissues (epithelial, connective, muscle, nervous) and their functions based upon observations of cell shape, extracellular components and location.

Human Anatomy Unit 2 - Histology and Cancer

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

3.1.9-12.A Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.

3.1.9-12.B Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Transfer

Students will be able to independently use their learning to...(make purpose-takeaway in 5 years)

- ☐ Approach science as a reliable and tentative way of knowing and explaining the natural world and designed world.
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Meaning

UNDERSTANDINGS

Students will understand that...

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ESSENTIAL QUESTIONS

Students will keep considering...

- ☐ How do the structures of organisms enable life's functions?

Acquisition(need to align with above and standards)

Students will know...

- ☐ Systems of specialized cells within organisms help them perform the essential functions of life.
- ☐ All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells.

Students will be skilled at...

- ☐ Identifying, comparing, and making inferences between the four types of tissues (epithelial, connective, muscle, nervous) and their functions based upon observations of cell shape, extracellular components and location.
- ☐ Construct an explanation for the progression of cancer starting with possible causes through malignancy and metastasis.
- ☐ Investigate and engage in arguments about the advantages and disadvantages of available cancer treatments.

Human Anatomy Unit 3 - Integumary System

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

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3.1.9-12.B Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

3.1.9-12.C Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Transfer

Students will be able to independently use their learning to...(make purpose-takeaway in 5 years)

- ☐ Approach science as a reliable and tentative way of knowing and explaining the natural world and designed world.
- ☐ Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions.
- ☐ Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions.
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Students will keep considering...

- ☐ How do the structures of organisms enable life's functions?

Acquisition(need to align with above and standards)

Students will know...

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- ☐ All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells.
- ☐ Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.
- ☐ Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or

Students will be skilled at...

- ☐ Using models to classify the body's four types of body membranes (cutaneous, serous, mucous, synovial) according to their structure and functions.
- ☐ Engaging in arguments from evidence about the physiological need for specific cells (keratinocytes & melanocytes) and structures such as hair, nails, and glands.
- ☐ Evaluating how different degrees of burns may have various causes that may not have equal effects on homeostasis.
- ☐ Criticallically read scientific literature to determine the central ideas to summarize types, diagnostic techniques, and treatments for skin cancer.

	discourage (negative feedback) what is going on inside the living system.	☐ Construct an explanation for the progression of skin cancer starting with possible causes through malignancy and metastasis. ☐ Investigate and engage in arguments about the advantages and disadvantages of available skin cancer treatments.

Human Anatomy Unit 4 - Skeletal System

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

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3.1.9-12.B Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

3.1.9-12.C Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Transfer

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- ☐ Approach science as a reliable and tentative way of knowing and explaining the natural world and designed world.
- ☐ Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions.
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Students will be skilled at...

- ☐ Developing and using models to illustrate microscopic and gross anatomical structures of a bone.
- ☐ Illustrating bone growth & remodeling with respect to the role specialized cells play in fracture repair.
- ☐ Explaining the importance of how surface markings and ancillary structures (ligaments, cartilage, bursae, menisci, tendons) are essential in articulations and skeletal movements.
- ☐ Analyzing & exploring homeostatic imbalances related to the skeletal system.

Human Anatomy Unit 5 - Muscular System

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3.1.9-12.B Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

3.1.9-12.C Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Transfer

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- ☐ All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells.
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- ☐ Feedback mechanisms maintain a living system's internal conditions within certain limits and

Students will be skilled at...

- ☐ Developing and using models to illustrate the microscopic and macroscopic anatomy & physiology of the muscles of the body.
- ☐ Identifying, comparing, and making inferences between the three types of muscle tissues and their functions based upon observations of cell shape, anatomy and location.
- ☐ Identifying specific muscles based on origin, insertion and/or actions.
- ☐ Analyzing & exploring homeostatic imbalances related to the muscle system.

	mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.	

Human Anatomy Unit 6 - Nervous System

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Context and relevance for student learning

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3.1.9-12.B Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

3.1.9-12.C Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

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Students will be skilled at...

- ☐ Developing and using models to illustrate the microscopic and macroscopic anatomy & physiology of the central & peripheral nervous systems.
- ☐ Understanding the physiology of reflex arcs & synaptic transmission between neurons.
- ☐ Analyzing & exploring homeostatic imbalances related to the nervous system.

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Human Anatomy Unit 7 - Cardiovascular System

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Students will be skilled at...

- ☐ Developing and using models to illustrate the microscopic and macroscopic anatomy & physiology of the cardiovascular system.
- ☐ Differentiate the anatomy & physiology of the heart, blood, arteries & veins.
- ☐ Making connections & predictions between fitness and the cardiac cycle.
- ☐ Tracing the flow of blood through the major vessels of the heart, body and lungs.
- ☐ Analyzing & exploring homeostatic imbalances related to the cardiovascular system.

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Human Anatomy Unit 8 - Respiratory System

STAGE 1 | DESIRED RESULTS

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- ☐ Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.
- ☐ Feedback mechanisms maintain a living system's internal conditions within certain limits and

Students will be skilled at...

- ☐ Developing and using models to illustrate the microscopic and macroscopic anatomy & physiology of the respiratory system.
- ☐ Differentiate the anatomy & physiology of the lungs.
- ☐ Analyze the mechanics of breathing and lung capacity.
- ☐ Trace the steps of respiration chronologically from pulmonary ventilation inhalation to pulmonary ventilation exhalation.
- ☐ Analyzing & exploring homeostatic imbalances related to the cardiovascular system.

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