



School District of Horicon

Course Outline

Learning Targets

Anatomy and Physiology

UNIT: Chemistry

Students will know:

- Analyze what it is about the element carbon that makes it a versatile part of our biochemistry.
- Differentiate between ionic, covalent and hydrogen bonds.

Students will be skilled at:

- Create a Bohr Model of an element with the correct number of protons, neutrons and electrons.
- Connect the Periodic Table of Elements to atomic #, mass as well as proton, electron and neutron # of individual elements.

UNIT: Biochemistry

Students will know:

- Analyze the simplicity of nucleic acids and how they make the complex DNA molecule.
- Connect anabolic steroids to lipids.
- Synthesize polysaccharides and starches from monosaccharides.
- Connect enzymes to proteins and apply how enzymes control biological functions.

Students will be skilled at:

- Critique fad diets or diet supplements to analyze their safety.
- Create the many proteins of the body from 20 amino acids.
- Apply concepts to demonstrate how all our biomolecules are created from building blocks called monomers used to create polymers.

UNIT: Skeletal System

Students will know:

- Analyze a skeleton and identify the bones on that skeleton.
- Analyze a bone and locate the layers and where the bone marrow is and why it is important.
- Connect a discovered bone and determine the age of the person based on structure, skull, marrow and epiphyseal plate.

Students will be skilled at:

- Create an exercise video that shows the types of body movements, joints, bones and muscles being moved.
- Create a model of the microscopic and macroscopic bone structures.

UNIT: Muscular System

Students will know:

- Compare the 3 types of muscles.
- Synthesize a muscle using the types of muscle fibers.
- Connect certain muscular conditions to why we need a tetanus shot every 10 years.
- Critique the use of supplements like creatine and botox and why to avoid them.

Students will be skilled at:

- Create workouts in the weight room with understanding of how to get the most out of them.
- Analyze pairs of muscles and show their coordination in movements.
- Create quick twitch and slow twitch muscle fibers.

UNIT: Nervous System

Students will know:

- Revise previous ideas about the brain with current understanding.
- Connect how the central nervous system and peripheral nervous system interact.
- Design a model of a neuron with all of its parts with an understanding of what those parts do.

Students will be skilled at:

- Connect parts of the brain from diagrams to an actual brain during dissection.
- Create a pathway from sensory neurons to the spinal cord and back to motor neurons.

UNIT: Cardiovascular System

Students will know:

- Connect how veins, arteries and capillaries interact during circulation.
- Analyze the heart and identify the chambers and major blood vessels.
- Differentiate between the 3 different types of blood cells.

Students will be skilled at:

- Construct a map of the human body as you trace a drop of blood from the atrium and back to the same atrium after its circuit.

UNIT: Respiratory System

Students will know:

- Apply concepts learned in physics to understand the process of inhaling and exhaling has to do with pressure and volume.
- Model the respiratory system from the trachea to the branching system into the lungs.

Students will be skilled at:

- Create a model of gas exchange process in humans, where oxygen is taken in, consumed and CO₂ is produced and removed.
- Connect the structures and functions of the respiratory system by tracing a breath from outside the body, through the respiratory system and back out the body.

UNIT: CSI

Students will know:

- Analyze blood typing techniques.
- Analyze a crime scene.

Students will be skilled at:

- Analyze blood splatter.
- Prove blood types.
- Create Microscope slides.
- Apply microscope techniques.
- Design crime scenes with evidence to analyze.
- Critique testimony.
- Synthesize and compare fingerprints.

UNIT: Medicine

Students will know:

- Analyze blood typing techniques.
- Apply concepts learned about the body to identify medical conditions.

Students will be skilled at:

- Prove blood types.
- Create Microscope slides.
- Apply microscope techniques.

Students will be able to meet the learning targets above as evidenced by formative and summative classroom assessments.