

Unit # - 3 – Human Body Systems

Standards Addressed	Student Learning Objectives For this Unit	Content Skills and Knowledge	Learning Activities and Instructional Strategies
<p>NSES Standards: Structure & Function in Living Things Science as Inquiry Science & Technology Science in Personal and Social Perspective</p> <p>PA STEE Standards: 3.2.7.A (sci. k) 3.2.7.B (app k) 3.3.7.B (str funct) 3.4.7.B (e ht trn) 3.1.7.B (models) 3.7.7.B (instr)</p> <p>1.2 Read Critically 1.4 Writing 1.8 Presentation</p>	<p>Students will be able to...</p> <p>Part 1: Body Organization and Structure (2.5 weeks)</p> <ul style="list-style-type: none"> ▪ Identify the major tissue found in the body ▪ Compare an organ with an organ system ▪ Describe the major function of each organ ▪ Identify the major organs of the skeletal system ▪ Describe the function of bones ▪ Illustrate the internal structure of bones ▪ Compare three types of joints and discuss how bones function as levers ▪ List the major parts of the muscular system ▪ <i>Compare aerobic exercise with resistance exercise</i> ▪ <i>Give an example of a muscle injury</i> ▪ Describe the major functions of the integumentary system ▪ List the major parts of the skin and discuss their functions ▪ <i>Describe some common types of damage to the skin</i> <p>Part 2: Circulation and Respiration (2 weeks)</p> <ul style="list-style-type: none"> ▪ Describe the functions of the cardiovascular system ▪ Compare and contrast 3 types of blood vessels ▪ Describe the path that blood travels as it circulates ▪ <i>Identify cardiac disorders</i> ▪ Describe the flow of air through the respiratory system ▪ Discuss the relationship between respiratory and cardiovascular system. ▪ <i>Identify respiratory disorders</i> 	<p>Part 1:</p> <p>Knowledge Homeostasis Epithelial tissue, nervous tissue, muscle tissue, connective tissue Skeletal system Compact and spongy bone, cartilage, joint and ligament Smooth, cardiac, and skeletal muscle Tendon Sweat glands, melanin Epidermis and dermis</p> <p>Skills Measure lung capacity</p> <p>Part 2:</p> <p>Knowledge Arteries, capillaries, veins Pulmonary and systemic circulation Blood pressure Respiration Pharynx, larynx Trachea, bronchi, and alveoli</p> <p>Skills Measure and analyze heart rate Measure lung capacity</p>	<p>Part 1:</p> <p>Lab or Demonstration: Use of Models as much as possible Seeing is Believing</p> <p>Reading: Muscle Map The Tissue Engineering Debate</p> <p>Worksheet: Directed Reading Worksheet Science Puzzlers, Twisters and Teasers</p> <p>Technology: BBC The Organs Game http://www.bbc.co.uk/science/humanbody/body/interactives/3djigsaw_02/index.shtml?organs</p> <p>Part 2:</p> <p>Lab or Demonstration: Get the Beat!</p> <p>Reading: The Rat Workout</p> <p>Worksheet: Colors of the Heart</p> <p>Technology: Habits of the Heart http://www.smm.org/heart/</p>

Unit # - 1 Human Body Systems

Standards Addressed	Student Learning Objectives for this Unit	Content Skills and Knowledge	Learning Activities and Instructional Strategies
<p>NSES Standards: Structure & Function in Living Things Science as Inquiry Science & Technology</p> <p>PA STEE Standards: 3.2.7.A (sci. k) 3.2.7.B (app k) 3.3.7.B (str funct) 3.4.7.B (e ht trn) 3.1.7.B (models) 3.7.7.B (instr)</p> <p>1.2 Read Critically 1.4 Writing 1.8 Presentation</p>	<p>Part 3: The Digestive System (1.5 weeks)</p> <ul style="list-style-type: none"> ▪ Describe the parts and functions of the digestive system ▪ Compare mechanical and chemical digestion ▪ Describe some disorders of the digestive system <p>Developmental Notes for this Unit:</p> <ul style="list-style-type: none"> ▪ All topics should be taught on a conceptual level <ul style="list-style-type: none"> ○ Don't go into mind-numbing, easily forgotten, structural details at this level (middle school) ▪ Consider the focus of these 4 questions: <ul style="list-style-type: none"> ○ What is the purpose of the system? ○ How does it work? (on a conceptual level) <ul style="list-style-type: none"> ▪ Urinary system removes waste ▪ Lungs absorb oxygen and release CO₂ ○ What can go wrong? (1 or 2 relevant examples), Students love these! ○ How can we protect this system? ▪ Measure and collect data where appropriate <ul style="list-style-type: none"> ○ Example: EKG with Vernier probe ○ Solar beads lab ▪ Make connections to previous learning <ul style="list-style-type: none"> ○ Simple Machine and joints ○ Chemical Digestion and Chemistry ○ 	<p>Part 3:</p> <p>Knowledge Esophagus, stomach, small intestine Pancreas, liver, gallbladder, large intestine</p> <p>Skills Be able to analyze different malfunctions of the digestive system</p>	<p>Part 3:</p> <p>Lab or Demonstration: Liver Let Live</p> <p>Reading: Directed Reading Worksheet</p> <p>Worksheet: Digestive Disorder</p> <p>Technology: EverWonderedFood (BBC) http://www.open2.net/everwondered_food/science/science_digestion.htm#</p>

Unit # - 3 – Human Body Systems

Unit Modifications

- Body Organization :
 - Directed Reading Worksheet
 - Vocabulary and Notes Worksheet
- The Hipbone's Connected to the...
- Muscle Map
- Circulation and Respiration
 - Directed Reading Worksheet
 - Vocabulary and Notes Worksheet
- The Digestive System
 - Directed Reading Worksheet

Unit Enrichments

- BBC The Organs Game
 - http://www.bbc.co.uk/science/humanbody/body/interactives/3djigsaw_02/index.shtml?organs
- Body Organization & Structure
 - Science Puzzlers, Twisters and Teasers
- A Connective Crossword

Suggested Assessment Techniques for Unit

Core 1: Performance Assessment: Alien ph (Chemistry)

Core 2: Performance Assessment: Trouble in Flume Country (Forces and Motion)

Core 3: Unit Assessment: Human Body Systems

Materials/Technology for Unit

- Vernier: EKG Senors
- BBC The Organs Game
 - http://www.bbc.co.uk/science/humanbody/body/interactives/3djigsaw_02/index.shtml?organs
- Habits of the Heart
 - <http://www.smm.org/heart/>
- EverWonderedFood (BBC)
 - http://www.open2.net/everwondered_food/science/science_digestion.htm#