# 2014-2015 Curriculum Blueprint

**Grade: 11 & 12**

**HS Anatomy and Physiology**

## Unit 1: Lab Safety, Class Procedures, Review of Scientific Method

<table>
<thead>
<tr>
<th>Instructional Focus Benchmarks</th>
<th>Learning Goal: At the end of the topic, students will be familiar with their classroom, understand the lab safety procedures and by able to apply the scientific method to a problem.</th>
</tr>
</thead>
</table>
| **The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.** | **Objectives:** The Students will be able to:  
- explain the need for common lab safety procedures in a science lab  
- apply the scientific method to a problem they are trying to solve. |
| **Key Vocabulary:** Hypothesis, inference, investigation, variable | **Benchmarks/Standards**  
**Supporting LAFS and MAFS Standards (as required by course description)**  
**SC.912.N.1.1:** Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics and earth/space science, and do the following:  
1. pose questions about the natural world  
2. conduct systematic observations  
3. examine books and other sources of information to see what is already known  
4. review what is known in the light of empirical evidence  
5. plan investigations  
6. Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables, and graphs)  
7. pose answers, explanations or descriptions of events  
8. generate explanations that explicate or describe natural phenomena (inferences)  
9. use appropriate evidence and reasoning to justify these explanations to others. |
| **Essential Content & Understanding:** | **Essential Questions:**  
- Why do we have lab safety procedures in the place in a lab?  
- What steps are used to solve a problem in science? |
| **Essential Content & Understanding:** | **Resources/Links:**  
Pacific Tree Octopus Website (analyzing data as real or fake.)  
Lab Safety contract and quiz  
**Supplemental Resources:**  
Lab Safety Cartoon  
Scientific Method Scenarios  
Several Scientific Method Resources  
**Writing Links:**  
Scientific Method Flow Chart  
**Higher Order Questioning**  
Template for writing Questions  
**Remediation & Enrichment Resources** |
### 2014-2015 Curriculum Blueprint

**Grade: 11 & 12**

**HS Anatomy and Physiology**

**Unit 1: Lab Safety, Class Procedures, Review of Scientific Method**

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>10. communicate results of scientific investigations</td>
<td></td>
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<tr>
<td>11. evaluate the merits of explanations produced by others</td>
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</tbody>
</table>

**SC.912.N.1.2:** Describe and explain what characterizes science and its methods.
### Instructional Focus Benchmarks

The benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

### Key Vocabulary:
- Anatomical position
- Anatomy
- Physiology
- Negative feedback mechanisms
- Positive feedback mechanisms

### Learning Goal:
At the end of this unit, students will have an understanding of the organization and terms of the body, the needs the body requires for survival, and how the body controls homeostasis.

### Objectives:
The students will be able to:
- Explain the organization of the body.
- Analyze various needs and requirements of the body.
- Identify control mechanisms in the body as positive or negative.
- Refer to the parts of the body by using proper anatomical terms.

### Benchmarks/Standards

<table>
<thead>
<tr>
<th>Supporting LAFS and MAFS Standards (as required by course description)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE.912.C.1.3: Evaluate how environment and personal health are interrelated.</td>
</tr>
<tr>
<td>HE.912.C.1.4: Analyze how heredity and family history can impact personal health.</td>
</tr>
</tbody>
</table>

### Essential Content & Understanding:

1. **Structural organization**
   - Cells → body systems
2. **Life functions and needs**
3. **Feedback loops**
4. **Anatomical terminology**

### Essential Questions:
- How is the body organized?
- What does the body do to maintain homeostasis?
- What terms are essential to understanding the anatomy of the human body?

### Resources/Links:
- Organ systems Concept Map
- Body Regions
- Supplemental Resources:
  - Medical Terminology
  - Feedback loops worksheet
  - Lab: Feedback Mechanisms

### Writing Links:
- Lab Report Template and rubric
- Higher Order Questioning Template for writing Questions

### Remediation & Enrichment Resource
- Relative Body Position On-line Activity
### 2014-2015 Curriculum Blueprint  
**Grade:** 11 & 12  
**HS Anatomy and Physiology**  
**Unit 3: Chemistry & Cells Overview (Biology review)**

<table>
<thead>
<tr>
<th>Instructional Focus Benchmarks</th>
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</thead>
<tbody>
<tr>
<td>The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.</td>
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</table>

<table>
<thead>
<tr>
<th>Key Vocabulary:</th>
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<tbody>
<tr>
<td>Cell, catalyst, enzyme, mutation,</td>
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</table>

**Learning Goal:** At the end of the unit students will be able to analyze the connections between the cell cycle and cancer, identify the role of enzymes and organic molecules in the human body.

**Objectives:** The Students will be able to:
- describe the structure and function of carbohydrates, proteins, lipids and nucleic acids.
- explain the relationship between mitosis and cancer.
- explain the role of enzymes in biological reactions and they will be able to explain the effects of pH and temperature on the rate of these reactions.

<table>
<thead>
<tr>
<th>Benchmarks/Standards</th>
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</thead>
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<td>Supporting LAFS and MAFS Standards (as required by course description)</td>
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</table>

**SC.912.L.16.8:** Explain the relationship between mutation, cell cycle and uncontrolled cell growth potentially resulting in cancer.

**SC.912.L.18.1:** Describe the basic molecular structures and primary functions of the four major categories of biological molecules.

**SC.912.L.18.11:** Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.

<table>
<thead>
<tr>
<th>Essential Content &amp; Understanding:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enzymes</td>
</tr>
<tr>
<td><strong>Role in chemical relations</strong></td>
</tr>
<tr>
<td><strong>Effects of pH and temperature on enzyme activity</strong></td>
</tr>
<tr>
<td>2. Organic molecules</td>
</tr>
<tr>
<td><strong>Carbohydrate, protein, lipid, nucleic acid (structure and function)</strong></td>
</tr>
<tr>
<td>3. Cells, Cell division &amp; Cancer</td>
</tr>
<tr>
<td><strong>Mutations—cell cycle—cancer</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Essential Questions:</th>
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</thead>
<tbody>
<tr>
<td>• How are chemical reactions controlled in the human body?</td>
</tr>
<tr>
<td>• What are the basic molecules that make up the human body? How do they work?</td>
</tr>
<tr>
<td>• Why is cancer a disease that can affect any living organism? Why is it so difficult to cure?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources/Links:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Cycle Labeling</td>
</tr>
<tr>
<td>Enzyme Labs using Jello</td>
</tr>
<tr>
<td>Macromolecule lesson plans</td>
</tr>
<tr>
<td>Supplemental Resources:</td>
</tr>
<tr>
<td><a href="http://www.cellsalive.com">www.cellsalive.com</a></td>
</tr>
<tr>
<td>On-line Enzyme Lab</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing Links:</th>
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</thead>
<tbody>
<tr>
<td>Higher Order Questioning</td>
</tr>
<tr>
<td>Template for writing Questions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remediation &amp; Enrichment Resources</th>
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</thead>
</table>
## Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

### Key Vocabulary:
- Tissues, histology, basement membrane, endocrine, exocrine

## Learning Goal:
Students will be able to identify the 4 major types of tissues and evaluate their function based on structure.

## Objectives: The Students will be able to:
- identify the four major types of tissues based on structure and function.
- describe the functions of each of the four major types of tissues.
- evaluate the structure of each tissue and how it relates to its function.

### Benchmarks/Standards
Supporting LAFS and MAFS Standards (as required by course description)

- **SC.912.L.14.11:** Classify and state the defining characteristics of epithelial tissue, connective tissue, muscle tissue, and nervous tissue.
- **SC.912.L.14.29:** Define the terms endocrine and exocrine.

### Essential Content & Understanding:

<table>
<thead>
<tr>
<th>Tissue Type</th>
<th>Structure and Function</th>
<th>Endocrine vs. exocrine tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epithelial Tissue</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Connective tissue</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Muscle Tissue</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Nervous Tissue</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

### Essential Questions:
How are structure and function related for each of the types of body tissues?

### Resources/Links:
- Concept Map for Tissues
- Supplemental Resources:
  - Tissue Chart
  - Connective Tissue Coloring
- Writing Links:
  - Higher Order Questioning
  - Template for writing Questions
- Remediation & Enrichment Resources
  - Virtual Tissue Lab
### Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

### Key Vocabulary:
Skin, integumentary system, keratin, melanin

### Learning Goal:
Students will identify the structure and functions of the various parts of the integumentary system.

### Objectives:
The Students will be able to:
- describe the structure and function of the body membranes.
- describe the structure of the integumentary system
- analyze the importance of the functions of the integumentary system.

### Benchmarks/Standards
**Supporting LAFS and MAFS Standards (as required by course description)**

**SC.912.L.14.51:** Describe the function of the vertebrate integumentary system.

### Essential Content & Understanding:

1. **Body membranes**
   - Epithelial
   - Cutaneous
   - Mucous
   - Serous

2. **Structure & function**
   - Skin
   - Hair
   - Nails

### Essential Questions:
- What are the different categories of membranes in the body?
- What is the purpose of the integumentary system?

### Resources/Links:
- Integumentary resources
- On-line textbook resources

### Supplemental Resources:
- Study Sets on Quizlet

### Writing Links:
**Research Skin Disorders or Skin Cancer**

### Higher Order Questioning
**Template for writing Questions**

### Remediation & Enrichment Resources
- On-line Skin diagram
# Unit 6: Skeletal System

## Learning Goal:
Students will be able to identify the bones of the human skeleton and describe the various functions of the bone tissue.

## Objectives:
The Students will be able to:
- identify the bones of the skeletal system.
- distinguish between the axial and appendicular bones.
- examine the histology of bone tissue.

## Essential Content & Understanding:

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
</table>
| 1.      | Anatomy & Function of bone
|         | Types and parts of a bone
|         | Functions: support, protection, movement, storage and blood cell formation |
| 2.      | Bone formation, growth & remodeling |
| 3.      | Axial Skeleton
|         | Identify major bones |
| 4.      | Appendicular Skeleton
|         | Identify major bones |

## Essential Questions:
- What are the various functions of the skeletal system?
- What tissues make up a bone?
- What bones belong to the axial skeleton?
- What bones belong to the appendicular skeleton?

## Resources/Links:
- On-line Textbook resources
- Bone Matrix Coloring Sheet
- The Mystery of Bones (webquest)
- SMART board Lesson
- Bones (TV show) Story Map
- Template for writing Questions
- Hand Bone Development Coloring Sheet
- On-line Interactive Skeleton
# 2014-2015 Curriculum Blueprint  
*Grade: 11 & 12*  
**HS Anatomy and Physiology**  
**Unit 7: Muscular System**

## Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

## Key Vocabulary:
- Muscle fibers
- Smooth muscle
- Skeletal muscle
- Cardiac muscle
- Tendon
- Neuromuscular junction
- Action potential
- Sarcomere

## Learning Goal:

Students will be able to identify muscles of the human body, describe the structure of the muscle tissue and explain how a muscle contracts.

## Objectives: The Students will be able to:

- Describe the anatomy of muscle tissue.
- Explain the steps of muscle contraction.
- Identify the way the nervous and muscular systems work together.
- Identify the major muscles of the human body.

## Essential Content & Understanding:

1. **Structure & function**
   - 3 types of muscles
   - Functions

2. **Muscle anatomy**
   - Microscopic make up of a skeletal muscle
   - Physiology of a skeletal muscle

3. **Muscle Contraction**
   - Sliding filament theory

4. **Muscle identification**
   - Identify major muscles on a model or diagram

5. **Myoneural Junction Transmission of a signal from a nerve to a muscle**

## Essential Questions:

- What are the functions of the muscular system?
- What are the parts of a muscle?
- How do the nervous and muscular systems communicate?
- How does a muscle contract?
- What are the major muscles of the body?

## Resources/Links:

**Textbook Resources**
- Sarcomere Coloring Page

**Supplemental Resources**
- Study guide for Muscle Structure
- Crossword Puzzle

**Writing Links**
- Higher Order Questioning Template for writing Questions

**Remediation & Enrichment Resources**
- On-line Muscle Tutorial
### 2014-2015 Curriculum Blueprint  
**Grade: 11 & 12**  
**HS Anatomy and Physiology**  
**Unit 8: Nervous System**

#### Learning Goal:
Students will be able to explain the various aspects of the nervous system and explain how they work together to control body functions and maintain homeostasis.

#### Objectives: The Students will be able to:
- describe the parts of the brain and their functions.
- explain nerve conduction.
- identify the various components of a reflex arc.
- describe the structure and function of the sense organs.

#### Key Vocabulary:
Nervous system, sensory, motor, neuroglia, neuron, nerve impulse, reflex, spinal cord

#### Instructional Focus Benchmarks
The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

#### Benchmarks/Standards
**Supporting LAFS and MAFS Standards (as required by course description)**

- **SC.912.L.14.21:** Describe the anatomy, histology, and physiology of the central and peripheral nervous systems and name the major divisions of the nervous system.
- **SC.912.L.14.23:** Identify the parts of a reflex arc.
- **SC.912.L.14.24:** Identify the general parts of a synapse and describe the physiology of signal transmission across a synapse.
- **SC.912.L.14.25:** Identify the major parts of a cross section through a spinal cord.
- **SC.912.L.14.26:** Identify the major parts of the brain on diagrams or models.
- **SC.912.L.14.28:** Identify the major functions of the spinal cord.
- **SC.912.L.14.29:** Identify the major functions associated with the sympathetic and parasympathetic nervous systems.

#### Essential Content & Understanding:

#### Essential Questions:
- What are the functions of the nervous system?
- How does the CNS and the PNS communicate with each other?
- What are the parts of the brain?
- What are the parts of the spinal cord?
- How are reflex arcs different from a regular nerve transmission?
- How is structure related to function in our sense organs?

#### Resources/Links:
- On-line Textbook resources
- Supplemental Resources: Neuron Labeling, Hemisphere Dominance Test, Sheep Brain Dissection Guide
- Writing Links: Higher Order Questioning, Template for writing Questions
- Remediation & Enrichment Resources: Article about Brain Injury (Phineas Gage)
**Researching Science Standards**

SC.912.L.14.50: Describe the structure of vertebrate sensory organs. Relate structure to function in vertebrate sensory systems.

<table>
<thead>
<tr>
<th><strong>Unit 8: Nervous System</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Division of nervous system</strong></td>
</tr>
<tr>
<td>- PNS</td>
</tr>
<tr>
<td>- CNS</td>
</tr>
<tr>
<td>- Autonomic</td>
</tr>
<tr>
<td>- Somatic</td>
</tr>
<tr>
<td>- Parasympathetic</td>
</tr>
<tr>
<td>- Sympathetic</td>
</tr>
<tr>
<td>- Motor</td>
</tr>
<tr>
<td>- Sensory</td>
</tr>
<tr>
<td><strong>2. CNS &amp; PNS</strong></td>
</tr>
<tr>
<td>- Types of cells in each</td>
</tr>
<tr>
<td>- Physiology of each</td>
</tr>
<tr>
<td><strong>3. Nerve impulse transmission</strong></td>
</tr>
<tr>
<td>- Parts of the synapse</td>
</tr>
<tr>
<td>- Transmission of a signal across a synapse</td>
</tr>
<tr>
<td><strong>4. Reflex arcs</strong></td>
</tr>
<tr>
<td>- Sensory receptor, effector organ, sensory and motor neurons, integration center</td>
</tr>
<tr>
<td><strong>5. Brain</strong></td>
</tr>
<tr>
<td>- Label the major parts</td>
</tr>
<tr>
<td><strong>6. Spinal Cord</strong></td>
</tr>
<tr>
<td>- Label the parts</td>
</tr>
<tr>
<td>- Functions</td>
</tr>
<tr>
<td><strong>7. Sense organs</strong></td>
</tr>
<tr>
<td>- Relate structure to function for each of the sense organs</td>
</tr>
</tbody>
</table>
### 2014-2015 Curriculum Blueprint  
**Grade:** 11 & 12  
**HS Anatomy and Physiology**  
**Unit 9: Endocrine System**

#### Learning Goal:
The students will be able to explain how the endocrine system works to control body processes and maintain homeostasis.

#### Objectives: The Students will be able to:
1. analyze the difference between endocrine and neural control systems.
2. identify and describe the anatomy and physiology of the endocrine system.

#### Key Vocabulary:
- Endocrine system
- Hormones

#### Essential Content & Understanding:
1. **Hormones**
   - Functions of the major hormones
   - Mechanisms of hormone action
2. **Endocrine control**
   - Compare endocrine and neural controls
3. **Identify endocrine glands on a diagram**

#### Essential Questions:
- How does endocrine control differ from neural control?
- What are the major glands of the endocrine system?
- What are the functions of the major hormones in the endocrine system?

#### Resources/Links:
- On-line Textbook Resources
- Supplemental Resources:  
  - Endocrine Concept Map  
  - Article: Corticosteroids
- Writing Links:  
  - Higher Order Questioning Template for writing Questions
- Remediation & Enrichment Resources:  
  - Endocrine Vocab Wordsearch Puzzle

#### Benchmarks/Standards

**Supporting LAFS and MAFS Standards** *(as required by course description)*

- **SC.912.L.14.29:** Define the terms endocrine and exocrine.
- **SC.912.L.14.30:** Compare endocrine and neural controls of physiology.
- **SC.912.L.14.32:** Describe the anatomy and physiology of the endocrine system.
### Learning Goal:
Students will be able to explain the composition of blood and the process of hemostasis.

### Objectives: The Students will be able to:
- describe the various components of blood.
- explain how coagulation occurs.
- examine the effects of mixing blood types.

### Key Vocabulary:
Blood, formed elements, hemoglobin, hemostasis, leukocytes, erythrocytes, platelets, antigen

### Instructional Focus Benchmarks
The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

### Benchmarks/Standards

#### Supporting LAFS and MAFS Standards (as required by course description)

**SC.912.L.14.34:** Describe the composition and physiology of blood, including that of the plasma and the formed elements.

**SC.912.L.14.35:** Describe the steps in hemostasis, including the mechanisms of coagulation. Include the basis for blood typing and transfusion reactions.

### Essential Content & Understanding:

1. Composition
   - Plasma and formed elements
2. Hemostasis
   - Steps of hemostasis
   - Mechanism of coagulation
3. Blood types
   - Process of blood typing
   - Transfusion reactions

### Essential Questions:
What components make up blood?
How does blood clot?
What makes up the different blood types?
What happens if a person gets the wrong type of blood?

### Resources/Links:
- On-line Textbook Resources
- Supplemental Resources:
  - Blood Cell Concept Map
  - Blood Disorders and Genetics
  - Blood Typing Genetics Problems
  - Writing Links:

### Higher Order Questioning
- Template for writing Questions

### Remediation & Enrichment Resources
- Blood Cell Crossword Puzzle
- On-line Learning: White Blood Cells
# 2014-2015 Curriculum Blueprint

**Grade: 11 & 12**  
**HS Anatomy and Physiology**  
**Unit 11: Circulatory System**

## Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

## Key Vocabulary:

Cardiovascular system, atria, ventricles, pacemaker, atherosclerosis

## Learning Goal:

Students will be able to explain how blood flows through the heart to deliver oxygen to the body's tissues and what factors can affect this blood flow.

## Objectives: The Students will be able to:

- describe the way that blood flows through the heart and the body including fetal circulation.
- analyze factors that affect blood flow.
- describe normal heart sounds.
- analyze factors that can lead to heart disease.

## Benchmarks/Standards

**Supporting LAFS and MAFS Standards (as required by course description)**

- **SC.912.L.14.36:** Describe the factors affecting blood flow through the cardiovascular system.
- **SC.912.L.14.38:** Describe normal heart sounds and what they mean.
- **SC.912.L.14.39:** Describe hypertension and some of the factors that produce it.
- **SC.912.L.14.41:** Describe fetal circulation and changes that occur to the circulatory system at birth.

## Essential Content & Understanding:

1. **Structure & Function**
   - Anatomy of the heart, blood vessels
2. **Blood flow**
   - Pathway through the heart
   - Factors that affect blood flow
3. **Physiology of circulation**
   - Heart sounds and what they mean
   - Hypertension and risk factors
4. **Fetal Circulation**

## Essential Questions:

How does blood flow through the body?  
What factors can affect blood flow?  
What makes the lub dub sounds of the heart and what do they mean?  
What factors cause hypertension?  
How is the fetal heart different?

## Resources/Links:

**On-line Textbook Resources**  
Heart Diagram

**Supplemental Resources:**

- Article: Cardiac Risk in the Young Lab: Measuring Blood Pressure  
- Sheep Heart Dissection

**Writing Links:**

Higher Order Questioning  
Template for writing Questions

**Remediation & Enrichment Resources**

Virtual Blood Pressure Lab
### Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/ Stimulus, and additional information.

### Key Vocabulary:

- Lymphatic system, edema, pathogens, phagocytes, inflammatory response, immune response, antibodies

### Learning Goal:

Students will understand the way the body defends itself against invading pathogens and they will analyze the value of biotechnology in understanding how disease is contracted and spread.

### Objectives:

The Students will be able to:

- explain the role of vaccines and antibiotics as it relates to public health.

### Benchmarks/Standards

**Supporting LAFS and MAFS Standards**  
(as required by course description)

**SC.912.L.14.42:** Describe the anatomy and the physiology of the lymph system.

**SC.912.L.14.52:** Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines and antibiotics.

**HE.912.C.1.3:** Evaluate how environment and personal health are interrelated.

### Essential Content & Understanding:

1. Nonspecific body defenses
   - Skin
   - Mucous membranes
   - Secretions
   - Phagocytes
   - Antimicrobial proteins
   - Inflammatory response
2. Specific body defenses
   - Lymphocytes
   - Antibodies
   - Macrophages
3. Lymphatic structure & function
   - Major organs
   - Function and composition of lymph
4. Vaccines & antibiotics

### Essential Questions:

- How does your body protect itself each day from pathogens?
- How does your body protect itself from specific antigens?
- What are the functions of the lymphatic system?
- How do vaccines and antibiotics help to keep the general public healthy?

### Resources/Links:

- On-line Textbook Resources
- Supplemental Resources:
  - Lab: Spread of Disease and Population Growth
  - HIV Worksheet
- Writing Links:
  - Higher Order Questioning Template for writing Questions
- Remediation & Enrichment Resources
  - Activity: Operation Antibody (Discovery School)
### Learning Goal:
At the end of this unit, students will be able to describe the structure of the respiratory system and explain the various processes involved in respiration.

### Objectives: The Students will be able to:
- identify the organs of the respiratory system.
- explain the processes of respiration...
  - Pulmonary ventilation
  - Internal respiration
  - External respiration
  - Gas transport

### Key Vocabulary:
- Respiratory system, alveoli, external respiration, internal respiration, diaphragm, eupnea

### Benchmarks/Standards
**Supporting LAFS and MAFS Standards (as required by course description)**

**SC.912.L.14.44:** Describe the physiology of the respiratory system including the mechanisms of ventilation, gas exchange, gas transport and the mechanisms that control the rate of ventilation.

### Essential Content & Understanding:
1. Organs of the respiratory system
2. Respiratory physiology
   - ventilation
   - Gas exchange
   - Gas transport
   - Mechanisms that control ventilation

### Essential Questions:
- What are the major organs of the respiratory system?
- What are the processes that make you breathe?
- How is oxygen transported and exchanged within the body?

### Resources/Links:
- **On-line Textbook Resources**
- **Supplemental Resources:**
  - Study Guide for the Respiratory System
  - Lab: Breathing and Holding Your Breath
  - Lab: Vital Capacity with a Balloon
- **Writing Links:**
  - Higher Order Questioning
    - Template for writing Questions
- **Remediation & Enrichment Resources**
### Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

### Learning Goal:
At the end of this unit, students will be able to identify the structure and function of the human digestive system.

### Objectives: The Students will be able to:
- describe the structure and function of the digestive system.
- explain the process of digestion and how it is controlled.

### Key Vocabulary:
- Digestive system
- Alimentary canal
- Peristalsis
- Absorption

### Benchmarks/Standards

**Supporting LAFS and MAFS Standards (as required by course description)**

**SC.912.L.14.46:** Describe the physiology of the digestive system, including mechanical digestion, chemical digestion, absorption and the neural and hormonal mechanisms of control.

### Essential Content & Understanding:

1. **Structure & Function**
   - Histology
   - Alimentary canal
   - Accessory organs

2. **Mechanical & chemical digestion, absorption**
   - Location of each process
   - Describe how each process works to digest food and supply the body with nutrients

3. **Hormonal/neural controls of digestion**

### Essential Questions:
- What are the major organs of the digestive system?
- How is your food actually digested and absorbed?
- How is the digestive process controlled hormonally and neurally?

### Resources/Links:
- On-line Textbook Resources
- Activities: What happens when you eat?
- Supplemental Resources:
  - Concept Map
  - Study Guide for the Digestive System
  - Lab: Building a Model
- Writing Links:
  - Design a Theme Park: Gastro World

### Higher Order Questioning
- Template for writing Questions

### Remediation & Enrichment Resources
## HS Anatomy and Physiology
### Unit 15: Urinary System

#### Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

#### Key Vocabulary:
- Kidney, nephron, urinary system, urea

#### Learning Goal:
At the end of this unit, the students will be able to explain how urine is formed and the kidney's role in maintaining homeostasis.
- identify the basic anatomy of the urinary system.
- explain the process of urine formation.

#### Benchmarks/Standards

**Supporting LAFS and MAFS Standards** *(as required by course description)*

**SC 912.L.14.47:** Describe the physiology of urine formation by the kidney.

#### Essential Content & Understanding:

1. **Structure & Function**
   - Histology
   - Major organs
2. **Urine Formation**
   - Filtration, tubular reabsorption, tubular secretion
   - Components of urine (normal & abnormal)

#### Essential Questions:

- What are the organs of the urinary system?
- How is urine formed?

#### Resources/Links:

**On-line Textbook Resources**

**Supplemental Resources:**
- Urinary Word Search

**Writing Links:**
- Wanted Poster

**Higher Order Questioning**
- Template for writing Questions

**Remediation & Enrichment Resources**

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2014-2015
Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

Key Vocabulary:

Testes, spermatogenesis, testosterone, ovary, oogenesis, estrogen, progesterone, uterine cycle ovarian cycle

Learning Goal: At the end of this unit students will be able to describe the structure and function of both the male and female reproductive systems.

Objectives: The Students will be able to:
- describe the structure of the male and female reproductive systems.
- explain the functions of the male and female reproductive systems.

Benchmarks/Standards

Supporting LAFS and MAFS Standards (as required by course description)

SC.912.L.14.33: Describe the basic anatomy and physiology of the reproductive system.

Essential Content & Understanding:

1. Male anatomy
2. Male reproductive functions
3. Female anatomy
4. Female reproductive functions

Essential Questions:

What are the organs of the male reproductive system?
What is the function of the male reproductive system?
What are the organs of the female reproductive system?
What are the function so the female reproductive system?

Resources/Links:

On-line Textbook Resources

Supplemental Resources:
Work Packet: Menstrual Cycle
Work Packet: Fetal Development

Writing Links:

Higher Order Questioning Template for writing Questions

Remediation & Enrichment Resources

Misconception Pre-Survey (Please read these and edit questions as you see fit for you classes)
# 2014-2015 Curriculum Blueprint  
**Grade:** 11 & 12  
**HS Anatomy and Physiology**  
**Unit 17: Vertebrate Dissection**

## Instructional Focus Benchmarks

The below benchmark(s) is linked to the CPALMS site that contains the Specifications to include the Content limits, Attributes/Stimulus, and additional information.

## Educational Soft Mini-Assessment(s):

Date Range: Given during the instruction per the outline in this section

## Key Vocabulary:

**Review of key terms throughout course**

## Learning Goal:

Students will identify the anatomy of a preserved vertebrate.

## Objectives:

The Students will be able to:

- identify the anatomy of a preserved vertebrate.

## Benchmarks/Standards

**Supporting LAFS and MAFS Standards**  
(as required by course description)

## Essential Content & Understanding:

- Compare human anatomy with that of another mammal.  
- Thoroughly explore all body systems.

## Essential Questions:

- How does the anatomy of a cat/pig compare with that of a human.

## Resources/Links:

- **Fetal Pig Dissection**  
- **Cat Dissection**

**Supplemental Resources:**  
Additional Cat Dissection Guides can be found on the [Biology Corner's](#) website.

## Writing Links:

**Higher Order Questioning**  
[Template for writing Questions](#)

**Remediation & Enrichment Resources**
# Supporting LAFS and MAFS Standards

<table>
<thead>
<tr>
<th>LAFS.1112.RST.1.1</th>
<th>Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAFS.1112.RST.1.3</td>
<td>Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</td>
</tr>
<tr>
<td>LAFS.1112.RST.2.4</td>
<td>Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.</td>
</tr>
<tr>
<td>LAFS.1112.RST.3.7</td>
<td>Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</td>
</tr>
<tr>
<td><strong>LAFS.1112.RST.4.10</strong></td>
<td>By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently.</td>
</tr>
<tr>
<td>LAFS.1112.WHST.1.2</td>
<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</td>
</tr>
<tr>
<td>a.</td>
<td>Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</td>
</tr>
<tr>
<td>b.</td>
<td>Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</td>
</tr>
<tr>
<td>c.</td>
<td>Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</td>
</tr>
<tr>
<td>d.</td>
<td>Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</td>
</tr>
<tr>
<td>e.</td>
<td>Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LAFS.910.RST.1.1</th>
<th>Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAFS.910.RST.1.3</td>
<td>Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</td>
</tr>
<tr>
<td>LAFS.910.RST.2.4</td>
<td>Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.</td>
</tr>
<tr>
<td>LAFS.910.RST.2.5</td>
<td>Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</td>
</tr>
<tr>
<td>LAFS.910.RST.3.7</td>
<td>Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.</td>
</tr>
<tr>
<td><strong>LAFS.910.RST.4.10</strong></td>
<td>By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.</td>
</tr>
</tbody>
</table>

2014-2015
Supporting LAFS and MAFS Standards

**LAFS.910.WHST.1.2:** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

- a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.
- c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
- d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.
- e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

**LAFS.910.WHST.3.9:** Draw evidence from informational texts to support analysis, reflection, and research.

**MAFS.912.F-IF.3.7:** Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

- a. Graph linear and quadratic functions and show intercepts, maxima, and minima.
- b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
- c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
- d. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
- e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

**MAFS.912.N-Q.1.1:** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

**MAFS.912.N-Q.1.3:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.