

# Anatomy & Physiology I Honors

## **Unit Title: Unit 1 The Structural, Chemical, and Cellular Organization of the Human Body**

### **Stage 1: Desired Results**

#### **Standards & Indicators:**

##### **NJSLS Science:**

- HS-LS1-1. 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
- HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms
- HS-LS3-1- Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
- HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis

##### **Science and Engineering Practices(SEP)**

**Asking Questions and Defining Problems** Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. Ask questions that arise from examining models or a theory to clarify relationships. (HS-LS3-1)

**Engaging in Argument from Evidence** Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. Make and defend a claim based on evidence about the natural world that reflects scientific knowledge, and student-generated evidence. (HS-LS3-2)

**Developing and Using Models-** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2) Use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-4)

**Planning and Carrying Out Investigations** Planning and carrying out in 9–12 builds on K–8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3)

##### **Disciplinary Core Ideas ( DCI)**

- Environmental factors also affect expression of traits, and hence affect the probability of occurrences of traits in a population. Thus the variation and distribution of traits observed depends on both genetic and environmental factors. (HS-LS3-2)
- Each chromosome consists of a single very long DNA molecule, and each gene on the chromosome is a particular segment of that DNA. The instructions for forming species' characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes used (expressed) by the cell may be regulated in different ways. Not all DNA codes for a protein; some segments of DNA are involved in regulatory or structural functions, and some have no as-yet known function. (HS-LS3-1)

##### **Crosscutting Concepts ( CCC)**

- **Cause and Effect-** Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS-LS3-1)( HS-LS3-2)

# Anatomy & Physiology I Honors

| Career Readiness, Life Literacies and Key Skills                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Performance Expectations                                                                                                                                                                                                                                                                                                  | Core Ideas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 9.4.12.CI.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)                                                                                                                                                                                                                    | With a growth mindset, failure is an important part of success.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 9.4.12.CI.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).                                                                                                                                                                                                     | Innovative ideas or innovation can lead to career opportunities                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 9.4.12.CT.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)                                                                                                                                                                                                 | Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.                                                                                                                                                                                                                                                                                                                         |
| 9.4.12.CT.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Participate in online strategy and planning sessions for course-based, school-based, or other projects and determine the strategies that contribute to effective outcomes.                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 9.4.12.GCA.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3). | Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences                                                                                                                                                                                                                                                                                                                                                  |
| 9.4.12.TL.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).                                                                                                                                                                      | Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.                                                                                                                                                                                                                                                                                                                                     |
| <b>Central Idea/Enduring Understanding:</b> <ul style="list-style-type: none"> <li>An understanding of the relationship between the function and structure of the organs of the human body is essential to understanding the functioning of each body system.</li> <li>Students will understand that the chemical level of organization forms the foundation of all body structures and functions through the interactions of atoms, molecules, and compounds essential for life.</li> <li>Students formulate an explanation for how cellular structures work together to maintain life by carrying out specialized functions necessary for the survival, growth, and organization of the human body.</li> <li>Students will investigate how cells use genetic information to build proteins essential for structure, function, and regulation in the body</li> </ul> |                                                                                                                                                                                                                                                                                                                           | <b>Essential/Guiding Question:</b> <p>How is the human body organized?</p> <p>How is balance maintained within the human body?</p> <p>What are the basic structures and functions of the human body systems?</p> <p>What are the types of chemical bonds that form within the human body?</p> <p>How does each organelle contribute to the maintenance and growth of a cell?</p> <p>How is material transported into and out of a cell?</p> <p>How are proteins created within a cell?</p> |
| <b>Content:</b> <ul style="list-style-type: none"> <li>Anatomy and physiology terminology</li> <li>Levels of structural organization</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                           | <b>Skills(Objectives):</b> <ul style="list-style-type: none"> <li>Describe the levels of organization within the human body from the simplest to most complex.</li> </ul>                                                                                                                                                                                                                                                                                                                  |

# Anatomy & Physiology I Honors

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Cell structure and physiology</li> <li>- Body tissue structure and function</li> <li>- Cell solutions: isotonic, hypotonic, hypertonic</li> <li>- Role of homeostasis in the human body</li> <li>- Anatomical positions, directional terms, and body cavities</li> <li>- The eleven body systems</li> <li>- Types of chemical bonds</li> <li>- Acids and bases</li> <li>- Cellular structure and organelle functions</li> <li>- Cellular transport</li> <li>- Mitosis and meiosis</li> <li>- Protein synthesis</li> </ul> | <ul style="list-style-type: none"> <li>- Describe the importance of homeostasis in maintaining balance in the human body.</li> <li>- Describe the terminology associated with anatomical positions and directions.</li> <li>- Demonstrate your knowledge of the dorsal and ventral body cavities.</li> <li>- Describe the eleven body systems and their functions.</li> <li>- Identify the types of chemical reactions that occur within the human body.</li> <li>- Describe the organelles of a typical cell and indicate their specific functions.</li> <li>- Compare and contrast active and passive transport.</li> <li>- Analyze the differences between mitosis and meiosis.</li> <li>- Assess the role of proteins in maintaining the structure and function of the human body.</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Interdisciplinary Connections:

- Case study incorporating knowledge of body systems with aspects of history taking, differential diagnoses, and treatment
- RI.CR.11–12.1. Accurately cite a range of thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what an informational text says explicitly and inferentially, as well as interpretations of the text.
- W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

## Stage 2: Assessment Evidence

### Performance Task(s):

- Identify the body planes and sections using a banana
- Body plane identification using imaging
- Directional Terminology Lab
- Acid Base Lab
- Identify the major organelles of a cell under a microscope
- Cell Project Poster
- Blood Typing
- Protein Synthesis Lab

### Other Evidence:

- Unit Test Grade
- Quizzes
- Writing projects
- Research projects
- Google Classroom assignments
- Group activities
- Classroom discussions
- Student created assessments
- Rubrics
- Review Games (Kahoot, Quizlet)

## Stage 3: Learning Plan

### Learning Opportunities/Strategies:

Examples of learning opportunities include the following:

- Case Studies
- Projects
- Debates
- Team building activities
- Cooperative learning activities
- Interactive games
- Online learning websites
- Internet research
- Student driven activities

### Resources:

Textbook: Martini, Bartholomew. Essentials of Anatomy & Physiology. Fifth Edition. 2010 . Pearson Higher Education.

[Biodigital.com](http://Biodigital.com)

[Inclusive Science Classroom](#)

[GLSEN Educator Resources](#)

# Anatomy & Physiology I Honors

| <b>Differentiation</b> *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation |                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High-Achieving Students</b>                                                                                                                                                                    | <b>On Grade Level Students</b>                                                                                                                                                 | <b>Struggling Students</b>                                                                                                                                                                                                                                                                                                                                                                                               | <b>Special Needs/ELL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -Use of critical thinking activities<br>-Alternative assignments<br>-Choice of assignment related to the topic-independent research<br>-Use of student-researched case studies                    | -Use of critical thinking activities<br>-Alternative assignments<br>-Choice of assignment related to the topic-independent research<br>-Use of student-researched case studies | -Build background knowledge prior to lessons<br>-Highlight key words<br>-Incorporate the use of technology<br>-Provide notes<br>-Provide study guides<br>-Pre-teaching of vocabulary for understanding of concepts<br>-Word Search or crossword puzzles for vocabulary reinforcement<br>-Using alternatives to written assessments (oral reports, class discussion, and/or projects)<br>-Be consistent with expectations | Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing<br><br>ELL supports should include, but are not limited to, the following::<br>Extended time<br>Provide visual aids<br>Repeated directions<br>Differentiate based on proficiency<br>Provide word banks<br>Allow for translators, dictionaries |

| <b>Unit Title: Unit 2 Body Tissues and the Integumentary System</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stage 1: Desired Results</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p><b>Standards &amp; Indicators:</b></p> <p>HS-LS1-1. 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</p> <p>HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms</p> <p><b>Science and Engineering Practices(SEP)</b></p> <p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. Ask questions that arise from examining models or a theory to clarify relationships. (HS-LS3-1)</p> <p><b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. Make and defend a claim based on evidence about the natural world that reflects scientific knowledge, and student-generated evidence. (HS-LS3-2)</p> <p><b>Developing and Using Models-</b> Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in</p> |

# Anatomy & Physiology I Honors

the natural and designed worlds. Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2) Use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-4)

**Planning and Carrying Out Investigations** Planning and carrying out in 9–12 builds on K–8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3)

## Disciplinary Core Ideas ( DCI)

- Environmental factors also affect expression of traits, and hence affect the probability of occurrences of traits in a population. Thus the variation and distribution of traits observed depends on both genetic and environmental factors. (HS-LS3-2)
- Each chromosome consists of a single very long DNA molecule, and each gene on the chromosome is a particular segment of that DNA. The instructions for forming species' characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes used (expressed) by the cell may be regulated in different ways. Not all DNA codes for a protein; some segments of DNA are involved in regulatory or structural functions, and some have no as-yet known function. (HS-LS3-1)

## Crosscutting Concepts ( CCC)

- **Cause and Effect-** Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS-LS3-1)( HS-LS3-2)

## **Career Readiness, Life Literacies and Key Skills**

| <b>Standard</b> | <b>Performance Expectations</b>                                                                                                                                                                                                                                                                                           | <b>Core Ideas</b>                                                                                                                                                  |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9.4.12.CI.1     | Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)                                                                                                                                                                                                                    | With a growth mindset, failure is an important part of success.                                                                                                    |
| 9.4.12.CI.2     | Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).                                                                                                                                                                                                     | Innovative ideas or innovation can lead to career opportunities                                                                                                    |
| 9.4.12.CT.2     | Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)                                                                                                                                                                                                 | Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed. |
| 9.4.12.CT.4     | Participate in online strategy and planning sessions for course-based, school-based, or other projects and determine the strategies that contribute to effective outcomes.                                                                                                                                                |                                                                                                                                                                    |
| 9.4.12.GCA.1    | Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3). | Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences                          |
| 9.4.12.TL.1     | Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).                                                                                                                                                                      | Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.             |

# Anatomy & Physiology I Honors

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b><u>Central Idea/Enduring Understanding:</u></b></p> <ul style="list-style-type: none"> <li>- There are four distinct types of tissues in the human body with unique structure and function.</li> <li>- The structures of skin help regulate other parts of the human body.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><b><u>Essential/Guiding Question:</u></b></p> <p>What are the four types of tissues found in the human body?<br/>How are tissues classified?<br/>What are the main structural features of the epidermis, dermis and hypodermis and what are their functional significance?<br/>What are the common purposes that the integumentary system serves for all body systems?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b><u>Content:</u></b></p> <ul style="list-style-type: none"> <li>- Classification and structure of epithelial tissue</li> <li>- Connective tissue classification and function</li> <li>- The three types of muscle tissue</li> <li>- Nervous tissue and the neuroglia</li> <li>- Functions of the integumentary system</li> <li>- Important structures and layers of the skin</li> <li>- Structures and functions of the accessory structures of the integumentary system: hair, nails, glands</li> <li>- Types of membranes: serous, mucous, and synovial</li> <li>- Three types of burns</li> <li>- Pathologies of the integumentary system</li> </ul>                                                                                                                                                                                                  | <p><b><u>Skills(Objectives):</u></b></p> <ul style="list-style-type: none"> <li>- Analyze and interpret the use of epithelial tissue based on structure.</li> <li>- Compare and contrast the types of connective tissue.</li> <li>- Demonstrate your knowledge of the three types of muscle tissue.</li> <li>- Describe the functions of nervous tissue.</li> <li>- Describe the functions of the integumentary system.</li> <li>- Demonstrate your knowledge of the structural features of the epidermis, dermis, and hypodermis</li> <li>- Describe the accessory structures of the integumentary system.</li> <li>- Predict the interaction between the integumentary system and other body systems.</li> <li>- Describe the characteristics of the three types of membranes and their location in the body.</li> <li>- Describe pathologies of the integumentary system</li> </ul> |
| <p><b><u>Interdisciplinary Connections:</u></b></p> <ul style="list-style-type: none"> <li>- Case study incorporating knowledge of body systems with aspects of history taking, differential diagnoses, and treatment</li> <li>- RI.CR.11–12.1. Accurately cite a range of thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what an informational text says explicitly and inferentially, as well as interpretations of the text.</li> <li>- W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p><b>Stage 2: Assessment Evidence</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p><b><u>Performance Task(s):</u></b></p> <ul style="list-style-type: none"> <li>- Tissue Slide Identification</li> <li>- Suturing Skill</li> <li>- Skin Disorder Presentation</li> <li>- Skin Pathology Lab</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p><b><u>Other Evidence:</u></b></p> <ul style="list-style-type: none"> <li>- Unit Test Grade</li> <li>- Quizzes</li> <li>- Writing projects</li> <li>- Research projects</li> <li>- Google Classroom assignments</li> <li>- Group activities</li> <li>- Classroom discussions</li> <li>- Student created assessments</li> <li>- Rubrics</li> <li>- Review Games (Kahoot, Quizlet)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Stage 3: Learning Plan</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p><b><u>Learning Opportunities/Strategies:</u></b></p> <p>Examples of learning opportunities include the following:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p><b><u>Resources:</u></b></p> <p>Textbook: Martini, Bartholomew. Essentials of Anatomy &amp; Physiology. Fifth Edition. 2010 . Pearson Higher Education.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

# Anatomy & Physiology I Honors

|                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Case Studies</li> <li>- Projects</li> <li>- Debates</li> <li>- Team building activities</li> <li>- Cooperative learning activities</li> <li>- Interactive games</li> <li>- Online learning websites</li> <li>- Internet research</li> <li>- Student driven activities</li> </ul> | <a href="http://Biodigital.com">Biodigital.com</a><br><br><a href="#">Inclusive Science Classroom</a><br><a href="#">GLSEN Educator Resources</a> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|

**Differentiation** \*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

| High-Achieving Students                                                                                                                                                                                                                            | On Grade Level Students                                                                                                                                                                                                                            | Struggling Students                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Special Needs/ELL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>-Use of critical thinking activities</li> <li>-Alternative assignments</li> <li>-Choice of assignment related to the topic-independent research</li> <li>-Use of student-researched case studies</li> </ul> | <ul style="list-style-type: none"> <li>-Use of critical thinking activities</li> <li>-Alternative assignments</li> <li>-Choice of assignment related to the topic-independent research</li> <li>-Use of student-researched case studies</li> </ul> | <ul style="list-style-type: none"> <li>-Build background knowledge prior to lessons</li> <li>-Highlight key words</li> <li>-Incorporate the use of technology</li> <li>-Provide notes</li> <li>-Provide study guides</li> <li>-Pre-teaching of vocabulary for understanding of concepts</li> <li>-Word Search or crossword puzzles for vocabulary reinforcement</li> <li>-Using alternatives to written assessments (oral reports, class discussion, and/or projects)</li> <li>-Be consistent with expectations</li> </ul> | <p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following::</p> <ul style="list-style-type: none"> <li>Extended time</li> <li>Provide visual aids</li> <li>Repeated directions</li> <li>Differentiate based on proficiency</li> <li>Provide word banks</li> <li>Allow for translators, dictionaries</li> </ul> |

**Unit Title: Unit 3 The Skeletal System**

## Stage 1: Desired Results

### **Standards & Indicators:**

HS-LS1-1. 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

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms

### **Science and Engineering Practices(SEP)**

**Asking Questions and Defining Problems** Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. Ask questions that arise from examining models or a theory to clarify relationships. (HS-LS3-1)

# Anatomy & Physiology I Honors

**Engaging in Argument from Evidence** Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. Make and defend a claim based on evidence about the natural world that reflects scientific knowledge, and student-generated evidence. (HS-LS3-2)

**Developing and Using Models-** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2) Use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-4)

**Planning and Carrying Out Investigations** Planning and carrying out in 9–12 builds on K–8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3)

## Disciplinary Core Ideas ( DCI)

- Environmental factors also affect expression of traits, and hence affect the probability of occurrences of traits in a population. Thus the variation and distribution of traits observed depends on both genetic and environmental factors. (HS-LS3-2)
- Each chromosome consists of a single very long DNA molecule, and each gene on the chromosome is a particular segment of that DNA. The instructions for forming species' characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes used (expressed) by the cell may be regulated in different ways. Not all DNA codes for a protein; some segments of DNA are involved in regulatory or structural functions, and some have no as-yet known function. (HS-LS3-1)

## Crosscutting Concepts ( CCC)

- **Cause and Effect-** Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS-LS3-1)( HS-LS3-2)

## **Career Readiness, Life Literacies and Key Skills**

| Standard     | Performance Expectations                                                                                                                                                                                                  | Core Ideas                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9.4.12.CI.1  | Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)                                                                                                                    | With a growth mindset, failure is an important part of success.                                                                                                    |
| 9.4.12.CI.2  | Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).                                                                                                     | Innovative ideas or innovation can lead to career opportunities                                                                                                    |
| 9.4.12.CT.2  | Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)                                                                                                 | Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed. |
| 9.4.12.CT.4  | Participate in online strategy and planning sessions for course-based, school-based, or other projects and determine the strategies that contribute to effective outcomes.                                                |                                                                                                                                                                    |
| 9.4.12.GCA.1 | Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., | Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences                          |

# Anatomy & Physiology I Honors

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGL.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 9.4.12.TL.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.). | Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b><u>Central Idea/Enduring Understanding:</u></b> <ul style="list-style-type: none"> <li>- The skeleton functions to allow movement and support for the human body.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                      | <b><u>Essential/Guiding Question:</u></b> <p>What are the functions of the skeletal system?<br/> How is long bone organized microscopically?<br/> What are the classifications of bone based on shape?<br/> What are the major landmarks found on bones?<br/> What bones make up the axial and appendicular skeleton?<br/> What bones make up the skull?<br/> What bones make up the pectoral girdle?<br/> What bones make up the pelvic girdle?<br/> What are the bones of the upper extremity?<br/> What are the bones of the lower extremity?<br/> What types of joints are found in the human body?</p>                                       |
| <b><u>Content:</u></b> <ul style="list-style-type: none"> <li>- Functions of the skeletal system: support, protection, movement, storage, blood cell formation</li> <li>- Anatomy of a long bone: epiphysis, diaphysis, cartilage, bone marrow, periosteum</li> <li>- Bone landmarks</li> <li>- Classification of bones</li> <li>- Anatomy of the axial and appendicular skeleton</li> <li>- Types of joints in the human body</li> <li>- Pathologies of the skeletal system</li> </ul>                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                      | <b><u>Skills(Objectives):</u></b> <ul style="list-style-type: none"> <li>- Predict the functions of the skeletal system based on bone structure.</li> <li>- Demonstrate your knowledge of the bone shapes.</li> <li>- Demonstrate your knowledge of long bone anatomy.</li> <li>- Describe the landmarks found on bones.</li> <li>- Describe the types of joints found in the human body.</li> <li>- Demonstrate your knowledge of the bones of the axial and appendicular skeletons.</li> <li>- Compare and contrast the types of joints found in the human body.</li> <li>- Compare and contrast pathologies of the skeletal system.</li> </ul> |
| <b><u>Interdisciplinary Connections:</u></b> <ul style="list-style-type: none"> <li>- Case study incorporating knowledge of body systems with aspects of history taking, differential diagnoses, and treatment</li> <li>- RI.CR.11–12.1. Accurately cite a range of thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what an informational text says explicitly and inferentially, as well as interpretations of the text.</li> <li>- W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</li> </ul> |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Stage 2: Assessment Evidence</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b><u>Performance Task(s):</u></b> <ul style="list-style-type: none"> <li>- Bone Bingo</li> <li>- Bone Color Pages</li> <li>- Bone Landmarks Practicum</li> <li>- Bone identification labs</li> <li>- Bone Identification Practicum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                      | <b><u>Other Evidence:</u></b> <ul style="list-style-type: none"> <li>- Unit Test Grade</li> <li>- Quizzes</li> <li>- Writing projects</li> <li>- Research projects</li> <li>- Google Classroom assignments</li> <li>- Group activities</li> <li>- Classroom discussions</li> </ul>                                                                                                                                                                                                                                                                                                                                                                |

# Anatomy & Physiology I Honors

|                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>- Student created assessments</li><li>- Rubrics</li><li>- Review Games (Kahoot, Quizlet)</li></ul>                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Stage 3: Learning Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b><u>Learning Opportunities/Strategies:</u></b><br>Examples of learning opportunities include the following: <ul style="list-style-type: none"><li>- Case Studies</li><li>- Projects</li><li>- Debates</li><li>- Team building activities</li><li>- Cooperative learning activities</li><li>- Interactive games</li><li>- Online learning websites</li><li>- Internet research</li><li>- Student driven activities</li></ul> | <b><u>Resources:</u></b><br>Textbook: Martini, Bartholomew. Essentials of Anatomy & Physiology. Fifth Edition. 2010 . Pearson Higher Education.<br><br><a href="#">Biodigital.com</a><br><br><a href="#">Inclusive Science Classroom</a><br><a href="#">GLSEN Educator Resources</a> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b><u>Differentiation</u></b> *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>High-Achieving Students</b>                                                                                                                                                                                                                                                                                                                                                                                                | <b>On Grade Level Students</b>                                                                                                                                                                                                                                                       | <b>Struggling Students</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Special Needs/ELL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"><li>-Use of critical thinking activities</li><li>-Alternative assignments</li><li>-Choice of assignment related to the topic-independent research</li><li>-Use of student-researched case studies</li></ul>                                                                                                                                                                                 | <ul style="list-style-type: none"><li>-Use of critical thinking activities</li><li>-Alternative assignments</li><li>-Choice of assignment related to the topic-independent research</li><li>-Use of student-researched case studies</li></ul>                                        | <ul style="list-style-type: none"><li>-Build background knowledge prior to lessons</li><li>-Highlight key words</li><li>-Incorporate the use of technology</li><li>-Provide notes</li><li>-Provide study guides</li><li>-Pre-teaching of vocabulary for understanding of concepts</li><li>-Word Search or crossword puzzles for vocabulary reinforcement</li><li>-Using alternatives to written assessments (oral reports, class discussion, and/or projects)</li><li>-Be consistent with expectations</li></ul> | <p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following::</p> <ul style="list-style-type: none"><li>Extended time</li><li>Provide visual aids</li><li>Repeated directions</li><li>Differentiate based on proficiency</li><li>Provide word banks</li><li>Allow for translators, dictionaries</li></ul> |

## **Unit Title: Unit 4 The Muscular and Nervous Systems**

### **Stage 1: Desired Results**

#### **Standards & Indicators:**

HS-LS1-1. 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

# Anatomy & Physiology I Honors

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms

## **Science and Engineering Practices(SEP)**

**Asking Questions and Defining Problems** Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. Ask questions that arise from examining models or a theory to clarify relationships. (HS-LS3-1)

**Engaging in Argument from Evidence** Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science. Make and defend a claim based on evidence about the natural world that reflects scientific knowledge, and student-generated evidence. (HS-LS3-2)

**Developing and Using Models-** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2) Use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-4)

**Planning and Carrying Out Investigations** Planning and carrying out in 9–12 builds on K–8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3)

## **Disciplinary Core Ideas ( DCI)**

- Environmental factors also affect expression of traits, and hence affect the probability of occurrences of traits in a population. Thus the variation and distribution of traits observed depends on both genetic and environmental factors. (HS-LS3-2)
- Each chromosome consists of a single very long DNA molecule, and each gene on the chromosome is a particular segment of that DNA. The instructions for forming species' characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes used (expressed) by the cell may be regulated in different ways. Not all DNA codes for a protein; some segments of DNA are involved in regulatory or structural functions, and some have no as-yet known function. (HS-LS3-1)

## **Crosscutting Concepts ( CCC)**

- **Cause and Effect-** Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS-LS3-1)( HS-LS3-2)

## **Career Readiness, Life Literacies and Key Skills**

| <b>Standard</b> | <b>Performance Expectations</b>                                                                                           | <b>Core Ideas</b>                                                                                                                            |
|-----------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 9.4.12.CI.1     | Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a)                    | With a growth mindset, failure is an important part of success.                                                                              |
| 9.4.12.CI.2     | Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).     | Innovative ideas or innovation can lead to career opportunities                                                                              |
| 9.4.12.CT.2     | Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a) | Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse |

# Anatomy & Physiology I Honors

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9.4.12.CT.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Participate in online strategy and planning sessions for course-based, school-based, or other projects and determine the strategies that contribute to effective outcomes.                                                                                                                                                | solutions are needed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 9.4.12.GCA.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3). | Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 9.4.12.TL.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).                                                                                                                                                                      | Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b><u>Central Idea/Enduring Understanding:</u></b> <ul style="list-style-type: none"> <li>- The Muscular System is used to create movement of the human body</li> <li>- The Nervous System allows information to be received, interpreted, and sent throughout the human body.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                           | <b><u>Essential/Guiding Question:</u></b><br>What are the structure and functions of the three types of muscles?<br>How are muscles used to create movement of the human body?<br>How is the nervous system organized?<br>What are the components of the Central and Peripheral Nervous Systems?                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b><u>Content:</u></b> <ul style="list-style-type: none"> <li>- Three types of muscles: skeletal, smooth, and cardiac</li> <li>- Functions of the muscular system: movement, posture, heat production</li> <li>- Anatomy of skeletal muscle: actin, myosin</li> <li>- Muscle attachments to bone, tendons</li> <li>- Muscle activity leading to contractions: nerve stimulus and the action potential</li> <li>- Muscle nomenclature</li> <li>- Muscle movement</li> <li>- Pathology of the muscular system</li> <li>- Organization of the nervous system: the Central Nervous System and Peripheral Nervous System</li> <li>- Nervous tissue structure and function</li> <li>- Anatomy of a neuron</li> <li>- Nerve conduction</li> <li>- Central Nervous System anatomy: brain and spinal cord</li> <li>- Peripheral Nervous System anatomy: cranial and spinal nerves</li> </ul> |                                                                                                                                                                                                                                                                                                                           | <b><u>Skills(Objectives):</u></b> <ul style="list-style-type: none"> <li>- Describe the three types of muscles and their functions.</li> <li>- Describe the activity leading to the contraction of a skeletal muscle.</li> <li>- Demonstrate your knowledge of terminology of muscle movement.</li> <li>- Describe pathologies of the muscular system.</li> <li>- Describe how the nervous system is organized into the Central and Peripheral Nervous Systems.</li> <li>- Demonstrate your knowledge of neuron anatomy.</li> <li>- Describe the anatomy of the Central Nervous System.</li> <li>- Describe the anatomy of the Peripheral Nervous System.</li> <li>- Demonstrate your knowledge of nervous system pathologies.</li> </ul> |
| <b><u>Interdisciplinary Connections:</u></b> <ul style="list-style-type: none"> <li>- Case study incorporating knowledge of body systems with aspects of history taking, differential diagnoses, and treatment</li> <li>- RI.CR.11–12.1. Accurately cite a range of thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what an informational text says explicitly and inferentially, as well as interpretations of the text.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

# Anatomy & Physiology I Honors

- W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

## Stage 2: Assessment Evidence

### Performance Task(s):

- Muscle Tissue Lab
- Muscle Identification
- Muscle Identification Practicum
- Reflex Lab

### Other Evidence:

- Unit Test Grade
- Quizzes
- Writing projects
- Research projects
- Google Classroom assignments
- Group activities
- Classroom discussions
- Student created assessments
- Rubrics
- Review Games (Kahoot, Quizlet)

## Stage 3: Learning Plan

### Learning Opportunities/Strategies:

Examples of learning opportunities include the following:

- Case Studies
- Projects
- Debates
- Team building activities
- Cooperative learning activities
- Interactive games
- Online learning websites
- Internet research
- Student driven activities

### Resources:

Textbook: Martini, Bartholomew. Essentials of Anatomy & Physiology. Fifth Edition. 2010 . Pearson Higher Education.

[Biodigital.com](http://Biodigital.com)

[Inclusive Science Classroom](#)

[GLSEN Educator Resources](#)

**Differentiation** \*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

| High-Achieving Students                                                                                                                                                                                                                            | On Grade Level Students                                                                                                                                                                                                                            | Struggling Students                                                                                                                                                                                                                                                                                                                                                                                                            | Special Needs/ELL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>-Use of critical thinking activities</li> <li>-Alternative assignments</li> <li>-Choice of assignment related to the topic-independent research</li> <li>-Use of student-researched case studies</li> </ul> | <ul style="list-style-type: none"> <li>-Use of critical thinking activities</li> <li>-Alternative assignments</li> <li>-Choice of assignment related to the topic-independent research</li> <li>-Use of student-researched case studies</li> </ul> | <ul style="list-style-type: none"> <li>-Build background knowledge prior to lessons</li> <li>-Highlight key words</li> <li>-Incorporate the use of technology</li> <li>-Provide notes</li> <li>-Provide study guides</li> <li>-Pre-teaching of vocabulary for understanding of concepts</li> <li>-Word Search or crossword puzzles for vocabulary reinforcement</li> <li>-Using alternatives to written assessments</li> </ul> | <p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following::</p> <ul style="list-style-type: none"> <li>Extended time</li> <li>Provide visual aids</li> <li>Repeated directions</li> <li>Differentiate based on proficiency</li> <li>Provide word banks</li> </ul> |

# Anatomy & Physiology I Honors

|  |  |                                                                                       |                                     |
|--|--|---------------------------------------------------------------------------------------|-------------------------------------|
|  |  | (oral reports, class discussion, and/or projects)<br>-Be consistent with expectations | Allow for translators, dictionaries |
|--|--|---------------------------------------------------------------------------------------|-------------------------------------|

## Pacing Guide

| Course Name                                                                                                          | Resource            | Standards                                    |
|----------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------|
| MP 1                                                                                                                 |                     |                                              |
| <b>Unit 1</b><br>Structural Organization<br>Chemical Level of Organization<br>Cell Structure and Function<br>21 days | <b>CHAPTERS 1-3</b> | HS-LS1-1<br>HS-LS1-2<br>HS-LS3-1<br>HS-LS1-3 |
| <b>Unit 2</b><br>Tissues<br>The Integumentary System<br>20 days                                                      | <b>CHAPTERS 4-5</b> | HS-LS1-1<br>HS-LS1-2                         |
| MP 2                                                                                                                 |                     |                                              |
| <b>Unit 3</b><br>Skeletal System<br>16 days                                                                          | <b>CHAPTER 6</b>    | HS-LS1-1<br>HS-LS1-2                         |
| <b>Unit 4</b><br>Muscular System<br>Nervous System<br>16 days                                                        | <b>CHAPTERS 7-8</b> | HS-LS1-1<br>HS-LS1-2                         |