Kingsway Regional School District

Committed to Excellence

Course Name: College Prep & Honors Anatomy and Physiology	Grade Level(s): 11th-12th
Department: Science	**Credits:** 1.0
BOE Adoption Date: October 2016	**Revision Date(s):** October 2019; September 2022

ABSTRACT

Anatomy and Physiology is an elective science course designed for students interested in learning about the human body and how it works. Students will explore the relationship between structure and function as they investigate the different systems of the body. This theme will be the center of the Units of this course as well as provide the organization of the Units. Students will begin each Unit by identifying the structure of each body system and then use that knowledge to understand the physiology of the system. Once students have mastered how the body system works, they will examine what happens when there is an imbalance in the system and hypothesize causes, symptoms, and treatments of common disorders. The goal of this course is for students to have a holistic understanding of the relationship between the structure of our body systems and how they work together to sustain human life.

Each Unit will also require students to engage in a laboratory activity designed to provide students with an opportunity to master common laboratory techniques, investigate a topic through inquiry-based design, as well as support classroom content. Students will dissect several organisms and participate in a discussion of comparative anatomy.

Proficiencies and Pacing Guide:

Course Title: Anatomy and Physiology
Prerequisite(s): Biology (can be taken concurrently)

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
Unit 1: **Introduction to Anatomy and Physiology**	2 Weeks/ September	Science: • NJSLS HS-LS1-1 • NJSLS HS-LS1-2 • NJSLS HS-LS1-3 Literacy: • NJSLS RST.11-12.1 • NJSLS WHST.9-12.2 • NJSLS WHST.9-12.5 Technology: • 8.1.12.AP.7 • 9.4.12.TL.4 • 8.2.12.NT.2 • 8.2.12.ETW.4 Career Ready Practices • CLKS.1 • CRP2 • CLKS.7 • CLKS.8 Career Exploration • 9.2.12.CAP.4 • 9.2.12.CAP.1	• NJSLS HS-LS1-1 Sequence and provide examples of the levels of structural organization from the molecular level through the organismic level. • NJSLS HS-LS1-1 Provide examples of bodily mechanisms that serve to maintain homeostasis and explain how the body regulates common imbalances. (1 week) • NJSLS HS-LS1-2 Apply correct terminology to reference anatomical orientation. • **Honors:** Apply and justify appropriate methods of medical imaging for various scenarios. • NJSLS HS-LS1-2 Demonstrate safe and correct laboratory techniques and practices. (1 week)	To Meet Learning Goals, Students will be able to… • Name the levels of structural organization in decreasing complexity and provide an example of each. • Match the organ and function to the appropriate body system. • Discuss functions necessary for life and identify characteristics required for life. • Create a graphical representation of homeostatic imbalances. • Describe how positive and negative feedback maintain homeostasis. • **Honors:** Independently research a type of medical imaging to identify how it works and when it is used. • Practice using equipment and other safety laboratory practices.
Unit 2: **Histology**	6 Weeks/ October-November	Science: • NJSLS HS-LS1-2 Technology:	• NJSLS HS-LS1-2 Describe the structure of a cell and organelles and explain how the structure determines function within a system.	To Meet Learning Goals, Students will be able to… • Describe the major components of cell and their functions.

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
		• 8.1.12.AP.7, 9.4.12.TL.4 Career Ready Practices • CRP2 • CRP4 • CLKS.8 Career Exploration • 9.2.12.CAP.4	(2 weeks) • NJSLS HS-LS1-2 Identify the structure, location, and function of epithelial, connective, muscular, and nervous tissue. (2 weeks) • NJSLS HS-LS1-2 Classify tissue samples based on their structure. • NJSLS HS-LS1-2 Create a wet mount slide of human epithelial tissue. (2 weeks)	• Create a model of the cell membrane and describe how the structure is related to the function. • Explain the structure, function, and location of cellular junctions. • Compare passive and active transport and provide an example of each. • Identify the structure and function of organelles. • Create a wet mount slide and correctly identify cheek cells using a microscope. • List the structure, function, and location of epithelial tissue. • List the structure, function, and location of connective tissue. • List the structure, function, and location of muscle tissue. • List the structure, function, and location of nervous tissue. • Using a microscope, evaluate a sample to identify the type of tissue. • **Honors:** Using a peer-reviewed database, cite and summarize a current research experiment related to histology topics.
Unit 3: **Integumentary, Digestion and Excretory**	8 Weeks/ December-January	Science: • NJSLS HS-LS1-2 • NJSLS HS-LS1-3 Literacy: • NJSLS WHST.9-12.7 • NJSLS SL.11-12.5 Career Ready Practices	• NJSLS HS-LS1-2 Describe the structure of the integumentary system. • NJSLS HS-LS1-2 Explain the physiology of the integumentary system. • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to	To Meet Learning Goals, Students will be able to… • Name the tissue types composing the epidermis and dermis. • List the major layers of the dermis and epidermis and describe the functions of each layer. • Describe the factors that contribute to skin color.

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
		• CLKS.8 • CLKS.9 Technology: • 8.1.12.AP.7 • 9.4.12.TL.4	analysis of homeostatic imbalances of the integumentary system. (3 weeks) • NJSLS HS-LS1-2 Describe the structure of the digestive system. • NJSLS HS-LS1-2 Explain the physiology of the digestive system. • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the digestive system. (3 weeks) • NJSLS HS-LS1-2 Describe the structure of the excretory system. • NJSLS HS-LS1-2 Explain the physiology of the excretory system. • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the excretory system. • NJSLS HS-LS1-2 Discuss connections between the body systems of the human body. (2 weeks)	• Describe how changes to skin color may be used as a clinical sign of disease. • Compare the structure and location of sweat and oil glands. • Compare the composition and function of secretions by sweat and oil glands. • Identify the structure and function of a hair follicle. • Describe distribution, growth, replacement, and changing nature of hair during a life span. • Describe the structure of a nail. • Describe various homeostatic imbalances of skin. • Using a peer-reviewed database, analyze and summarize an integumentary disorder and current treatments. • Describe the function of the digestive system and differentiate between the alimentary canal and accessory digestive organs. • List and define the major processes occurring during the digestive process. • Describe the anatomy and basic function of each organ of the alimentary canal. • Describe the mechanism of chewing and swallowing. • Describe the composition of gastric juices and their regulation. • List the enzymes involved in chemical digestion. • Describe the structures that make up the excretory system. • Describe the function and location of the

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
				structures that make up the excretory system. • Describe the mechanism of urine formation. • Describe the composition of urine, and how you can test homeostatic imbalances in it. • Dissect a specimen to engage in a conversation regarding comparative anatomy.
Unit 4: Cardiovascular and Respiratory	6 Weeks/ February-March	Science: • NJSLS HS-LS1-2 • NJSLS HS-LS1-3 • NJSLS HS-ETS1-2 Literacy: • WHST.9-12.2 • WHST.9-12.7 Technology: • NJSLS 8.2.12.NT.2 Career Ready Practices • CRP2 • CRP4 • CLKS.4 • CRP7	• Describe the structure of the cardiovascular system. • Explain the physiology of the cardiovascular system. • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the cardiovascular system. (3 weeks) • Describe the structure of the respiratory system. • Explain the physiology of the respiratory system. • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the respiratory system. (3 weeks)	To Meet Learning Goals, Students will be able to… • Describe the size, shape, location, and orientation of the heart in the thoracic cavity. • Create a model to show the coverings of the heart. • Describe the structure and function of the four chambers of the heart. • Trace the pathway of blood through the heart. • Name the heart valves, their location, and function. • Name the components of the conduction system of the heart, and trace the conduction pathway. • Draw a diagram of a normal ECG, naming the waves and intervals, and what is occurring during each. • Describe normal heart sounds and explain how heart murmurs differ. • Identify the organs forming the respiratory passageway. • List and describe the protective

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
				mechanisms of the respiratory system. • Relate Boyle's Law to events of inspiration and expiration • Describe how the body controls respiration. • Identify causes, symptoms, and treatments of homeostatic imbalances of the respiratory system. • Dissect a specimen to engage in a conversation regarding comparative anatomy.
Unit 5: Movement	4 Weeks/ January-February	Science: • NJSLS HS-LS1-2 • NJSLS HS-LS1-3 Career Ready Practices • CRP4 • CLKS.5 • CLKS.9 Literacy: • NJSLS SL.11-12.5	• NJSLS HS-LS1-2 Describe the structure of the skeletal system. • NJSLS HS-LS1-2 Explain the physiology of the skeletal system. • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the skeletal system. (2 weeks) • NJSLS HS-LS1-2 Describe the structure of the muscular system. • NJSLS HS-LS1-2 Explain the physiology of the muscular system. • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the muscular system. (2 weeks)	To Meet Learning Goals, Students will be able to… • Describe the functional properties of the three types of cartilage and their locations in the human body. • Describe the process of cartilage growth. • Name the regions of the human skeleton and their functions. • Compare and contrast the four classifications of bones and provide an example of each. • Describe the gross anatomy of a long bone. • Identify bone markings and their functions. • Compare and contrast bone development. • Describe the process of bone remodeling and repair. • Create a model of the human skeletal system to display bones and bone markings. • Describe the gross structure of skeletal muscle. • Describe the microscopic structure and function of skeletal muscle. • Explain the sliding filament model of

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
				contraction. • Define motor unit and explain how muscle fibers are stimulated to contract. • Describe the metabolism of muscle tissue. • Compare and contrast smooth muscle and skeletal muscle anatomy. • Explain the development of muscle tissue and the changes that occur with age. • Dissect a specimen to engage in a conversation regarding comparative anatomy.
Unit 6: **Communication**	6 Weeks/ March-April	Science: • NJSLS HS-LS1-2 • NJSLS HS-LS1-3 Career Ready Practices • CRP4 • CLKS.5 • CLKS.9 Literacy: • NJSLS SL.11-12.5	• Describe the structure of the nervous system. • Explain the physiology of the nervous system. • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the nervous system. (3 weeks) • Describe the structure of the endocrine system. • Explain the physiology of the endocrine system. • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the endocrine system. (3 weeks)	To Meet Learning Goals, Students will be able to… • Explain the structural and functional divisions of the nervous system. • List the types of neuroglia and cite their functions. • Define neuron, describe its important structural components, and relate each to a functional role. • Explain the importance of the myelin sheath. • Explain resting membrane potential. • Explain how action potentials are generated and propagated along neurons. • Distinguish between electrical and chemical synapses. • Distinguish between excitatory and inhibitory postsynaptic potentials. • Define neurotransmitter and name several classes and functions of neurotransmitters. • Identify the function and location of parts of the human brain. • Describe symptoms, causes, and treatments

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
				of various neurological disorders. • List the major endocrine organs and identify their body locations. • Distinguish between hormones, paracrines, and autocrines. • Identify the origin, target, and function of various hormones of the endocrine system. • Dissect a specimen to engage in a conversation regarding comparative anatomy.
Unit 7: Reproduction	4 Weeks/ May-June	Science: • NJSLS HS-LS1-2 • NJSLS HS-LS1-3 Literacy: • NJSLS WHST.9-12.7 • NJSLS SL.11-12.5 Career Ready Practices • CLKS.8 • CLKS.9 Technology: • 8.1.12.AP.7 • 9.4.12.TL.4	• Describe the structure of the reproductive system. • Explain the physiology of the reproductive system. (2 weeks) • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the reproductive system. (2 weeks)	To Meet Learning Goals, Students will be able to… • Describe the structure and function of the testes, penis, and accessory organs of the male reproductive system. • Describe the sources and function of semen. • Describe the phases of the male sexual response. • Outline events of spermatogenesis. • Discuss hormonal regulation of testicular function and the physiological effect of testosterone on male reproductive anatomy. • Describe the location, structure, and function of the ovaries and other organs of the female reproductive system. • Describe the anatomy of the female genitalia. • Discuss the structure and function of the mammary glands. • Describe the process of oogenesis. • Describe the ovarian and uterine cycles and their hormonal controls. • Describe the phases of the female sexual

Unit Title:	Duration/ Month(s)	Related Standards:	Learning Goals:	Topics and Skills:
				response. • Indicate the infectious agents and modes of transmission of various sexually transmitted diseases. • Dissect a specimen to engage in a conversation regarding comparative anatomy.

Unit: 1 Introduction to Anatomy and Physiology	Recommended Duration: 2 Weeks (September)
Unit Description: The purpose of Unit 1: Introduction to Anatomy and Physiology is to provide students with a foundation of themes, concepts, and vocabulary that will support them through the remainder of the course. Students will become familiar with levels of organization, homeostasis, anatomical position, and medical imaging terminology. The Unit concludes with a lab focused on technique and safety.	

Essential Questions:	Enduring Understandings:
• Why is technology an integral such an integral part of assessing the human body's structure and function? • How and why does structure dictate the function of anatomy?	• The human body is organized by structural levels, divided into body planes and regions, and the scientific community uses uniform directional terms to communicate location. • The human body systems work together through positive and negative feedback to maintain homeostasis. • Medical Imaging is used to graphically represent the human body, and various methods are used depending on the target image.

Relevant Standards:	Learning Goals:	Learning Objectives:
Science: • NJSLS 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. • NJSLS HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms • NJSLS HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis	• NJSLS HS-LS1-2 Sequence and provide examples of the levels of structural organization from the molecular level through the organismic level. • NJSLS HS-LS1-3 Provide examples of bodily mechanisms that serve to maintain homeostasis and explain how the body regulates common imbalances. (1 week) • NJSLS HS-LS1-2 Apply correct terminology to reference anatomical orientation. • NJSLS HS-LS1-2 Apply and justify appropriate methods of medical imaging for various scenarios. (1 week)	To Meet Learning Goals, Students will be able to… • Name the different levels of structural organization that make up the human body, and explain their relationship. • List the 11 organ systems of the body, identify their components, and briefly explain the major function of each system. • List the functional characteristics necessary to maintain life in humans. • Define homeostasis and explain its significance. • Describe anatomical position. • Use the correct anatomical terms to describe body directions, regions, and body planes. • **Honors:** Describe types of medical imaging and scenarios in which they would be most effective. • Identify and correctly use various lab equipment. • Create a model of a subject in anatomical position

Relevant Standards:	Learning Goals:	Learning Objectives:
Literacy: • WHST.9-12.2 Write informative explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. • WHST.9-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose or audience. • WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).		to identify body directions, regions, and body planes.

Relevant Standards:	Learning Goals:	Learning Objectives:
Career Ready Practices • CLKS.1 Act as a responsible and contributing community member and employee. • CRP2 Apply appropriate academic and technical skills • CRP4 Communicate clearly and effectively with reason • CLKS.4 Demonstrate creativity and innovation • CRP7 Employ valid and reliable research strategies • CLKS.6 Model integrity, ethical leadership, and effective management • CLKS.7 Plan education and career path aligned to personal goals • CLKS.8 Use technology to enhance productivity increase collaboration and communicate effectively Career Exploration • 9.2.12.CAP.4 Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.		

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 1.1 Quiz: Biological Organization and Homeostasis • Unit 1 Learning Guide (Prove Its)	• Unit 1 Exam	• Homeostasis Lab Report • Lab Safety Practical	• Body System Graphic Organizer and Whiteboard Activity • Homeostasis Lab

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 1.2 Quiz: Regional and Directional Terms			• Unit 1 Quiz: Biological Organization and Homeostasis • Unit 1 Learning Guide (Prove Its) • Unit 1.2 Quiz: Regional and Directional Terms • Medical Imaging WebQuest • Lab Safety Protocol Activity

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students	**English Language Learners**	**Struggling Learners**	**Advanced Learners**
• Unit 1 Test Study Guide • Unit 1.1 Quiz extended time • Unit 1.2 Quiz extended time • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Order test items from least complex to most complex.	• SMART Invitations • Unit 1 Test Study Guide • Unit 1.1 Quiz extended time • Unit 1.2 Quiz extended time • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	• Preferential Seating • Student Choice for Lab Safety Practicum • Unit 1 Test Study Guide • Unit 1.1 Quiz extended time • Unit 1.2 Quiz extended time • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	• Medical Imaging WebQuest includes optional extension research component • Lab Safety Protocol includes Pre-Test and extension activity

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.6—Identifying critical information during Guided Notes • DQ 2.7—Organizing students to interact with new knowledge during the Body System Graphic Organizer Whiteboard Activity • DQ 2.8—Previewing new content by using Daily Warm-Ups • DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes • DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes • DQ 2.11—Elaborating on new information during the WebQuest Medical Imaging assignment • DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit

Instructional Strategies (*Robert Marzano's* 41 Elements):

- DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets
- DQ 3.14—Reviewing content during daily Warm-Ups and Homework review
- DQ 3.15—Organizing students to practice and deepen knowledge during the Body System Graphic Organizer Whiteboard Activity
- DQ 3.17—Examining similarities and differences during the Regional Terms and Directions Guided Notes
- DQ 3.19—Practicing skills, strategies, and processes when creating model of Regional Terms and Directions
- DQ 4.21—Organizing students for cognitively complex tasks during practice for Regional Terms and Directions
- DQ 4.22—Engaging students in cognitively complex tasks involving hypothesis generation and testing during the Homeostasis Lab
- DQ 4.23—Providing resources and guidance during SMART Enrichment

Possible Instructional Modifications /Accommodations/Differentiation:

Special Education Students	**English Language Learners**	**Struggling Learners**	**Advanced Learners**
• Use of Notebook Checklist • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• SMART Invitations • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	• Preferential Seating • Student Choice for Lab Safety Practicum • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Use of Notebook Checklist • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• Student choice of research topic based on interest

Unit Vocabulary:

Essential: Anatomy, Physiology, Cell, Tissue, Organ, Organ System, Organism, Metabolism, Homeostasis, Positive Feedback, Negative Feedback, Anatomical Position, Axial, Appendicular, Superior, Inferior, Ventral, Dorsal, Medial, Lateral, Proximal, Distal, Medical Imaging

Non-Essential: Gross Anatomy, Variable, Receptor, Effector, Body Planes, Body Cavities, Laboratory Tools

Interdisciplinary Connections (Applicable Standards):	**Integration of Technology:**	**21st Century Themes:**	**21st Century Skills:**
Literacy: • WHST.9-12.2 Write informative explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. • WHST.9-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose or audience. • WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A) • Presentation Software- PowerPoint and Prezi used to create an engaging Guided Note experience (A) • Chromebooks- access to government peer-reviewed database for current research (M) • Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	__X__ Critical Thinking and Problem Solving _X___ Communication & Collaboration __X__ Information Literacy

Career Ready Practices • CLKS.1 Act as a responsible and contributing community member and employee. • CRP2 Apply appropriate academic and technical skills • CRP4 Communicate clearly and effectively with reason • CLKS.4 Demonstrate creativity and innovation • CRP7 Employ valid and reliable research strategies • CLKS.6 Model integrity, ethical leadership, and effective management • CLKS.7 Plan education and career path aligned to personal goals • CLKS.8 Use technology to enhance productivity Career Exploration • 9.2.12.CAP.4 Review career goals and determine steps necessary for attainment			

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela

Unit: 2 Histology	Recommended Duration: 7 Weeks/ October-November
Unit Description: Prior to Unit 2: Histology, students will be able to identify the structural organization of the human body. The purpose of Unit 2: Histology is to explain the structure and function of the cellular and tissue levels of the human body. Unit 2: Histology will provide students with a review of cells and cellular function as well as explore the types of tissues that are created by cells. Students will create a wet mount slide and classify tissue specimens using a microscope.	

Essential Questions:	Enduring Understandings:
• How and why does structure dictate the function of anatomy? • What are the different types of tissues in our bodies and what would happen to your body if you were missing one of them?	• All living organisms are composed of cells, which are the basic structural and functional units of life. Cells vary in shape and size. • The structure of a cell determines the function. The function of a cell determines its role within a system. • Tissues are collections of structurally similar cells with related functions. • There are four primary tissue types: epithelial, connective, muscle, and nervous. These tissues work together to form organs and organ systems that keep our bodies safe, healthy, and whole.

Relevant Standards:	Learning Goals:	Learning Objectives:
Science: • NJSLS HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).	• NJSLS HS-LS1-2 Describe the structure of a cell and organelles and explain how the structure determines function within a system. (2 weeks) • NJSLS HS-LS1-2 Identify the structure, location, and function of epithelial, connective, muscular, and nervous tissue. (2 weeks) • NJSLS HS-LS1-2 Classify tissue samples based on their structure. • NJSLS HS-LS1-2 Create a wet mount slide of human epithelial tissue. (2 weeks)	Students will be able to… • Describe the major components of cell and their functions. • Create a model of the cell membrane and describe how its structure relates to the function. • Explain the structure, function, and location of cellular junctions. • Compare passive and active transport and provide an example of each. • Identify the structure and function of organelles. • Create a wet mount slide and correctly identify cheek cells using a microscope. • List the structure, function, and location of epithelial tissue. • **Honors:** Identify the structure, location, and function of glands within the human body.

Relevant Standards:	Learning Goals:	Learning Objectives:
Career Ready Practices • CRP2 Apply appropriate academic and technical skills • CRP4 Communicate clearly and effectively with reason • CLKS.8 Use technology to enhance productivity Career Exploration • 9.2.12.CAP.4 Review career goals and determine steps necessary for attainment		• List the structure, function, and location of connective tissue. • List the structure, function, and location of muscle tissue. • List the structure, function, and location of nervous tissue. • Using a microscope, classify the type of tissue. • **Honors:** List the structure, function, and location of transitional, pseudostratified, and elastic cartilage tissue. • Dissect a specimen to engage in a conversation of comparative anatomy.

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 2.1 Quiz: Cell Boot Camp • Unit 2.2 Quiz: Tissues Part #1 • Unit 2.3 Quiz: Tissues Part #2 • Unit 2 Learning Goals (Prove Its)	• Unit 2 Exam	• Unit 2 Histology (Microscope) Lab	• Microscope Intro Practicum • Histology Lab with Tissue Identification • Cell Modeling Whiteboard Activity • Unit 2.1 Quiz: Cell Boot Camp • Unit 2.2 Quiz: Tissues Part #1 • Unit 2.3 Quiz: Tissues Part #2 • Unit 2 Learning Goals (Prove Its)

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students	**English Language Learners**	**Struggling Learners**	**Advanced Learners**
• Replace written assessment with sketches/pictures for Histology Lab • Model use of microscope • Unit 2 Test Study Guide	• SMART Invitations • Unit 2Test Study Guide • Unit 2.1 Quiz extended time • Unit 2.2 Quiz extended time	• Preferential Seating • Student Choice for Lab Safety Practicum • Unit 2 Test Study Guide	• Provide video for microscope training- allow independent progression through practicum

Possible Assessment Modifications /Accommodations/ Differentiation:			
• Unit 2.1 Quiz extended time • Unit 2.2 Quiz extended time • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Order test items from least complex to most complex.	• Replace written assessment with sketches/pictures for Histology Lab • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	• Replace written assessment with sketches/pictures for Histology Lab • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	• Histology Lab Extension Activity: Wet Mount Slides

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.6—Identifying critical information during Guided Notes • DQ 2.7—Organizing students to interact with new knowledge during the Histology Lab • DQ 2.8—Previewing new content by using Daily Warm-Ups • DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes • DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes • DQ 2.11—Elaborating on new information during the Wet Mount Slide Extension Activity • DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit • DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets • DQ 3.14—Reviewing content during daily Warm-Ups and Homework review • DQ 3.19—Practicing skills, strategies, and processes during the Histology Lab • DQ 4.21—Organizing students for cognitively complex tasks during practice for Histology Lab

Possible Instructional Modifications /Accommodations/Differentiation:			
Special Education Students • Use of Notebook Checklist • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes	**English Language Learners** • SMART Invitations • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes	**Struggling Learners** • Preferential Seating • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Use of Notebook Checklist	**Advanced Learners** • Individual (student choice) research using peer-reviewed article database

Possible Instructional Modifications /Accommodations/Differentiation:			
• Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	• Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	

Unit Vocabulary:
Essential: Cell, Cell Membrane, Endoplasmic Reticulum, Lysosome, Mitochondria, Microvilli, Golgi Apparatus, Ribosomes, Plasma Membrane, Tight Junction, Desmosomes, Gap Junctions, Active Transport, Passive Transport, Osmosis, Sodium Potassium Pump, Endocytosis, Exocytosis, Epithelial, Squamous, Cuboidal, Columnar, Simple, Stratified, Gland, Areolar, Adipose, Reticular, Dense Regular, Dense Irregular, Hyaline, Elastic, Fibrocartilage, Bone, Blood, Skeletal Muscle, Smooth Muscle, Cardiac Muscle, Nervous Tissue **Non-Essential:** Avascular, Phospholipid Bilayer, Hydrophilic, Hydrophobic, ATP, MICROSCOPE: Coarse Adjustment, Fine Adjustment, Magnification, Objectives, Wet Mount Slide

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6). Career Ready Practices	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A) • Presentation Software- PowerPoint and Prezi used to create an engaging Guided Note experience (A) • Chromebooks- access to government peer-reviewed database for current research (M)	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	_X___ Life and Career Skills

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
• CRP2 Apply appropriate academic and technical skills • CRP4 Communicate clearly and effectively with reason • CLKS.8 Use technology to enhance productivity Career Exploration • 9.2.12.CAP.4 Review career goals and determine steps necessary for attainment	• Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)		

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela

Unit: 3 Integumentary and Digestive Systems	Recommended Duration: 8 Weeks/ December-January
Unit Description: Unit 3: Integumentary and Digestive System will introduce students to the anatomy and physiology of the integumentary and digestive systems. Students will begin by identifying the structural components of the integumentary system and then use that information to understand the physiology of skin, followed by an analysis of various homeostatic imbalances of skin. Students will then explore the structure and function of the digestive system, as well as identify symptoms, causes, and treatments of digestive system disorders. The Unit will conclude with a discussion of the connections between the Integumentary System and the Digestive System.	

Essential Questions:	Enduring Understandings:
• How and why does structure dictate the function of anatomy? • What would happen to our bodies if we didn't have skin? • What would happen to our bodies if we didn't have a digestive system?	• The skin and its derivatives (glands, hair, nails) make up a complex set of organs that have several functions in the human body. • The skin serves as protection, cutaneous sensation, temperature regulation, metabolic function, as a blood reservoir, and assists in excretion. • The digestive system includes the following activities; ingestion, propulsion, mechanical digestion, chemical digestion, absorption, and defecation. • The digestive system keeps the blood supplied with nutrients needed by the body tissues to fuel their energy needs and maintain health.

Relevant Standards:	Learning Goals:	Learning Objectives:
Science: • NJSLS HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms • NJSLS HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis Literacy: • NJSLS WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate;	• NJSLS HS-LS1-2 Describe the structure of the integumentary system. • NJSLS HS-LS1-2 Explain the physiology of the integumentary system. (2 weeks) • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the integumentary system. (2 weeks) • NJSLS HS-LS1-2 Describe the structure of the digestive system. • NJSLS HS-LS1-2 Explain the physiology of the digestive system.	Students will be able to… • Name the tissue types composing the epidermis and dermis. • List the major layers of the dermis and epidermis and describe the functions of each layer. • Describe the factors that contribute to skin color. • Describe how changes to skin color may be used as a clinical sign of disease. • Compare the structure and location of sweat and oil glands. • Compare the composition and function of secretions by sweat and oil glands. • Identify the structure and function of a hair follicle.

Relevant Standards:	Learning Goals:	Learning Objectives:
synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation • NJSLS SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest. Career Ready Practices • CLKS.8 Use technology to enhance productivity increase collaboration and communicate effectively • CLKS.9 Work productively in teams while using cultural/global competence Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).	(2 weeks) • NJSLS HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the digestive system. • NJSLS HS-LS1-2 Discuss connections between the body systems of the human body. (2 weeks)	• Describe distribution, growth, replacement, and changing nature of hair during a life span. • Describe the structure of a nail. • Describe various homeostatic imbalances of skin. • Describe the function of the digestive system and differentiate between the alimentary canal and accessory digestive organs. • List and define the major processes occurring during the digestive process. • Describe the anatomy and basic function of each organ of the alimentary canal. • Describe the mechanism of chewing and swallowing. • Describe the composition of gastric juices and their regulation. • List the enzymes involved in chemical digestion.

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 3.1 Quiz: Integumentary System • Unit 3.2 Quiz: Digestive System	• Unit 3 Exam • Integumentary System Lab Report	• Integumentary Lab Practical • Digestive Lab Practical	• Integumentary System Practice Activity • Unit 3.1 Quiz: Integumentary System

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 3 Learning Goals (Prove Its)	• Digestive System Lab Report • Disorders of the Integumentary Research Poster		• Unit 3.2 Quiz: Digestive System • Unit 3 Learning Goals (Prove Its) • Integumentary System Lab • Frog Dissection • Digestive System Lab • Fetal Pig Dissection • Disorders of the Integumentary System Research Poster

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students • Replace written assessment with sketches/pictures for Integumentary Lab • Resources for Integumentary Disorder Research Poster uploaded to Google Classroom • Microscope Use Skills Checklist • Unit 3 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Order test items from least complex to most complex.	**English Language Learners** • SMART Invitations for extended time or review • Replace written assessment with sketches/pictures for Integumentary Lab • Resources for Integumentary Disorder Research Poster uploaded to Google Classroom • Microscope Use Skills Checklist • Unit 3 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	**Struggling Learners** • Preferential Seating • Replace written assessment with sketches/pictures for Integumentary Lab • Resources for Integumentary Disorder Research Poster uploaded to Google Classroom • Microscope Use Skills Checklist • Unit 3 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	**Advanced Learners** • Allow student choice and extension in Integumentary Research Poster • Provide extension activity (wet mount slide) during Digestive System Lab

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.6—Identifying critical information during Guided Notes • DQ 2.7—Organizing students to interact with new knowledge during the Integumentary Lab and Digestive Lab

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.8—Previewing new content by using Daily Warm-Ups • DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes • DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes • DQ 2.11—Elaborating on new information during the dissection and microscope lab • DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit • DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets • DQ 3.14—Reviewing content during daily Warm-Ups and Homework review • DQ 3.19—Practicing skills, strategies, and processes during the Integumentary Lab and Digestive System Lab

Possible Instructional Modifications /Accommodations/Differentiation:			
Special Education Students • Use of Notebook Checklist • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	**English Language Learners** • SMART Invitations • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	**Struggling Learners** • Preferential Seating • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Use of Notebook Checklist • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	**Advanced Learners** • Use KWL to identify prior knowledge and opportunity for extension

Unit Vocabulary:
Essential: Epidermis, Keratin, Thick Skin, , Dermis, Papillary Layer, Reticular Layer, Melanin, Carotene, Sweat Glands, Oil Glands, Sebum, Hair, Cuticle, Hair Follicle, Alimentary Canal, Accessory Digestive Organs, Ingestion, Propulsion, Peristalsis, Mechanical Digestion, Chemical Digestion, Defecation, Mesentery, Buccal Cavity, Labia, Vestibule, Labial Frenulum, Palate, Uvula, Tongue, Bolus, Fungiform Papillae, Saliva, Salivary Glands, Teeth, Pharynx, Esophagus, Stomach, Small Intestine, Duodenum, Jejunum, Ileum, Villi, Liver, Bile, Gallbladder, Pancreas, Large Intestine, Cecum, Colon, Rectum, Anus **Non-Essential:** Stratum Basale, Stratum Spinosum, Stratum Granulosum, Stratum Lucidum, Stratum Corneum, Gastric Juice, Cephalic Reflex, Gastric Phase,

Unit Vocabulary:
Intestinal Phase, Mastication, Deglutition, Chyme, Rugae, Fundus, Pyloric Sphincter

Interdisciplinary Connections (Applicable Standards):	**Integration of Technology:**	**21st Century Themes:**	**21st Century Skills:**
Literacy: • NJSLS WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation • NJSLS SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest. Career Ready Practices • CLKS.8 • CLKS.9 Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A) • Presentation Software- PowerPoint and Prezi used to create an engaging Guided Note experience (A) • Chromebooks- access to government peer-reviewed database for current research (M) • Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	__X__ Critical Thinking and Problem Solving __X__ Communication & Collaboration

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela

Unit: 4 Cardiovascular, Respiratory and Excretory Systems (sequence)	**Recommended Duration: 6 Weeks: February-March**
Unit Description: Unit 4: Cardiovascular, Respiratory and Excretory Systems will introduce students to the anatomy and physiology of the cardiovascular, respiratory and excretory systems. Students will begin by identifying the structural components of the cardiovascular system and then use that information to understand the physiology of circulation, followed by an analysis of various homeostatic imbalances of the heart and circulation. Students will then explore the structure and function of the respiratory system, as well as identify symptoms, causes, and treatments of respiratory system disorders. Students will also engage in exploring the structure and function of the excretory system, as well as identify symptoms, causes, and treatments of excretory system disorders. The Unit will conclude with a discussion of the connections between the Cardiovascular System, Respiratory System, Excretory System and the previously discussed systems from Units 2 and 3.	

Essential Questions:	**Enduring Understandings:**
• How and why does structure dictate the function of anatomy? • How are systems of the body interconnected and build on one another?	• The circulatory system is composed of the heart and a vascular system responsible for transporting nutrients throughout the body. • The respiratory system is composed of the lungs, diaphragm, and other structures responsible for the exchange of gases required for sustaining life.

Relevant Standards:	**Learning Goals:**	**Learning Objectives:**
Science: • HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms • HS-LS1-3 Plan and conduct in investigation to provide evidence that	• Describe the structure of the cardiovascular system. • Explain the physiology of the cardiovascular system. • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the cardiovascular system. • Describe the structure of the respiratory system. • Explain the physiology of the respiratory	Students will be able to… • Describe the size, shape, location, and orientation of the heart in the thorax. • Name the coverings of the heart. • Describe the structure and function of the four chambers of the heart. • Trace the pathway of blood through the heart. • Name the heart valves, their location, and function.

Relevant Standards:	Learning Goals:	Learning Objectives:
feedback mechanisms maintain homeostasis • HS-ETS1-2 Engineering Design- Design a solution to a real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. Career Ready Practice: • CRP2 Apply appropriate academic and technical skills • CRP4 Communicate clearly and effectively with reason • CLKS.4 Demonstrate creativity and innovation • CRP7 Employ valid and reliable research strategies Literacy: • SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest. Literacy: • WHST.9-12.2 Write informative explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. • WHST.9-12.5 Develop and strengthen writing as needed by planning, revising,	system. • Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the respiratory system. • Discuss connections between the body systems of the human body.	• Name the components of the conduction system of the heart, and trace the conduction pathway. • Draw a diagram of a normal ECG, naming the waves and intervals, and what is occurring during each. • Describe normal heart sounds and explain how heart murmurs differ. • Identify the organs forming the respiratory passageway. • List and describe the protective mechanisms of the respiratory system. • Relate Boyle's Law to events of inspiration and expiration • Describe how the body controls respiration. • Identify causes, symptoms, and treatments of homeostatic imbalances of the respiratory system. • Identify the anatomy of the excretory system. • Describe the anatomy of the kidneys, ureters, urinary bladder and urethra in the abdomino-pelvic cavity. • Describe the function and location of the anatomical structures that make up the excretory system. • Describe the mechanism of urine formation and its pathway throughout the excretory system. • Describe the different components of urine. • Identify causes, symptoms, and treatments of homeostatic imbalances of the excretory system.

Relevant Standards:	Learning Goals:	Learning Objectives:
editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose or audience. Technology: • NJSLS 8.2.12.NT.2 Research an existing product, reverse engineer and redesign it to improve form and function		

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Unit 4.1 Quiz: Cardiovascular System Unit 4.2 Quiz: Respiratory System Unit 4.3 Quiz: Excretory System Unit 4 Learning Goals (Prove Its)	Unit 4 Exam	Cardio Lab Practical Respiratory Lab Practical Excretory Lab Practical	Unit 4.1 Quiz: Cardiovascular System Unit 4.2 Quiz: Respiratory System Unit 4.3 Quiz: Excretory System Unit 4 Learning Goals (Prove Its) Unit 4 Exam Pluck Physiology Activity Heart Dissection Blood Typing Mini-Lab ELISA Mini-Lab Lung Volume and Capacities Mini-Lab Excretory System Mini-Lab

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students • Provide lab skills checklist • Unit 5 Test Study Guide • Clarify and repeat directions as needed	**English Language Learners** • SMART Invitations for extended time or review • Unit 5 Test Study Guide	**Struggling Learners** • Preferential Seating • Workshop time for projects within instructional time • Unit 5 Test Study Guide	**Advanced Learners** • Optional essay format for Unit 5 Exam

Possible Assessment Modifications /Accommodations/ Differentiation:			
• Rephrase test directions/questions during assessments • Order test items from least complex to most complex.	• Provide lab demonstration videos for lab prep • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	• Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.6—Identifying critical information during Guided Notes • DQ 2.8—Previewing new content by using Daily Warm-Ups • DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes • DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes • DQ 2.11—Elaborating on new information during the dissection and microscope lab • DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit • DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets • DQ 3.14—Reviewing content during daily Warm-Ups and Homework review • DQ 3.19—Practicing skills, strategies, and processes during the Cardiovascular Lab and Pluck Physiology System Lab •

Possible Instructional Modifications /Accommodations/Differentiation:			
Special Education Students	**English Language Learners**	**Struggling Learners**	**Advanced Learners**
• Use of Notebook Checklist • Clarify and repeat directions as needed • Guided Notes to Chunk Information	• SMART Invitations • Clarify and repeat directions as needed • Guided Notes to Chunk Information	• Preferential Seating • Clarify and repeat directions as needed • Guided Notes to Chunk Information	• Use KWL to identify prior knowledge and opportunity for extension

Possible Instructional Modifications /Accommodations/Differentiation:			
• Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	• Use of Notebook Checklist • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	

Unit Vocabulary:
Essential: base, apex, pericardium, myocardium, endocardium, atria, ventricles, superior vena cava, inferior vena cava, pulmonary veins, aorta, coronary circulation, cardiac veins, tricuspid valve, mitral valve, chordae tendonae, aortic valve, pulmonary valve, sinoatrial node, atrioventricular node, bundle of His, Purkinje fibers, EKG, murmur, pharynx, larynx, trachea, bronchi, lungs, sinus, bronchioles, alveoli, pulmonary arteries, pulmonary veins, pleurae, inspiration, expiration, Boyle's Law, diaphragm, kidneys, ureters, urinary bladder, urethra, renal cortex, renal pyramids, renal pelvis, renal arteries, renal veins, renal plexus, nephrons, glomerulus, renal corpuscle, renal tubule, capillary beds, juxtaglomerular apparatus. **Non-Essential:** P Wave, QRS complex, T wave, PQ interval, QT interval, Valsalva's Maneuver

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
Career Ready Practice: • CRP2 Apply appropriate academic and technical skills • CRP4 Communicate clearly and effectively with reason • CLKS.4 Demonstrate creativity and innovation	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A)	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	__X__ Communication & Collaboration

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
• CRP7 Employ valid and reliable research strategies Literacy: • SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest. Literacy: • WHST.9-12.2 Write informative explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. • WHST.9-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose or audience. Technology: • NJSLS 8.2.12.NT.2 Research an existing product, reverse engineer and redesign it to improve form and function	• Presentation Software- PowerPoint and Prezi used to create an engaging Guided Note experience (A) • Chromebooks- access to government peer-reviewed database for current research (M) • Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)		

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela

Unit: 5 Movement (Skeletal and Muscular Systems)	**Recommended Duration:** 6 Weeks/January-February
Unit Description: Unit 5: Movement (Skeletal and Muscular Systems) will introduce students to the anatomy and physiology of the skeletal and muscular systems. Students will begin by identifying the structural components of the skeletal system and then use that information to understand the physiology of bone, followed by an analysis of various homeostatic imbalances of the skeleton. Students will then explore the structure and function of the muscular system, as well as identify symptoms, causes, and treatments of muscular system disorders. The Unit will conclude with a discussion of the connections between the Skeletal System, Digestive System, and the previously discussed systems from Units 2, 3, and 4.	

Essential Questions:	**Enduring Understandings:**
• How and why does structure dictate the function of anatomy? • How are systems of the body interconnected and build on one another?	• Our skeletal system supports us, protects out insides, gives us stature, contributes to our shape, and allows us to move. • The structure and composition of our cartilage and bone connects to its function in our body systems. • Muscle tissue is able to transform chemical energy into mechanical energy and exert force to move our bodies.

Relevant Standards:	**Learning Goals:**	**Learning Objectives:**
Science: • HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms • HS-LS1-3 Plan and conduct in investigation to provide evidence that feedback mechanisms maintain homeostasis	• HS-LS1-2 Describe the structure of the skeletal system. • HS-LS1-2 Explain the physiology of the skeletal system. • HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the skeletal system. • HS-LS1-2 Describe the structure of the muscular system. • HS-LS1-2 Explain the physiology of the muscular system.	Students will be able to… • Describe the functional properties of the three types of cartilage and their locations in the human body. • Describe the process of cartilage growth. • Name the regions of the human skeleton and their functions. • Compare and contrast the four classifications of bones and provide an example of each. • Describe the gross anatomy of a long bone. • Identify bone markings and their functions.

Relevant Standards:	Learning Goals:	Learning Objectives:
Career Ready Practice: • CRP4 Communicate clearly and effectively with reason • CLKS.5 Utilize critical thinking to make sense of problems and persevere in solving them • CLKS.9 Work productively in teams while using cultural global competence Literacy: • SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest.	• HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the muscular system. • HS-LS1-2 Discuss connections between the body systems of the human body.	• Compare and contrast bone development. • Describe the process of bone remodeling and repair. • Describe the gross structure of skeletal muscle. • Describe the microscopic structure and function of skeletal muscle. • Explain the sliding filament model of contraction. • Define motor unit and explain how muscle fibers are stimulated to contract. • Describe the metabolism of muscle tissue. • Compare and contrast smooth muscle and skeletal muscle anatomy. • Explain the development of muscle tissue and the changes that occur with age.

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
Unit 5.1 Quiz: Skeletal System Unit 5.2 Quiz: Muscular System Unit 5 Learning Goals (Prove Its)	Unit 5 Exam Skeletal System Skeleton Project Muscular System Lab Report	Muscular System Model Creation	Unit 5.1 Quiz: Skeletal System Unit 5.2 Quiz: Muscular System Unit 5 Learning Goals (Prove Its) Unit 5 Exam Muscle Fatigue Lab Bone Model and Traumatic Mechanisms of Action Lab Skeletal System Skeleton Project Cat Dissection Muscular System Lab Report Muscular System Model Creation

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students	**English Language Learners** • SMART Invitations for extended time or review	**Struggling Learners** • Preferential Seating	**Advanced Learners** • Optional essay format for Unit 4 Exam

Possible Assessment Modifications /Accommodations/ Differentiation:			
• Provide resources for Skeletal System Project on Google Classroom • Provide examples and workshop time during SMART for Muscular Model Assessment • Unit 4 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Order test items from least complex to most complex.	• Resources for Skeletal System Project uploaded to Google Classroom • Unit 4 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	• Workshop time for projects within instructional time • Microscope Use Skills Checklist • Unit 4 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.6—Identifying critical information during Guided Notes • DQ 2.8—Previewing new content by using Daily Warm-Ups • DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes • DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes • DQ 2.11—Elaborating on new information during the dissection and microscope lab • DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit • DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets • DQ 3.14—Reviewing content during daily Warm-Ups and Homework review • DQ 3.19—Practicing skills, strategies, and processes during the Skeletal Lab and Muscular System Lab

Possible Instructional Modifications /Accommodations/Differentiation:			
Special Education Students • Use of Notebook Checklist • Clarify and repeat directions as needed	**English Language Learners** • SMART Invitations • Clarify and repeat directions as needed	**Struggling Learners** • Preferential Seating • Clarify and repeat directions as needed	**Advanced Learners** • Use KWL to identify prior knowledge and

Possible Instructional Modifications /Accommodations/Differentiation:			
• Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	• Guided Notes to Chunk Information • Use of Notebook Checklist • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	opportunity for extension

Unit Vocabulary:
Essential: Cartilage, axial skeleton, appendicular skeleton, long bone, short bone, sesamoid bone, flat bone, irregular bone, bone markings, compact bone, spongy bone, diaphysis, medullary cavity, epiphysis, epiphyseal line, periosteum, osteoblast, osteoclast, endosteum, red marrow, osteon, Haversian system, lamella, lacunae, canaliculi, ossification, bone remodeling, muscle fibers, voluntary, involuntary, skeletal muscle, smooth muscle, cardiac muscle, excitability, contractility, elasticity, endomysium, perimysium, epimysium, tendon, sarcoplasm, sarcomere, thick filament, thin filament, sliding filament model, **Non-Essential:** tuberosity, crest, trochanter, epicondyle, sinus, fossa, foramen, diploe, ACH, Action Potential, Motor Unit, ATP

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
Career Ready Practice: • CRP4 Communicate clearly and effectively with reason • CLKS.5 Utilize critical thinking to make sense of problems and persevere in solving them • CLKS.9 Work productively in teams while using cultural global competence	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A) • Presentation Software- PowerPoint and Prezi used to create an engaging Guided	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	__X__ Critical Thinking and Problem Solving

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
Literacy: • SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest.	Note experience (A) • Chromebooks- access to government peer-reviewed database for current research (M) • Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)		

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela

Unit: 6 Communication (Nervous and Endocrine Systems)	Recommended Duration: 6 Weeks: March-April
Unit Description: Unit 6: Communication will introduce students to the anatomy and physiology of the nervous and endocrine systems. Students will begin by identifying the structural components of the nervous system and then use that information to understand the physiology of neurons, followed by an analysis of various neurological homeostatic imbalances. Students will then explore the structure and function of the endocrine system, as well as identify symptoms, causes, and treatments of endocrine system disorders. The Unit will conclude with a discussion of the connections between the Nervous System, Endocrine System, and the previously discussed systems from Unit 2, Unit 3, Unit 4, and Unit 5.	

Essential Questions:	Enduring Understandings:
• What would happen to our bodies if we didn't have a brain or functioning nerves? • What would happen to our bodies if we didn't have hormones? • How are the nervous system and the endocrine systems related to the other systems we've discussed?	• The nervous system is the master controlling and communicating system of the body. • The cells of the nervous system communicate by chemical and electrical signals. • The endocrine system influences the metabolic activity of the body by using hormones.

Essential Questions:	Enduring Understandings:
	• Hormones are chemical messengers that bind to receptors to incite a response.

Relevant Standards:	Learning Goals:	Learning Objectives:
Science: • HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms • HS-LS1-3 Plan and conduct in investigation to provide evidence that feedback mechanisms maintain homeostasis Career Ready Practice: • CRP4 Communicate clearly and effectively with reason • CLKS.5 Utilize critical thinking to make sense of problems and persevere in solving them • CLKS.9 Employ valid and reliable research strategies Literacy: • SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest. Literacy: • WHST.9-12.5 Develop and strengthen writing as needed by planning, revising,	• HS-LS1-2 Describe the structure of the nervous system. • HS-LS1-2 Explain the physiology of the nervous system. (2 weeks) • HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the nervous system. (1 week) • HS-LS1-2 Describe the structure of the endocrine system. • HS-LS1-2 Explain the physiology of the endocrine system. (2 weeks) • HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the endocrine system. • Discuss connections between the body systems of the human body. (1 week)	Students will be able to… • Explain the structural and functional divisions of the nervous system. • List the types of neuroglia and cite their functions. • Define neuron, describe its important structural components, and relate each to a functional role. • Explain the importance of the myelin sheath. • Explain resting membrane potential. • Explain how action potentials are generated, and propagated along neurons. • Distinguish between electrical and chemical synapses. • Distinguish between excitatory and inhibitory postsynaptic potentials. • Define neurotransmitter and name several classes and functions of neurotransmitters. • Identify the function and location of parts of the human brain. • Describe symptoms, causes, and treatments of various neurological disorders. • List the major endocrine organs and identify their body locations. • Distinguish between hormones, paracrines, and autocrines. • Identify the origin, target, and function of various hormones of the endocrine system.

Relevant Standards:	Learning Goals:	Learning Objectives:
editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose or audience. Technology: • NJSLS 8.2.12.NT.2 Research an existing product, reverse engineer and redesign it to improve form and function		

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 6.1 Quiz: Nervous System • Unit 6.2 Quiz: Endocrine System • Unit 6 Learning Goals (Prove Its)	• Unit 6 Exam • Brain Dissection Lab Report • Endocrine System Disorder Poster Project	• Nervous System Practical	• Nervous System Review Packet • Nervous System Quiz 6.1 • Nervous System Lab Report • Nervous System Lab Practical • Endocrine System Review Packet • Endocrine Quiz 6.2 • Hormone Replacement Therapy Lab • Endocrine Disorder Poster Project • Prove Its • Unit 6 Exam

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students • Provide lab skills checklist • Unit 6 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments	**English Language Learners** • SMART Invitations for extended time or review • Unit 6 Test Study Guide • Provide lab demonstration videos for lab prep • Clarify and repeat directions as needed	**Struggling Learners** • Preferential Seating • Workshop time for projects within instructional time • Unit 6 Test Study Guide • Clarify and repeat directions as needed	**Advanced Learners** • Require additional peer-review articles for Endocrine Disorder Poster Project

Possible Assessment Modifications /Accommodations/ Differentiation:			
• Order test items from least complex to most complex.	• Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	• Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	

Instructional Strategies (*Robert Marzano's* 41 Elements):
• DQ 2.6—Identifying critical information during Guided Notes • DQ 2.7—Organizing students to interact with new knowledge during the Introduction to Hormone activity • DQ 2.8—Previewing new content by using Daily Warm-Ups • DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes • DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes • DQ 2.11—Elaborating on new information during the Endocrine Disorder Poster Project assignment • DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit • DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets • DQ 3.14—Reviewing content during daily Warm-Ups and Homework review • DQ 3.17—Examining similarities and differences by comparing Endocrine and Nervous Systems • DQ 3.19—Practicing skills, strategies, and processes when analyzing peer-reviewed articles • DQ 4.23—Providing resources and guidance during SMART Enrichment

Possible Instructional Modifications /Accommodations/Differentiation:			
Special Education Students	**English Language Learners**	**Struggling Learners**	**Advanced Learners**
• Use of Notebook Checklist • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments	• SMART Invitations • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Highlight key ideas during Guided Notes	• Preferential Seating • Clarify and repeat directions as needed • Guided Notes to Chunk Information • Use of Notebook Checklist • Highlight key ideas during Guided Notes	• Use KWL to identify prior knowledge and opportunity for extension • Partner "speed conferencing" to share interesting peer-reviewed articles during Endocrine Disorder Poster Project

Possible Instructional Modifications /Accommodations/Differentiation:			
• Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	• Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	

Unit Vocabulary:
Essential: hormone, endocrine glands, pineal gland, hypothalamus, pituitary gland, thyroid gland, thymus, adrenal glands, pancreas, ovary, testes, growth hormone, TSH, ACTH, FSH, LH, PRL, Oxytocin, ADH, Thyroid Hormone, Calcitonin, Testosterone, Epinephrine, Insulin, Glucagon, Melatonin, Gastrin, CNS, PNS, somatic nervous system, autonomic nervous system, sympathetic nervous system, parasympathetic nervous system, neuroglia, glial cells, neuron, cell body, dendrite, axon, myelin sheath, synapse, resting membrane potential, action potential, depolarization, sodium potassium pump, neurotransmitters **Non-Essential:** goiter, hyperthyroidism, hypothyroidism, Diabetes, receptor, ACH

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
Career Ready Practice: • CRP4 Communicate clearly and effectively with reason • CLKS.5 Utilize critical thinking to make sense of problems and persevere in solving them • CLKS.9 Employ valid and reliable research strategies Literacy: • SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings,	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A) • Presentation Software- PowerPoint and Prezi used to create an engaging Guided Note experience (A) • Chromebooks- access to government peer-reviewed database for current research	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	__X__ Communication & Collaboration

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
reasoning, and evidence to add interest. Literacy: • WHST.9-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose or audience. Technology: • NJSLS 8.2.12.NT.2 Research an existing product, reverse engineer and redesign it to improve form and function	(M) • Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)		

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela

Unit: 7 Reproduction	Recommended Duration: 4 Weeks: May-June
Unit Description: Unit 7: Reproduction will introduce students to the anatomy and physiology of male and female human body. Students will begin by identifying the structural components of the male reproductive system and then use that information to understand the physiology of male reproduction. Students will then explore the structure and function of the female reproductive system, followed by an analysis of various reproductive homeostatic imbalances in both male and female bodies. The Unit will conclude with a discussion of the connections between the Reproductive System and the other Systems discussed throughout this course.	

Essential Questions:	Enduring Understandings:
• How are the male and female reproductive systems different? • How does the male reproductive system work? • How does the female reproductive system work?	• Although the male and female reproductive systems are different, the goal for both systems is to produce offspring. • Sex hormones in both males and females play vital roles in development of the reproductive organs and sexual behavior and drives. • Sexually transmitted diseases are infectious, spread through sexual contact, and are preventable.

Relevant Standards:	Learning Goals:	Learning Objectives:
Science: • HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms • HS-LS1-3 Plan and conduct in investigation to provide evidence that feedback mechanisms maintain homeostasis Literacy: • NJSLS WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation • NJSLS SL.11-12.5 Make strategic use of digital media in presentations to	• HS-LS1-2 Describe the structure and explain the physiology of the male reproductive system. • HS-LS1-2 Describe the structure and explain the physiology of the female reproductive system. (2 weeks) • HS-LS1-3 Apply anatomical and physiological understandings to analysis of homeostatic imbalances of the reproductive system. • HS-LS1-2 Discuss connections between the reproductive system and the other studied systems of the human body. (2 weeks)	Students will be able to… • Describe the structure and function of the testes, penis, and accessory organs of the male reproductive system. • Describe the sources and function of semen. • Describe the phases of the male sexual response. • Outline events of spermatogenesis. • Discuss hormonal regulation of testicular function and the physiological effect of testosterone on male reproductive anatomy. • Describe the location, structure, and function of the ovaries and other organs of the female reproductive system. • Describe the anatomy of the female genitalia. • Discuss the structure and function of the mammary glands. • Describe the process of oogenesis. • Describe the ovarian and uterine cycles and their hormonal controls. • Describe the phases of the female sexual response. • Indicate the infectious agents and modes of transmission of various sexually transmitted diseases.

Relevant Standards:	Learning Goals:	Learning Objectives:
enhance understanding of findings, reasoning, and evidence to add interest. Career Ready Practices • CLKS.8 Use technology to enhance productivity • CLKS.9 Work productively in teams while using cultural global competence Technology: • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).		

Formative Assessments	Summative Assessments:	Performance Assessments:	Major Activities/ Assignments (required):
• Unit 7.1 Quiz: Reproductive System • Unit 7 Learning Goals (Prove Its)	• Unit 7 Exam • Reproduction Lab Report	• Cat Dissection Practical	• Reproductive System Review Packet • Reproductive System Quiz 7.1 • Cat Dissection • Cat Dissection Practical • Prove Its • Unit 7 Exam

Possible Assessment Modifications /Accommodations/ Differentiation:			
Special Education Students	**English Language Learners**	**Struggling Learners**	**Advanced Learners**
• Provide lab skills checklist		• Preferential Seating	

Possible Assessment Modifications /Accommodations/ Differentiation:			
• Unit 6 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Order test items from least complex to most complex.	• SMART Invitations for extended time or review • Unit 6 Test Study Guide • Provide lab demonstration videos for lab prep • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words	• Workshop time for projects within instructional time • Unit 6 Test Study Guide • Clarify and repeat directions as needed • Rephrase test directions/questions during assessments • Allow typed extended responses • No penalty for spelling errors • SMART Invitations	• Require additional peer-review articles for Endocrine Disorder Poster Project

Instructional Strategies (*Robert Marzano's* 41 Elements):

- DQ 2.6—Identifying critical information during Guided Notes
- DQ 2.7—Organizing students to interact with new knowledge during the Introduction to Hormone activity
- DQ 2.8—Previewing new content by using Daily Warm-Ups
- DQ 2.9—Chunking content into "digestible bites" by utilizing the Unit Guide "Prove Its" and Guided Notes
- DQ 2.10—Processing of new information by building in Partner Check Formative Assessments during Guided Notes
- DQ 2.12—Recording and representing knowledge by creating Graphic Organizers and creating models throughout the Unit
- DQ 2.13—Reflecting on learning during the "Prove It" Unit Guide Exit Tickets
- DQ 3.14—Reviewing content during daily Warm-Ups and Homework review
- DQ 3.17—Examining similarities and differences by comparing Cat Anatomy with Human anatomy
- DQ 3.19—Practicing skills, strategies, and processes when analyzing peer-reviewed articles
- DQ 4.23—Providing resources and guidance during SMART Enrichment

Possible Instructional Modifications /Accommodations/Differentiation:			
Special Education Students • Use of Notebook Checklist • Clarify and repeat directions as needed	**English Language Learners** • SMART Invitations • Clarify and repeat directions as needed	**Struggling Learners** • Preferential Seating • Clarify and repeat directions as needed	**Advanced Learners** • Creation of pacing contract for dissections

Instructional Strategies (*Robert Marzano's* 41 Elements):			
• Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	• Guided Notes to Chunk Information • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • Allow typed extended responses • No penalty for spelling errors • Reduce superfluous words • Use of Notebook Checklist	• Guided Notes to Chunk Information • Use of Notebook Checklist • Highlight key ideas during Guided Notes • Scaffolding questions to writing assignments • Model writing assignments using student examples • On-task/focusing prompts • No penalty for spelling errors • SMART Invitations	to allow different speed of completion. • Encourage learners to create practice practical specimens

Unit Vocabulary:
Essential: gonads, gametes, sex organs, testes, epididymis, urethra, prostate, scrotum, penis, foreskin, seminal glands, erection, ejaculation, orgasm, spermatogenesis, sperm, ovaries, ovarian follicles, ovulation, uterus, cervix, vagina, clitoris, mammary glands, oogenesis, ovarian cycle, menstrual cycle, gonorrhea, syphilis, chlamydia, genital warts, herpes **Non-Essential:** haploid, diploid, meiosis

Interdisciplinary Connections (Applicable Standards):	**Integration of Technology:**	**21st Century Themes:**	**21st Century Skills:**
Literacy: • NJSLS WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating	Technology: • Google Classroom- discussing, collaborating, assignment submission, and feedback portal for classroom content (A) • Presentation Software- PowerPoint and Prezi used to create an engaging Guided	__X__ Health Literacy: Students gain a deeper understanding of their own body systems, and how to create and maintain a healthy lifestyle.	__X__ Communication & Collaboration

Interdisciplinary Connections (Applicable Standards):	Integration of Technology:	21st Century Themes:	21st Century Skills:
understanding of the subject under investigation • NJSLS SL.11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest. **Career Ready Practices** • CLKS.8 Use technology to enhance productivity • CLKS.9 Work productively in teams while using cultural global competence **Technology** • 8.1.12.AP.7 Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users • 9.4.12.TL.4 Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).	Note experience (A) • Chromebooks- access to government peer-reviewed database for current research (M) • Microscopes- USB enabled microscopes allow students to view, discuss, and collaborate with course content (R)		

Resources:
Texts/Materials: Human Anatomy and Physiology, 7th Edition by Elaine N. Marieb and Katja Hoehn Leveled Reading- Newsela