DE ANATOMY & PHYSIOLOGY Curricular Documents

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DE Anatomy & Physiology Course Information	
CURRICULUM/CONTENT AREA	**COURSE LENGTH**
Science	1 semester
GRADE LEVEL	**DATE LAST REVIEWED**
11-12	2018 approved curriculum 2023 Evaluation of Program
PREREQUISITE(s) ***if applicable***	**BOARD APPROVAL DATE**
NA	*December 2024*
PRIMARY RESOURCE ***if applicable***	
Seeley's Anatomy & Physiology, 13th edition, McGraw-Hill.	

Desired Results	
COURSE DESCRIPTION	
Anatomy and Physiology is an advanced level biology course designed to help prepare students for a career in medicine, health or other science fields. This course will introduce the structure and function of the human body. We will explore the cellular organization of the body and the integration of those cells into tissues, organs, and systems. Students will engage in a variety of learning activities in the classroom, in laboratory exercises and investigations, and in reflective inquiry to explore and master the concepts in the course. Students may opt to take this course for dual credit.	
ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
Patterns: Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them. **Cause and Effect:** Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the	Unit 1: ➔ What is anatomy and how do we understand it? ➔ What is the relationship between anatomy and physiology? ➔ What are the levels of organization in an organism? ➔ Why is homeostasis important? ➔ How is anatomical vocabulary used? Unit 2: ➔ What are the structural components and functions of epithelial, connective, muscle and nervous tissues?

mechanisms by which they are mediated, is a major activity of science and engineering. **Scale, Proportion, and Quantity:** In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change. **Systems and Models:** A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems. **Energy and Matter:** Tracking energy and matter flows, into, and out of, and within systems helps one understand their system's behavior. **Structure and Function:** The way an object is shaped or structured determines many of its properties and functions. **Stability and Change:** For both designed and natural systems, conditions that affect stability and factors that control the rates of change are critical elements to consider and understand.	➔ How do cells work? ➔ How do dividing cells preserve and transmit their information and features? ➔ What is a tissue? How does the anatomy of each tissue type relate to its functions? Unit 3: ➔ How are the structures of skin connected to its function and how can they be disrupted? ➔ What is the integument and why is it so important? Unit 4: ➔ What is the structure and function of the skeletal system? ➔ What are the different types of skeletal joints? ➔ How do common skeletal disorders affect the skeletal system? ➔ How is the living skeleton integrated into the body's other systems? ➔ What features of the bones allow the skeleton to function? How does the skeleton move? Unit 5: ➔ What is the structure and function of the muscular system? ➔ How and why do muscles contract? ➔ How do muscles produce movement? Unit 6: ➔ How does the structure of a neuron affect function? ➔ What role does the central system have in maintaining homeostasis? ➔ What are nerves, and how do they work? ➔ How does the spinal cord process and deliver information? ➔ What features allow the brain to function? ➔ Why are the senses important in maintaining homeostasis? ➔ What are the functions of the Autonomic Nervous system? Unit 7: ➔ How does blood flow through the heart? ➔ What is the difference between veins and arteries? ➔ What is the function of the respiratory system? ➔ What happens when homeostasis is not maintained? ➔ How are the respiratory system and circulatory system connected? Unit 8: ➔ Why is the endocrine system important? ➔ How does the endocrine system work with the nervous system? Unit 9: ➔ What are the primary functions of our digestive system? ➔ What is the path of food through the digestive system? ➔ How do the various digestive organs contribute to the process of digestion? Unit 10: ➔ What is the structure and function of the lymphatic system? ➔ What is the difference between specific and nonspecific immunity? ➔ How do the various digestive organs contribute to the process of digestion?

3 Dimensional Standards



Cross Cutting Concepts BY GRADE BAND AND UNIT	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
Standard SCI.CC4 - Systems and System Models Students investigate or analyze a system by defining its boundaries and initial conditions, as well as its inputs and outputs. They use models (e.g., physical, mathematical, computer models) to simulate the flow of energy, matter, and interactions within and between systems at different scales. They also use models and simulations to predict the behavior of a system and recognize that these predictions have limited precision and reliability due to the assumptions and approximations inherent in the models. They also design systems to do specific tasks.	x	x	x	x	x	x	x	x	x	x
Standard SCI.CC7 - Stability and Change Students understand much of science deals with constructing explanations of how things change and how they remain stable. They quantify and model changes in systems over very short or very long periods of time. They see some changes are irreversible, and negative feedback can stabilize a system, while	x									

positive feedback can destabilize it. They recognize systems can be designed for greater or lesser stability.										

Science and Engineering Practices by GRADE BAND and UNIT	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
Standard SCI.SEP2 - Developing and Using Models Students use, synthesize, and develop models to predict and show relationships among variables and between systems and their components in the natural and designed world. This includes the following: • Evaluate merits and limitations of two different models of the same proposed tool, process, mechanism, or system in order to select or revise a model that best fits the evidence or design criteria. • Design a test of a model to ascertain its reliability. • Develop, revise, and use models based on evidence to illustrate and predict the relationships between systems or between components of a system. • Develop and use multiple types of models to provide mechanistic accounts and predict phenomena. Move flexibly between these model types based on merits and limitations. Develop a complex model that allows for manipulation and testing of a proposed process or system. • Develop and use a model (including mathematical and computational) to generate data to support explanations, predict phenomena, analyze systems, and solve problems.	x	x	x	x	x	x	x	x	x	x
Standard SCI.SEP3 - Planning and Conducting Investigations Students plan and carry out investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models: This includes the following: • Individually and collaboratively plan an investigation or test a design to produce data that can serve as evidence to build and revise models, support explanations for phenomena, and refine solutions to problems. Consider possible variables or effects and evaluate the investigation's design to ensure variables are controlled. • Individually and collaboratively plan and conduct an investigation to produce data to serve as the basis for evidence. • In the design, decide on types, how much, and accuracy of data needed to produce reliable measurements. Consider limitations on the precision of the data (e.g., number of trials, cost, risk, time) and refine the design accordingly. • Plan and conduct an investigation or test a design solution in a safe and ethical manner including considerations of environmental, social, and personal impacts.	x									

• Select appropriate tools to collect, record, analyze, and evaluate data. • Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated. • Manipulate variables and collect data about a complex model of a proposed process or system to identify failure points, or to improve performance relative to criteria for success.										

Disciplinary Core Ideas by GRADE BAND and UNIT										
LIFE SCIENCE										
Standard SCI.LS1										
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**	**Unit 10**
A. STRUCTURE & FUNCTION: Systems of specialized cells within organisms help perform essential functions of life. Any one system in an organism is made up of numerous parts. Feedback mechanisms maintain an organism's internal conditions within certain limits and mediate behaviors.	x	x	x	x	x	x	x	x	x	x
B. GROWTH AND DEVELOPMENT OF ORGANISMS: Growth and division of cells in organisms occurs by mitosis and differentiation for specific cell types.		x	x	x						

UNIT 1: Homeostasis, Anatomical Position, Directional Terms, Regional and Medical Terminology
This unit explores the foundational concepts of anatomy, the study of the body's structure, and how we understand it through various scientific techniques.The unit starts by investigating the levels of organization in organisms, from cells to tissues, organs, organ systems, and finally, the whole organism. Students gain a comprehensive understanding of how these levels interact to maintain life-sustaining processes, laying the groundwork for further exploration into the complexities of anatomy and physiology with the focus on the concept of homeostasis and its importance in ensuring the body's internal environment remains stable despite external fluctuations.

UNIT 1 DESIRED RESULTS

ESSENTIAL QUESTION:

- ➔ What is anatomy and how do we understand it
- ➔ What is the relationship between anatomy and physiology?
- ➔ What are the levels of organization in an organism?
- ➔ Why is homeostasis important?
- ➔ How is anatomical vocabulary used?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*

Cross Cutting Concepts	*Science & Engineering Practices (SEP)*	*Disciplinary Core Idea (DCI)*
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.	**LS1.A: Structure and Function** • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.
Stability and Change • Feedback (negative or positive) can stabilize or destabilize a system.	Planning and Carrying Out Investigations Planning and carrying out in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and	LS1.A: Structure and Function • Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors,

	test conceptual, mathematical, physical, and empirical models. • Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. - ***Connections to Nature of Science*** **Scientific Investigations Use a Variety of Methods** • Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.	allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.

3 DIMENSIONAL LEARNING TARGETS

- ➔ 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 an investigation to provide evidence that feedback mechanisms maintain homeostasis.
- ➔ HS-LS1-4. Use a model to illustrate the role of cellular division and differentiation in producing and maintaining complex organisms.

Key Topics

Organization of the Human Body
1. The Human Organism
2. The Chemical Basis of Life

UNIT 1 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can distinguish between anatomy and physiology and identify several branches of each. (HS-LS1-2)
- ➔ I can describe the organization of the human body with regard to systems. (HS-LS1-2)
- ➔ I can use appropriate anatomical terminology to identify key body structures, body regions, and directions in the body. (HS-LS1-2)
- ➔ I can define homeostasis and explain its importance to normal human functioning. (HS-LS1-3)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval) *Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit*		
Plan & Prep for the Unit Stage:		
Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?	Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*
Implementation Stage:		

Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	●
25/26	●
26/27	●
27/28	●

UNIT 2: Cell Structure and Function Characteristics of Tissues
It examines how cells function, how they preserve and transmit genetic information during division, and how different tissue types are structured to support their specific roles in the body. Students explore the structural components and functions of the four primary tissue types: epithelial, connective, muscle, and nervous tissues. Students engage in comparative analyses, microscopy labs, and discussions to deepen their understanding of tissue structure and function. Students gain a comprehensive understanding of the diverse roles these tissues play in the human body, the various types of cells, their arrangements, and specialized functions.

UNIT 2 DESIRED RESULTS		
ESSENTIAL QUESTION: ➔ What are the structural components and functions of epithelial, connective, muscle and nervous tissues? ➔ How do cells work? ➔ How do dividing cells preserve and transmit their information and features? ➔ What is a tissue? How does the anatomy of each tissue type relate to its functions?		
UNIT PRIORITY STANDARDS: *Students will know and be able to…*		
Cross Cutting Concepts	***Science & Engineering Practices (SEP)***	***Disciplinary Core Idea (DCI)***
Systems and System Models ● Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. ● Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. ● Use a model based on evidence to illustrate the relationships between systems or between components of a system.	LS1.A: Structure and Function ● Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. LS1.B: Growth and Development of Organisms ● In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a

		complex organism, composed of systems of tissues and organs that work together to meet the needs of the whole organism.

3 DIMENSIONAL LEARNING TARGETS

- ➔ HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
- ➔ HS-LS1-4. Use a model to illustrate the role of cellular division and differentiation in producing and maintaining complex organisms.

Key Topics

3. Cell Biology
4. Tissues

UNIT 2 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can explain how cells differentiate. (HS-LS1-4)
- ➔ I can identify and explain the structure and function of epithelial tissues. (HS-LS1-2, 4)
- ➔ I can identify and explain the structure and function of connective tissues. (HS-LS1-2, 4)
- ➔ I can identify and explain the structure and function of muscle tissues. (HS-LS1-2, 4)
- ➔ I can identify and explain the structure and function of neural tissues. (HS-LS1-2, 4)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work

with the elements of these practices.
The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval) *Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit*			
Plan & Prep for the Unit Stage:			
Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?		Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*
Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●
End of Unit Reflection:			

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	•
25/26	•
26/27	•
27/28	•

UNIT 3: Integumentary System
The next 4 units examine the integumentary, skeletal, muscular, and nervous systems, exploring their vital roles in protecting the body, producing movement, and processing information. It covers how the skeleton and muscles enable motion, how nerves and the spinal cord transmit signals, and how the brain and senses work together to maintain homeostasis, with the autonomic nervous system regulating involuntary functions. In unit 3, students learn about the integumentary system, delving into its structure, function, and the effects of aging. Through interactive lessons, laboratory activities, and discussions, students gain a profound understanding of the intricate components that make up the body's largest organ. The unit contains an in-depth examination of the epidermis, dermis and subcutaneous layers including an analysis of how aging affects the skin.

UNIT 3 DESIRED RESULTS		
ESSENTIAL QUESTION: ➔ How are the structures of skin connected to its function and how can they be disrupted? ➔ What is the integument and why is it so important?		
UNIT PRIORITY STANDARDS: *Students will know and be able to…*		
Cross Cutting Concepts	***Science & Engineering Practices (SEP)***	***Disciplinary Core Idea (DCI)***
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. • Use a model based on evidence to illustrate the relationships between systems or between components of a system.	**LS1.A: Structure and Function** • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. **LS1.B: Growth and Development of Organisms** • In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a

		complex organism, composed of systems of tissues and organs that work together to meet the needs of the whole organism.

3 DIMENSIONAL LEARNING TARGETS

- ➔ HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
- ➔ HS-LS1-4. Use a model to illustrate the role of cellular division and differentiation in producing and maintaining complex organisms.

Key Topics:
5. Integumentary System

UNIT 3 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can describe the main structural features of the epidermis, dermis and subcutaneous layers and explain their functional significance.(HS-LS1-2, 4)
- ➔ I can explain the damaging effects that can occur within the integumentary system. (HS-LS1-2)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
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Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
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LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●
End of Unit Reflection:			
● What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)			

- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	●
25/26	●
26/27	●
27/28	●

UNIT 4: Skeletal System
Students learn about the skeletal system by exploring its structure, function, and common disorders. Through engaging lessons, hands-on activities, and interactive discussions, students gain a comprehensive understanding of the skeletal system's role in supporting the body, protecting vital organs, and facilitating movement. The unit begins with an in-depth examination of the structure of bones, including their composition, classification, and formation through processes such as ossification. Students explore the diverse functions of the skeletal system by learning specific bones and investigating the various types of skeletal joints.

UNIT 4 DESIRED RESULTS

ESSENTIAL QUESTION:

- ➔ What is the structure and function of the skeletal system?
- ➔ What are the different types of skeletal joints?
- ➔ How do common skeletal disorders affect the skeletal system?
- ➔ How is the living skeleton integrated into the body's other systems?
- ➔ What features of the bones allow the skeleton to function? How does the skeleton move?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*

Cross Cutting Concepts	*Science & Engineering Practices (SEP)*	*Disciplinary Core Idea (DCI)*
Systems and System Models ● Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. ● Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.	LS1.A: Structure and Function ● Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

3 DIMENSIONAL LEARNING TARGETS

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

Key Topics:

6. Skeletal System: Bones and Bone Tissue

7. Skeletal System: Gross Anatomy
8. Joints and Movement

UNIT 4 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can describe the general structure and function of bone tissue. (HS-LS1-2)
- ➔ I can identify the major anatomical areas of a long bone. (HS-LS1-2)
- ➔ I can name and describe the various types of fractures. (HS-LS1-2)
- ➔ I can differentiate between the axial and appendicular skeleton. (HS-LS1-2)
- ➔ I can compare and contrast the structural and functional classifications of skeletal joints. (HS-LS1-2)
- ➔ I can explain abnormal bone anatomy and physiology. (HS-LS1-2)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
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  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval)

Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit

Plan & Prep for the Unit Stage:

Review Learners' Attributes and needs:	Send Family Unit Communication	Review any previous student

• Review 504s & IEP at a Glance • Review current classroom data (by standard) • Review any ACT, screening, or diagnostic data • Other?	☑ *ADD example link*	exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*

Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: • . • . Multiple Modes for Students to Express Understanding •	• *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: • . • . Multiple Modes for Students to Express Understanding	•

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	•
25/26	•

26/27	•
27/28	•

UNIT 5: Muscular System

Students explore the muscular system through a comprehensive study of its structure, function, and mechanisms of contraction. This unit features hands-on activities and interactive discussions that deepen understanding of how muscles support movement, maintain posture, and generate heat. Beginning with an in-depth examination of muscular structure, including muscle fibers, connective tissue, and neuromuscular junctions, students learn about skeletal, cardiac, and smooth muscles and their roles in voluntary and involuntary movements.

UNIT 5 DESIRED RESULTS

ESSENTIAL QUESTION:

- ➔ What is the structure and function of the muscular system?
- ➔ How and why do muscles contract?
- ➔ How do muscles produce movement?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*

Cross Cutting Concepts	*Science & Engineering Practices (SEP)*	*Disciplinary Core Idea (DCI)*
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	Developing and Using Models Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.	LS1.A: Structure and Function • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

3 DIMENSIONAL LEARNING TARGETS

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

Key Topics:
9. Muscular System: Histology and Physiology
10. Muscular System: Gross Anatomy
Integration and Control Systems

UNIT 5 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can identify and explain the physiology of muscle tissue. (HS-LS1-2)
- ➔ I can explain the major events of skeletal muscle fiber contraction. (HS-LS1-2)
- ➔ I can provide origin, insertion, action of major skeletal muscles. (HS-LS1-2)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval)

Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit

Plan & Prep for the Unit Stage:

Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?	Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*

Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	●

25/26	•
26/27	•
27/28	•

UNIT 6: Nervous System

This unit explores how the structure of neurons influences their function within the nervous system. Students investigate the components of neurons—dendrites, cell body, axon, and synaptic terminals—and how these elements facilitate the transmission of electrical and chemical signals. Additionally, students learn about the central nervous system's role in maintaining homeostasis, including its functions in integrating sensory information, coordinating responses, and regulating physiological processes like heart rate and temperature.

UNIT 6 DESIRED RESULTS

ESSENTIAL QUESTION:

- ➔ How does the structure of a neuron affect function?
- ➔ What role does the central system have in maintaining homeostasis?
- ➔ What are nerves, and how do they work?
- ➔ How does the spinal cord process and deliver information?
- ➔ What features allow the brain to function?
- ➔ Why are the senses important in maintaining homeostasis?
- ➔ What are the functions of the Autonomic Nervous system?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*

Cross Cutting Concepts	*Science & Engineering Practices (SEP)*	*Disciplinary Core Idea (DCI)*
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.	**LS1.A: Structure and Function** • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

3 DIMENSIONAL LEARNING TARGETS

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

Key Topics:

11. Functional Organization of Nervous Tissue
12. Spinal Cord and Spinal Nerves
13. Brain and Cranial Nerves
14. Integration of Nervous System Functions
15. The Special Senses
16. Autonomic Nervous System

UNIT 6 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can identify and explain the different cells types in the nervous system. (HS-LS1-2)
- ➔ I can describe an action potential. (HS-LS1-2)
- ➔ I can differentiate between the structure and function of the central and peripheral nervous system. (HS-LS1-2)
- ➔ I can identify the functional divisions of the nervous system. (HS-LS1-2)
- ➔ I can explain abnormalities of the nervous system. (HS-LS1-2)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval)

Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit

Plan & Prep for the Unit Stage:		
Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?	Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*

Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●

End of Unit Reflection:
● What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?) ● What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future? ● How are we celebrating with students and as a team?

24/25	•
25/26	•
26/27	•
27/28	•

The following units below are not requirements of the Dual Enrollment course, and are optional extension units into Anatomy & Physiology.

UNIT 7: Cardiovascular/Respiratory System
This unit focuses on the cardiovascular and respiratory systems. Students learn how blood flows through the heart, understanding its journey through atria, ventricles, and circulatory pathways. They differentiate between veins and arteries, grasp the respiratory system's role in oxygenating blood and removing carbon dioxide, and explore the consequences when homeostasis falters. Additionally, students investigate the interconnected functions of the respiratory and circulatory systems, highlighting their collaboration in maintaining bodily functions and health.

UNIT 7 DESIRED RESULTS

ESSENTIAL QUESTION:

- ➔ How does blood flow through the heart?
- ➔ What is the difference between veins and arteries?
- ➔ What is the function of the respiratory system?
- ➔ What happens when homeostasis is not maintained?
- ➔ How are the respiratory system and circulatory system connected?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*

Cross Cutting Concepts	*Science & Engineering Practices (SEP)*	*Disciplinary Core Idea (DCI)*
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales. Stability and Change • Feedback (negative or positive) can stabilize or destabilize a system.	Developing and Using Models Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. Planning and Carrying Out Investigations Planning and carrying out in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. • Plan and conduct an investigation individually and collaboratively to	LS1.A: Structure and Function • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. • Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.

	produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. - ***Connections to Nature of Science*** **Scientific Investigations Use a Variety of Methods** ● Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.	

3 DIMENSIONAL LEARNING TARGETS

- ➔ 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 an investigation to provide evidence that feedback mechanisms maintain homeostasis.

UNIT 7 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can describe the composition of whole blood. (HS-LS1-2, 3)
- ➔ I can describe the ABO and Rh blood groups. (HS-LS1-2)
- ➔ I can identify the anatomical structure of the heart. (HS-LS1-2)
- ➔ I can trace the pathway of blood through the heart and body. (HS-LS1-2)
- ➔ I can explain the cardiac cycle. (HS-LS1-2)
- ➔ I can understand blood pressure and how it regulates homeostasis. (HS-LS1-2, 3)
- ➔ I can describe the flow of air through the respiratory system. (HS-LS1-2)
- ➔ I can explain how oxygen and carbon dioxide are transported in the blood. (HS-LS1-2)
- ➔ I can understand how multiple systems interact to ensure continuous breathing. (HS-LS1-2, 3)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

- ➔ *Extensions & College/Career Readiness may include:*
  - ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval) *Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit*			
Plan & Prep for the Unit Stage:			
Review Learners' Attributes and needs: • Review 504s & IEP at a Glance • Review current classroom data (by standard) • Review any ACT, screening, or diagnostic data • Other?		Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*
Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**

LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	●
25/26	●
26/27	●
27/28	●

UNIT 8: Endocrine System

This unit explores the significance of the endocrine system and its interaction with the nervous system. Students investigate why the endocrine system is crucial for regulating bodily functions through hormone secretion, maintaining homeostasis, and coordinating growth, metabolism, and reproduction.

UNIT 8 DESIRED RESULTS

ESSENTIAL QUESTION:

- ➔ Why is the endocrine system important?
- ➔ How does the endocrine system work with the nervous system?

UNIT PRIORITY STANDARDS: *Students will know and be able to…*

Cross Cutting Concepts	*Science & Engineering Practices (SEP)*	*Disciplinary Core Idea (DCI)*
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.	**LS1.A: Structure and Function** • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

3 DIMENSIONAL LEARNING TARGETS

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

UNIT 8 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

1. I can compare the chemical classes of hormones. (HS-LS1-2)
2. I can describe the location and structure of each of the main endocrine glands. (HS-LS1-2)

3. I can identify the hormones produced by each endocrine gland and describe their effects. (HS-LS1-2, 3)
4. I can explain how the endocrine system helps maintain homeostasis. (HS-LS1-3)

Success Criteria Rubrics

➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
  - *Lab analysis questions and write-ups*
  - *Assess unit vocabulary terms*
  - *Evaluate student investigation tasks*
  - *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

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The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval) *Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit*		
Plan & Prep for the Unit Stage:		
Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?	Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*
Implementation Stage:		
Key Unit Vocabulary/ Root words:		

Recommended Pacing for Lesson/ Week	Learning Target (s)	Differentiation	Teacher Resources:
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding	●

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	●
25/26	●
26/27	●
27/28	●

UNIT 9: Digestive System
This unit explores the primary functions and processes of the digestive system. Students investigate how the digestive system functions to break down food, absorb nutrients, and eliminate waste. They trace the path of food from ingestion through the mouth, esophagus, stomach, small intestine, and large intestine, understanding the role of each organ in digestion and nutrient absorption.

UNIT 9 DESIRED RESULTS		
ESSENTIAL QUESTION: ➔ What are the primary functions of our digestive system? ➔ What is the path of food through the digestive system? ➔ How do the various digestive organs contribute to the process of digestion?		
UNIT PRIORITY STANDARDS: *Students will know and be able to…*		
Cross Cutting Concepts	***Science & Engineering Practices (SEP)***	***Disciplinary Core Idea (DCI)***
Systems and System Models ● Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales. **Stability and Change** ● Feedback (negative or positive) can stabilize or destabilize a system.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. ● Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. **Planning and Carrying Out Investigations** Planning and carrying out in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. ● Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and	**LS1.A: Structure and Function** ● Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. ● Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.

	accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. - ***Connections to Nature of Science*** **Scientific Investigations Use a Variety of Methods** ● Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.	

3 DIMENSIONAL LEARNING TARGETS

- ➔ 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 an investigation to provide evidence that feedback mechanisms maintain homeostasis.

UNIT 9 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can identify the organs of the digestive tract and the accessory organs of digestion. (HS-LS1-2)
- ➔ I can list the functions of the digestive system. (HS-LS1-2)
- ➔ I can describe the digestion and absorption of carbohydrates, lipids, and proteins. (HS-LS1-2)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*

- *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
- *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*
- *Lab analysis questions and write-ups*
- *Assess unit vocabulary terms*
- *Evaluate student investigation tasks*
- *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval) *Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit*			
Plan & Prep for the Unit Stage:			
Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?		Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*
Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*

LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content: • . • . Multiple Modes for Students to Express Understanding	•

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	•
25/26	•
26/27	•
27/28	•

UNIT 10: Lymphatic/Immune System
This unit focuses on the structure and function of the lymphatic system and explores the differences between specific and nonspecific immunity. These topics will focus on how the body maintains fluid balance, defends against pathogens, and distinguishes between general and targeted immune responses.

UNIT 10 DESIRED RESULTS		
ESSENTIAL QUESTION: ➔ What is the structure and function of the lymphatic system? ➔ What is the difference between specific and nonspecific immunity?		
UNIT PRIORITY STANDARDS: *Students will know and be able to…*		
Cross Cutting Concepts	***Science & Engineering Practices (SEP)***	***Disciplinary Core Idea (DCI)***
Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales. **Stability and Change** • Feedback (negative or positive) can stabilize or destabilize a system.	**Developing and Using Models** Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. **Planning and Carrying Out Investigations** Planning and carrying out in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. • Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to	**LS1.A: Structure and Function** • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. • Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.

	produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. - ***Connections to Nature of Science*** **Scientific Investigations Use a Variety of Methods** ● Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.	

3 DIMENSIONAL LEARNING TARGETS

- ➔ 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 an investigation to provide evidence that feedback mechanisms maintain homeostasis.

UNIT 10 ASSESSMENT EVIDENCE

Performance is evaluated in terms of… Students will show their learning by…

Performance Task Description(s):

- ➔ I can describe the structure and function of lymphatic vessels, lymph nodes, thymus and spleen. (HS-LS1-2)
- ➔ I can compare and contrast lymphocytes. (HS-LS1-2)
- ➔ I can distinguish between specific and nonspecific immune responses. (HS-LS1-2, 3)

Success Criteria Rubrics

- ➔ Standards-aligned rubrics are used for communicating the success criteria, goal setting, reflecting during & after the unit learning, and feedback. (Rubric links- TBD)

Key Feedback & Assessment Strategies *(What are different ways students can demonstrate their learning?)**:***

- ◆ *Conferring/Strategy Groups: Use current evidence of standards & learning targets, feedback is scaffolded based on student strengths, needs, and goals.*
- ◆ *Assessment of Unit Skills- Examples for Targeted Data Collection*
  - *Driving Question Board to gather background knowledge and activate prior knowledge*
  - *Student evidence notebooks: focus notes, CER argument writing, model & model revisions*
  - *Checks for understanding (exit slips, quickwrites, etc.) aligned to unit guiding questions*

- *Lab analysis questions and write-ups*
- *Assess unit vocabulary terms*
- *Evaluate student investigation tasks*
- *Assess key unit concepts (Unit summative assessment)*

➔ *Extensions & College/Career Readiness may include:*

- ◆ All lessons: Remove scaffolds provided with Science and Engineering Practices as a way to give students more independent work with the elements of these practices.

The above is not an exhaustive list but shows the possible strategies & tasks that provide meaningful student evidence of learning.

STAGE 3: UNIT LEARNING PLAN (under construction- note: this section does not require board approval) *Planned learning experiences and instruction: Learner Readiness, Key vocab, materials & resources unique to the unit*			
Plan & Prep for the Unit Stage:			
Review Learners' Attributes and needs: ● Review 504s & IEP at a Glance ● Review current classroom data (by standard) ● Review any ACT, screening, or diagnostic data ● Other?		Send Family Unit Communication ☐ *ADD example link*	Review any previous student exemplars Proficient ☐ *ADD LINK* Advanced/Excellent ☐ *ADD LINK*
Implementation Stage:			
Key Unit Vocabulary/ Root words:			
Recommended Pacing for Lesson/ Week	**Learning Target (s)**	**Differentiation**	**Teacher Resources:**
LESSON 1, WEEK 1 *Add more rows as needed*		Multiple Means for Students to Access Content: ● . ● . Multiple Modes for Students to Express Understanding ●	● *Example- Africa Storyline Calendar w/key videos, data sets & activities*
LESSON 2, WEEK 2 *Add more rows as needed*		Multiple Means for Students to Access Content:	●

		• . • . Multiple Modes for Students to Express Understanding	

End of Unit Reflection:

- What successes did we have with students learning our desired results (Enduring Understandings, Essential Questions, Priority Standards)? How do we know? (summative results? Progress monitoring data?)
- What opportunities do we have to leverage desired results (Enduring Understandings, Essential Questions, Priority Standards, Anchor Phenomenon) in the future?
- How are we celebrating with students and as a team?

24/25	•
25/26	•
26/27	•
27/28	•