Winslow Township School District
Human Anatomy and Physiology
Unit 1

Overview: Human Anatomy and Physiology is a course that is designed for students that are interested in expanding their knowledge in fields of life and health sciences. The primary focus of this course will be examining the structures of the major organ systems contained within the human body and how their structures are directly related to their functions. All major organ systems will be examined, but a background of cell structure and function, biochemistry, and microscopy techniques must be taken into consideration in the course before higher hierarchal levels of organization can be studied in detailed. A review of microscopy, cell structure and function, and macromolecules will be accomplished during this unit. Introductions to body positioning, cavities, tissues, and membranes will also be addressed during this unit as there is a natural progression from these topics to organ system structure and function. The integumentary system will be addressed following the review topics. Layers of skin, along with functions of these layers occur. Diseases and disorders of the skin will also be examined. Bone structure and function will occur during this unit. Differentiating between bone shapes, tissues, structures, and axial vs. appendicular skeleton also occurs during this unit of study.

Overview	Standards for Science	Unit Focus	Essential Questions
Unit 1 **Biological Organization** **Organ Systems**	• HS-LS1-1 • HS-LS1-6 • HS-LS1-2 • HS-LS1-3	• define anatomy and physiology and describe areas of specialty for each discipline (e.g., careers) • List and explain the functions of eukaryotic cell organelle. • Identify the major macromolecules essential to sustain life and explain their roles • identify the organ systems of the human body and the major components of each system • justify the importance of homeostasis • use anatomical terms to describe body sections, body regions, and relative positions • identify the major body cavities and their subdivisions • identify the body's major types of tissue and their roles • describe the types and functions of each epithelial tissue type • detail the structure and function of types of connective tissue • distinguish among types of muscle tissue and the function of each • explain how the skin responds to injury and how it repairs itself, • discuss the function of the accessory organs/glands of the skin	• How does biological organization play a role in the functioning of multicellular organisms? How does structure directly relate to function in the systems of multicellular organisms?

		• state the function of the skeletal system • compare and contrast the major types of bone (e.g., long, short, flat, irregular) • identify the structure of long bones and bone markings • describe the formation of the bony skeleton • analyze the function and development of both compact and spongy bone • identify major landmarks on various bones within the body • identify the bones of the skull and cranium and discuss their structure and function • identify the structure and function of the bony thorax • identify the form and function of the bones of the arm, forearm, and hand	
Unit 1: Enduring Understandings	• Understanding human anatomy and physiology allows the fields of science and medicine to practice and promote lifestyles that foster healthy living by a society • There is an interdependence between structure and function within organisms. The body is designed based on how is most efficiently functions. • There are several levels of organization that must be acknowledged in living organisms. Each level takes on its own properties and as the levels of organization evolve, so do emergent properties. • Living systems are not immune to disease and disorder. A problem with 1 part of a system will affect all parts of that system and will actually have a trickle-down effect to the entire organism.		

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Curriculum Unit 1	Standards		Pacing	
			Days	Unit Days
Unit 1: **Biological Organization** **Organ Systems**	**HS-LS1-1** **HS-LS1-6** **HS-LS1-2** **HS-LS1-3**	Intro to A& P Body Positioning, Body Cavities History of A & P Forces and Injury Tissues	12	50
	HS-LS1-1 **HS-LS1-6** **HS-LS1-2** **HS-LS1-3**	Tissues/Microscopy Intro to Integumentary Layers of Skin Accessory Organs Skin Anatomy and Disease Project Intro to Skeletal	19	
	HS-LS1-1 **HS-LS1-6** **HS-LS1-2** **HS-LS1-3**	Bone Identification Bone Tissues (Cortical and Trabecular) Bone Types Bone Anatomy Diseases of Skeletal	15	
	REVIEW AND ASSESSMENTS		4	

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Anatomy and Physiology Unit 1		
Disciplinary Core Ideas	**Indicator #**	**Indicator**
LS1.A: Structure and Function Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1) 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. (HS-LS1-2) 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. (HS-LS1-3)	HS-LS1-1.	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
	HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms
	HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Unit 1	
• **Assessment Plan**	
• Exploratory activities • Warm-up activities • Individual/Group Lab report • Class discussions • Student Participation • Teacher Observations	•Quizzes • Tests • Authentic assessments and projects • Exploratory activities • Presentations

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Resources	Activities
• Chromebooks • Textbook • Reading Essentials Workbook • Web Quests • Virtual Field Trips • Video Streaming • BrainPOP • Puzzlemaker: Game Based Learning | Discovery Education • **Diversity, Equity & Inclusion Educational Resources** https://www.nj.gov/education/standards/dei/	• Use physical models to examine the phases of the moon using a light source and a moon model to view the various shapes of the moon as it orbits the earth and keep a lunar calendar for one month and analyze the results by looking for differences and patterns. • Measure the acceleration of the objects as they fall from various heights and determine that the objects speed up as they fall, therefore proving that a force is acting on them. • mini-lessons • independent reading • films • website exploration • discussions, dialogues • debates • partner or small group work • student presentations, reports, journals, reflections, • in-class assessments, • written reports, essays, research, and homework

Instructional Best Practices and Exemplars	
1. Identifying similarities and differences 2. Summarizing and note taking 3. Reinforcing effort and providing recognition 4. Homework and practice 5. Nonlinguistic representations	6. Cooperative learning 7. Setting objectives and providing feedback 8. Generating and testing hypotheses 9. Cues, questions, and advance organizers 10. Manage response rates

Winslow Township School District
Human Anatomy and Physiology
Unit 1

9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training & 9.4 Life Literacies and Key Skills
9.2.12.CAP.2: Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs. 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth. 9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task 9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data. 9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments. 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 The implementation of the 21st Century skills and standards for students of the Winslow Township District is infused in an interdisciplinary format in a variety of curriculum areas that include, English language Arts, Mathematics, School Guidance, Social Studies, Technology, Visual and Performing Arts, Science, Physical Education and Health, and World Language. Additional opportunities to address 9.1, 9.2 & 9.4: **Philadelphia Mint** https://www.usmint.gov/learn/kids/resources/educational-standards **Different ways to teach Financial Literacy.** https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Modifications for Special Education/504

Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities. Accommodations will be made for those students who need extra time to complete assignment. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.

- Small group instruction
- Audio books/ Text-to-speech platforms
- Leveled texts/Vocabulary Readers
- Leveled informational texts via online
- Modeling and guided practice
- Read directions aloud
- Repeat, rephrase and clarify directions
- Extended time as needed
- Break down assignments into smaller units
- Provide shortened assignments
- Modify testing format
- Repeat directions as needed
- Graphic organizers
- Study Guides, Study Aids and Re teaching as needed

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Modifications for At-Risk Students
Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations • Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community. • Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). • Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies). • Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences). • Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings. • Use project-based science learning to connect science with observable phenomena. • Structure the learning around explaining or solving a social or community-based issue. • Provide ELL students with multiple literacy strategies. • Collaborate with after-school programs or clubs to extend learning opportunities.

Winslow Township School District
Human Anatomy and Physiology
Unit 1

English Language Learners	Modifications for Gifted Students
All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors ☐ Grades 9-12 WIDA Can Do Descriptors: ☐ Listening ☐ Speaking ☐ Reading ☐ Writing ☐ Oral Language Students will be provided with accommodations and modifications that may include: • Relate to and identify commonalities in science studies in student's home country • Assist with organization • Use of computer • Emphasize/highlight key concepts • Teacher Modeling • Peer Modeling • Label Classroom Materials - Word Walls	Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic. ● Raise levels of intellectual demands ● Require higher order thinking, communication, and leadership skills ● Differentiate content, process, or product according to student's readiness, interests, and/or learning styles ● Provide higher level texts ● Expand use of open-ended, abstract questions ● Critical and creative thinking activities that provide an emphasis on research and in-depth study ● Enrichment Activities/Project-Based Learning/ Independent Study ● Variety of Repertoire: 3- 5 extra song selections ● above and beyond expectation for non- auditioned class., high school level selection Additional Strategies may be located at the links: ❖ Gifted Programming Standards ❖ Webb's Depth of Knowledge Levels and/or Revised Bloom's Taxonomy ❖ REVISED Bloom's Taxonomy Action Verbs

Winslow Township School District
Human Anatomy and Physiology
Unit 1

Interdisciplinary Connections
ELA: **WIDA Standards 1** English language learners communicate for social and instructional purposes within the school setting **WIDA Standards 4**English language learners communicate information, ideas, and concepts necessary for academic success in the content area of science **RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts. **RST.6-8.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). **SL.8.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. **Math:** **MP.2** Reason abstractly and quantitatively. **MP.4** Model with mathematics. **6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. **7.RP.A.2** Recognize and represent proportional relationships between quantities. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **7.EE.B.6** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. their context.
Integration of Computer Science and Design Thinking NJSLS 8
8.1.12.IC.3: Predict the potential impacts and implications of emerging technologies on larger social, economic, and political structures, using evidence from credible sources. 8.1.12.DA.1: Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change.