Unit 05: Absorption and Excretion

Content Area: **Science**
Course(s): **Anatomy/Physiology**
Time Period: **February**
Length: **29 periods**
Status: **Published**

Unit Overview

- Digestion is the process of mechanically and chemically breaking down foods so that they can be absorbed. Respiration is the entire process by which gasses are exchanged between the atmosphere and the body cells. The urinary system produces, stores and eliminates waste(urine).

Enduring Understandings

- Digestion is the mechanical and chemical breakdown of foods into forms that cell membranes can absorb.
- The respiratory system consists of passages that filter incoming air and transport it into the body, into the lungs, and to the many microscopic air sacs where gases are exchanged.
- The urinary system consists of a pair of glandular kidneys, which remove substances from the blood, form urine, and help regulate certain metabolic processes.

Essential Questions

- How do the kidneys perform excretory functions that regulate the volume and chemical makeup of the blood to maintain proper homeostasis?
- How does the digestive system take in food, break food down into nutrient molecules, absorb the molecules into the bloodstream, and rid the body of indigestible waste?
- How is gas exchange facilitated by way of the respiratory system?
- What are possible physiological problems that can be attributed to poor nutrition and/or digestion?

Lesson Titles/Objectives

- Breathing/gas transport (1 period)
- Characteristics of the alimentary canal (1 period)
- Elimination of urine (1 period)
- Kidneys (2 periods)
- Lab-Dissection of the fetal pig (5 periods)
- Lab-Organs of the digestive system (2 periods)
- Lab-Organs of the respiratory system (2 periods)
- Lab-Structure of the kidney (2 periods)
- Life span changes/diseases/disorders (1 period)
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- Organs of the respiratory system (3 periods)
- Structures of the alimentary canal (3 periods)
- Urine formation (1 period)

Standards/Indicators/Student Learning Objectives (SLOs):

- Describe a nephron and explain the functions of its major parts
- Describe aging-related changes in the digestive system
- Describe how the components of the urinary system change with age
- Describe the effects of aging on the respiratory system
- Describe the functions of each organ of the respiratory system
- Describe the general functions of each digestive organ
- Describe the location of the kidneys and the structure of a kidney
- Discuss the process of micturition and explain how it is controlled
- Explain how inspiration and expiration are accomplished
- Explain how the contents of the alimentary canal are mixed and moved
- Explain how the products of digestion are absorbed
- List the functions of the kidneys
- List the general functions of the respiratory system
- Name and describe the locations and major organs of the digestive system
- Name and describe the locations of the organs of the respiratory system
- Name the organs of the urinary system and list their general functions

9-12.HS-LS1-1.LS1.A	Structure and Function
9-12.HS-LS1-1.LS1.A.1	Systems of specialized cells within organisms help them perform the essential functions of life.

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Inter-Disciplinary Connections

LA.RH.11-12.4	Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

LA.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
LA.RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
LA.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
LA.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
LA.WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
HPE.2.1.12.C	Diseases and Health Conditions
HPE.2.1.12.C.1	Determine diseases and health conditions that may occur during one's lifespan and identify prevention and treatment strategies.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK

- Group Work
- Lab
- Lab-Dissection of the fetal pig
- Lab-Organs of the digestive system
- Lab-Organs of the respiratory system
- Lab-Structure of the kidney
- Note Taking/Discussion
- Powerpoint
- Student Presentation
- Urinary System webquest
- You Tube

Modifications:

ELL Modifications:

- Be flexible with time frames and deadlines
- Focus on domain specific vocabulary and keywords
- Group students
- Hands on/Labs: Fetal Pig Dissection
- Intentional scheduling/grouping with student/teacher who speaks the same language if possible

- Repeat, reword, clarify
- Use real objects when possible

IEP & 504 Modifications:

- Focus on domain specific vocabulary and keywords
- modeling and showing lots of examples
- providing study guides
- rewording questions so that there are not higher level vocabulary within the question

G&T Modifications:

- Determine where students' interests lie and capitalize on their inquisitiveness.- Invite students to explore different points of view on a topic of study and compare the two
- Encourage students to explore concepts in depth and encourage independent studies or investigations

At Risk Modifications:

- Additional help during tutoring/Delsea One/Academic Enrichment
- Non- verbal redirection of behaviors
- Study guides

Alternative Assessments

Performance tasks

Project-based assignments

Problem-based assignments

Presentations

Reflective pieces

Concept maps

Case-based scenarios

Portfolios

Benchmark Assessment

Skills-based assessment

Reading response

Writing prompt

Lab practical

Formative Assessment

- Closure Activity
- Homework
- Lab Report
- Teacher Observation of Student Activity
- Warm-Up Activity
- Worksheet

Summative Assessment

- Body System Project
- Digestive Quiz
- Digestive Test
- Kidney model
- Lung model
- Question of the day
- Respiratory Quiz
- Ticket Out
- Turn to Partner
- Urinary Test

Resources & Materials:

- Compound Microscope
- Dissection Lab-Fetal Pig/Dissection Materials
- Google classroom
- Prepared Slides of Digestive Organs
- Prepared Slides of Respiratory Organs
- Textbook

Technology:

- Chromebook
- Ed Puzzle Digestive System
- Ed Puzzle Excretory System
- https://www.google.com/search?q=urinary+system+webquest&rlz=1C1GCEU_enUS846US846&oq=urinary+system+webquest&aqs=chrome..69i57.6255j0j8&sourceid=chrome&ie=UTF-8
- Internet
- Microscope

TECH.8.1.12	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.12.A.CS1	Understand and use technology systems.
TECH.8.1.12.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.12.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.12.E.CS1	Plan strategies to guide inquiry.
TECH.8.1.12.E.CS4	Process data and report results.