Unit 03: Immune System & Reproductive System (13-18)

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **FY**
Status: **Published**

Standards Alignment

New Jersey Student Learning Standards

SCI.HS-LS1	From Molecules to Organisms: Structures and Processes
SCI.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
SCI.HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
SCI.HS-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.
SCI.HS-LS2	Ecosystems: Interactions, Energy, and Dynamics
SCI.HS-LS2-8	Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.

Integration of Career Readiness, Life Literacies and Key Skills

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP3	Attend to personal health and financial well-being.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology / Integration of Computer Science and Design Thinking

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	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.12.A.3	Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.

Interdisciplinary Connections: NJSLS for ELA, Social Studies, Science and/or Math Section

LA.RL.11-12	Reading Literature
	Key Ideas and Details
LA.RL.11-12.1	Cite strong and thorough textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
LA.K-12.NJSLSA.R1	Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
LA.K-12.NJSLSA.R3	Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
	Integration of Knowledge and Ideas
LA.K-12.NJSLSA.R7	Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
LA.RI.11-12	Reading Informational Text
LA.K-12.NJSLSA.W	Writing
LA.RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
LA.K-12.NJSLSA.W2	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
LA.K-12.NJSLSA.W6	Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
LA.RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
LA.W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
LA.W.11-12.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Integration of Diversity, Equity and Inclusion; Climate Change; Informational and Media LiteracyNew Section

see Crosswalks

21st Century Life and Careers

Stage I: Desired Results

Transfer/Overview/Rationale

Transfer / Overview / Rationale
Unit Rationale The purpose of this unit… The immune system protects the body from pathogens. By studying the immune systems students understand how the body is able to destroy and eliminate pathogens to maintain homeostasis. The reproductive system produces sex cells that join in the female to create a new human. By studying the reproductive system students with understand the production of sex cells, including all the hormones involved, as well as the development of a fetus from a zygote.

Meaning

Essential Questions

Essential Questions

Immune System:

- What are the major components of the immune system and their functions?
- How are antigen and antibodies used by the immune system to protect us from pathogens?
- What is the role of innate immunity in protecting humans from pathogens?
- What is the role of adaptive (acquired) immunity in protecting humans from pathogens?

Reproductive System:

- What are the parts and functions of the male and female reproductive systems?
- How are sperm and egg formed?
- How do hormones control the activities of the male and female reproductive organs?
- What are the major events of fetal development?

Enduring Understanding/Indicators of Understanding

Enduring Understanding/Indicators of Understanding

Students will understand that:

Immune System:

- List and describe the major components of the immune system and their functions.
- The antigen-antibody relationship.
- Compare innate immunity to adaptive(acquired) immunity.

Reproductive System:

- List and describe the parts of the male and female reproductive systems.
- Outline the process of spermatogenesis and oogenesis.
- Explain how hormones control the activities of the male and female reproductive organs.
- Describe the major events of fetal development.

Acquisition (Student Learning Objectives)

Knowledge

Knowledge

Students will know…

Immune System:

- The major components of the immune system and their functions.
- The relationship between antigens and antibodies.
- The difference between innate immunity and adaptive (acquired) immunity.

Reproductive System:

- The parts of the male and female reproductive systems.
- The process of spermatogenesis and oogenesis.
- Hormonal control of male and female reproductive organs.
- The major events of fetal development.

Skills

Skills

Student will be skilled at …

Immune System:

- The components of the immune system and their function.
- The role of antigens and antibodies in fighting an infection.
- The role of innate immunity.
- The role of adaptive (acquired) immunity and antibody production.

Reproductive System:

- The parts of the male and female reproductive systems.
- The process of spermatogenesis and oogenesis.
- Hormonal control of male and female reproductive organs.The major events of fetal development.

Stage 3: Learning Plan

Resource and Mentor Texts

Resources and Mentor Texts

- PowerPoint Presentations
- Google Classroom
- Anatomical Models
- Dissection Materials
- Anatomy Textbooks
- Articles on related topics
- Youtube Videos

Formative Assessment Strategies

Formative Assessment Strategies

- "Do Now" questions every day.
- Discussion/questioning during lectures.
- Group work.

Learning Activities/Unit of Study

Learning Activities/Unit of Study

Immune System

- Lecture on the major components of the immune system.

- Quiz on the major components of the immune system.
- Lecture on innate immunity.
- Hand washing lab activity.
- Lecture on acquired immunity.
- AIDS Lab activity.
- Immune System Test
- Benchmark.

Reproductive System

- Lecture on the parts of the male and female reproductive systems
- Lecture on spermatogenesis and oogenesis
- Meiosis Activity
- Lecture on hormonal control of reproductive organs
- Group activity on stages of fetal development.
- Reproductive system test

Modifications and/or Accommodations

Suggested Modifications (ELL, Sp. Ed, GIfted, At-risk of Failure)

English Language Learners

Native language support: The teacher provides auditory or written content to students in their native language.

Adjusted Speech: The teacher changes speech patterns to increase student comprehension. This could include facing the students, paraphrasing, clearly indicating the most important ideas, and speaking more slowly.

Visuals: The teacher uses graphics, pictures, visuals, and manipulatives. This helps ELL students better understand and comprehend the subjects at hand.

Front-Loading Vocabulary: The teacher front loads vocabulary. This means providing students with a list of important vocabulary words they will need to know for a book, lesson, etc. prior to the lesson being taught. Including pictures to go with the vocabulary words is also very beneficial for the students.

Special Education Students

Chunking: The teacher presents information in a way that makes it easy for students to understand and remember. Chunking is based on the presumption that our working memory is easily overloaded by excessive detail. The best way to deliver information is to organize it into meaningful units. Because students with special needs get overloaded easily, chunking is an effective strategy

to use with them.

Checking for Understanding: It is important to constantly check for understanding, especially for students who have accommodations. Teachers want to make sure students understand the concepts being covered in a way that makes sense to them.

Extra time: The teacher provides students with special needs extra time to complete work or answer questions. It is important to give students enough time to process their thoughts.

Oral Reading: The teacher will read work orally to students. Class work such as tests and literature circles may need to be read aloud to the student.

Timers: The teacher will use timers as an instructional tool. The use of timers is beneficial for students who have trouble completing tasks. Timers can be helpful so the student is aware of how much time they have to complete an assignment.

Students with 504 Plans

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Gifted & Talented Strategies

Extensions/Enrichments: Teachers will provide gifted and talented students with extension/enrichment projects. Students will be challenged to further their understanding, to apply acquired knowledge, and/or to produce something in reference to acquired knowledge.

Modify/Change Activities: Teachers will monitor and modify activities to accommodate those students who need to be challenged further. Additional reading, problem-solving, writing, or project work is necessary for those students who are ready to move on at a rate more accelerated than their peers. In this way, G & T students are provided the same opportunity for support as special needs students.

Students at Risk of School Failure

Directions or Instructions: Make sure directions and/or instructions are given in limited numbers. Give directions/instructions verbally and in simple written format. Ask students to repeat the instructions or directions to ensure understanding occurs. Check back with the student to ensure he/she hasn't forgotten.

Peer Support: Peers can help build confidence in other students by assisting in peer learning. Many teachers use the 'ask 3 before me' approach. This is fine, however, a student at risk may have to have a specific student or two to ask. Set this up for the student so he/she knows who to ask for clarification before going to you.

Alternate or Modified Assignments: Always ask yourself, "How can I modify this assignment to ensure the students at risk are able to complete it?" Sometimes you'll simplify the task, reduce the length of the assignment or allow for a different mode of delivery. For instance, many students may hand something in, the at-risk student may jot notes and give you the information verbally. Or, it just may be that you will need to assign an alternate assignment.

Increase One to One Time: When other students are working, always touch base with your students at risk and find out if they're on track or needing some additional support. A few minutes here and there will go a long way to intervene as the need presents itself.

Contracts: It helps to have a working contract between you and your students at risk. This helps prioritize the tasks that need to be done and ensure completion happens. Each day write down what needs to be completed, as the tasks are done, provide a checkmark or happy face. The goal of using contracts is to eventually have the student come to you for completion sign-offs.

Hands On: As much as possible, think in concrete terms and provide hands-on tasks. This means a child doing math may require a calculator or counters. The child may need to tape record comprehension activities instead of writing them. A child may have to listen to a story being read instead of reading it him/herself.

Tests/Assessments: Tests can be done orally if need be. Break tests down in smaller increments by having a portion of the test in the morning, another portion after lunch and the final part the next day.

Seating: Seat students near a helping peer or with quick access to the teacher. Those with hearing or sight issues need to be close to the instruction which often means near the front.