Unit 06: Our Health and Future (Weeks 31-36)

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

Standards Alignment

New Jersey Student Learning Standards

SCI.HS-ESS3	Earth and Human Activity
SCI.HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and climate change have influenced human activity.
SCI.HS-ESS3-2	Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
SCI.HS-ESS3-3	Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.
SCI.HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on climate change and other natural systems.
SCI.HS-ESS3-5	Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.
SCI.HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity (i.e., climate change).

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.8.2.12	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.12.B	Technology and Society: Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society.
TECH.8.2.12.B.2	Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation and maintenance of a chosen product.

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

	Key Ideas and Details
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.R2	Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
LA.K-12.NJSLSA.R3	Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
LA.RI.11-12	Reading Informational Text
LA.RI.11-12.1	Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.), to support analysis of what the text says explicitly as well as inferentially, including determining where the text leaves matters uncertain.
LA.RI.11-12.2	Determine two or more central ideas of a text, and analyze their development and how they interact to provide a complex analysis; provide an objective summary of the text.
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.

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 purpose of this chapter is to examine how human health can be affected by environmental conditions and ways in which governments and people can affect environmental issues

Meaning

Essential Questions

Essential Questions

- **How can pollution impact human health?**
- **What types of human activities create pollution that is dangerous to human health?**
- **How have changes to the environment impacted the spread of biological diseases?**
- **How can governments and people help to influence environmental issues?**

Enduring Understanding/Indicators of Understanding

Enduring Understanding/Indicators of Understanding

Students will understand that:

- **Pollution that negatively impacts human health can be contributed to both natural causes and human activities**
- **Human activities such as burning fuels, the use of pesticides, disposal of waste and industrial chemicals have created environmental health hazards**
- **Changes to the environment have helped to increase the spread of biological diseases caused by**

pathogens

- **Environmental decision making occurs at the level of the individual, the community, state or national government or internationally**

Acquisition (Student Learning Objectives)

Knowledge

Knowledge

Students will know…

- **Toxic chemicals from both natural sources and human activities that pollute air, soil, water and food may damage human health**
- **Toxicology is used to determine how poisonous a substance is**
- **After an outbreak of illness occurs, epidemiologists attempt to find its origin and try to find ways to prevent future epidemics**
- **Most pollutants come from human activities, but some pollutants occur naturally**
- **Improperly disposed of wastes may leak hazardous pollutants into the environment**
- **Most human diseases that have an environmental component are caused by pathogens**
- **The environment provides breeding grounds for pathogens and for their secondary hosts and vectors**
- **The transmission of many diseases involves water. We increase the areas where organisms that carry these diseases can reproduce when we create irrigation canals and inadequate sewage systems**
- **Environmental changes that help spread infectious diseases include global warming and expanding suburbs and farmland**
- **Many emerging diseases are caused by pathogens that have made cross-species transfers from animals to humans**
- **To achieve sustainability will require cooperation and communication at many levels of society**
- **Some goals of international agreements on the environment have been achieved and successfully implemented**
- **Economic systems operate within the environment by using resources and by returning both desired and undesired results**
- **Economic systems sometimes fail to balance all the costs and benefits of people's actions**
- **In the last century, the US government has developed policies to address environmental problems and has established agencies to implement these policies**
- **Citizens can influence policy at all levels of government, especially at the local level**
- **Lobbying and the media also influence policy and public opinion**
- **Individuals can have an effect on environmental interactions through leadership and education**
- **The first Earth Day in 1970 was a historic demonstration of public concern for environmental issues**
- **Many environmental problems were brought to the public's attention by a few individuals**
- **How an individual chooses to spend money and use resources will have an impact on the environment**
- **One can apply scientific thinking and knowledge to any decisions that are faced**
- **Voting, weighing evidence and making smart consumer choices are ways that individuals can help to influence the environment**

Skills

Skills

Student will be skilled at …

- **Identify pollutants, their sources and their possible effects on human health**
- **Explain how scientists use toxicology and epidemiology**
- **Explain how pollution can come from both natural sources and human activities**
- **Describe the relationship between waste, pollution and human health**
- **Describe how the environment is an important factor in the spread of Cholera**
- **Identify two changes to the environment that can lead to the spread of infectious disease**
- **Briefly explain the evolution of antibiotic resistance**
- **Explain why scientists are claiming that certain viruses are emerging**
- **Describe some challenges to achieving sustainability**
- **Identify some major international meetings and agreements relating to the environment**
- **Compare two ways that governments influence economics**
- **Identify two major developments in U.S. environmental history**
- **Provide examples of three federal agencies that have environmental responsibilities**
- **Explain the purpose of environmental impact statements**
- **Provide an example of how a citizen can affect environmental policy at each level of government (local, state and national)**
- **Evaluate the media as a source of information about the environment**
- **Give examples of individuals who have influenced environmental history**
- **Identify some ways in which the choices you make may affect the environment**

Stage 3: Learning Plan

Resource and Mentor Texts

Resources and Mentor Texts

- **Powerpoint presentations**
- **Textbook Environmental Science (Holt)**
- **Scienceworld Magazines**
- **Articles related to topics**
- **Youtube videos**
- **Materials for labs**

- **Guest Speaker**
- **Newton Creek**

Formative Assessment Strategies

Formative Assessment Strategies

- **Quick Thoughts**
- **Exit Slips**
- **Kahoot**
- **Bingo**
- **White Board Participation**
- **Homework**
- **Teacher Check**
- **Thumbs up/thumbs down**
- **Create a Test/Take a Test**
- **Whole class questioning and answering**
- **Graphic Organizers**
- **Foldables**
- **Class Discussion**
- **Environmental affects on Health Quiz**

Learning Activities/Unit of Study

Learning Activities/Unit of Study

- **Graph and Analyze: The effects of lead poisoning on mental ability**
- **Read and Respond: Toxic Mold pg. 571**
- **Case Study: Identifying Chemicals that can Disrupt Hormones**
- **Guest speaker Fred Stine (Citizen Action Coordinator) from the Newton Creek Watershed Association**
- **Environmental Policy Timeline**

- **Inquiry Lab: Be An Environmental Scientist pg. 595**

Modifications and/or Accommodations

Suggested Modifications (ELL, Sp. Ed, Glfted, 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.