

Course: Environmental Science
Unit 1#: Earth's Systems, Resources and Human Impact

Year of Implementation: 2023-2024

Curriculum Team Members: Rachel Senft (rsenft@lrhsd.org), John Dell'Angelo(jdellangelo@lrhsd.org) JoHanna Metzger (jmetzger@lrhsd.org) Philip Langan (plangan@lrhsd.org)

Stage One - Desired Results

Link(s) to New Jersey Student Learning Standards for this course:

<https://www.state.nj.us/education/cccs/2020/>

- **Unit Standards:**

- **Content Standards**

- LS2.A, LS2.C Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity in ecosystems.
- LS2.B Construct and revise an explanation based on evidence for the cycling of matter (biogeochemical cycles) and flow of energy (food chains/webs).
- LS2.B Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. Emphasis is on using a mathematical model of stored energy in biomass to describe the transfer of energy from one trophic level to another and that matter and energy are conserved as matter cycles and energy flows through ecosystems. Emphasis is on atoms and molecules such as carbon, oxygen, hydrogen and nitrogen being moved through an ecosystem.
- HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem with different populations & sizes.
- LS2.C, LS4.D, ETS1.B Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- LS4.C Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species (invasive species), (2) the emergence of new species over time, and (3) the extinction of other species.
- LS4.C, LS4.D, ETS1.B Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.
- ESS3.A, ESS3.B Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and climate change have influenced human activity.

- ESS3.A, ETS1.B Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
 - ESS3.C Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.
 - ESS3.C, ETS1.B Evaluate or refine a technological solution that reduces impacts of human activities on climate change and other natural systems.
 - ESS3.D 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.
 - ESS2.D, ESS3.D Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.
- **21st Century Life & Career Standards**
- 9.1.12.CFR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and quality of life in a variety of cultures.
 - 9.1.12.CFR.2: Summarize causes important to you and compare organizations you seek to support to other organizations with similar missions.
 - 9.1.12.FP.2: Explain how an individual's financial values and goals may change across a lifetime and the adjustments to the personal financial plan that may be needed.
 - 9.1.12.FP.3: Relate the concept of delayed gratification (i.e., psychological distance) to meeting financial goals, investing and building wealth over time.
 - 9.1.12.FP.4: Identify how unconscious beliefs like "money scripts" (money avoidant, money worship, money status, money vigilant) influence financial decision-making.
 - 9.1.12.FP.6: Evaluate the relationship of familial patterns, cultural traditions, and historical influences on financial practice.
 - 9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).
 - 9.4.12.DC.4: Explain the privacy concerns related to the collection of data (e.g., cookies) and generation of data through automated processes that may not be evident to users (e.g., 8.1.12.NI.3).
 - 9.4.12.DC.8: Explain how increased network connectivity and computing capabilities of everyday objects allow for innovative technological approaches to climate protection.

- 9.4.12.GCA.1: Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
 - 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources (e.g., NJSLSA.W8, Social Studies Practice: Gathering and Evaluating Sources).
 - 9.4.12.IML.5: Evaluate, synthesize, and apply information on climate change from various sources appropriately (e.g., 2.1.12.CHSS.6, S.IC.B.4, S.IC.B.6, 8.1.12.DA.1, 6.1.12.GeoHE.14.a, 7.1.AL.PRSNT.2).
 - 9.4.12.IML.6: Use various types of media to produce and store information on climate change for different purposes and audiences with sensitivity to cultural, gender, and age diversity (e.g., NJSLSA.SL5).
 - 9.4.12.IML.7: Develop an argument to support a claim regarding a current workplace or societal/ethical issue such as climate change (e.g., NJSLSA.W1, 7.1.AL.PRSNT.4).
 - 9.4.12.IML.8: Evaluate media sources for point of view, bias, and motivations (e.g., NJSLSA.R6, 7.1.AL.IPRET.6).
 - 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 (e.g., 7.1.AL.IPERS.6).
- ***English Companion Standards***
 - 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.
 - 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
 - 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.

- 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.
 - NJSLA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
 - NJSLA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
 - SL.11-12.4 Present information, findings and supporting evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to task, purpose, and audience.
- **Interdisciplinary Content Standards**
 - RST.11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
 - RST.11-12.8 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
 - WHST.9-12.1 Write arguments focused on discipline-specific content
 - WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
 - SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
 - MP.2 Reason abstractly and quantitatively.
 - MP.4 Model with mathematics
 - HSN.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
 - HSN.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.
 - HSN.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
 - **NJ Statutes:** NJ State law mandates the inclusion of the following topics in lesson design and instruction as aligned to elementary and secondary curriculum.

Amistad Law: N.J.S.A. 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.

Holocaust Law: N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

LGBT and Disabilities Law: N.J.S.A. 18A:35-4.35 A board of education shall include instruction on the political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum of middle school and high school students as part of the district's implementation of the New Jersey Student Learning Standards (N.J.S.A. 18A:35-4.36) A board of education shall have policies and procedures in place pertaining to the selection of instructional materials to implement the requirements of N.J.S.A. 18A:35-4.35.

Diversity and Inclusion (N.J.S.A. 18A:35.4.36a) A board of education shall incorporate instruction on diversity and inclusion in an appropriate place in the curriculum of students in grades kindergarten through 12 as part of the district's implementation of the New Jersey Student Learning Standards.

Asian American and Pacific Islanders (AAPI) P.L.2021, c.410 Ensures that the contributions, history, and heritage of Asian Americans and Pacific Islanders (AAPI) are included in the New Jersey Student Learning Standards (NJSL) for Social Studies in kindergarten through Grade 12 (P.L.2021, c.416)

For additional information, see

NJ Amistad Curriculum: <http://www.njamistadcurriculum.net/>

Diversity and Inclusion: <https://www.nj.gov/education/standards/dei/index.shtml>

- (Sample Activities/ Lessons): <https://www.nj.gov/education/standards/dei/samples/index.shtml>

Asian American and Pacific Islanders:

- [Asian American and Pacific Islander Heritage and History in the U.S.](#)

A Teacher's Guide from EDSITEment offering a collection of lessons and resources for K-12 social studies, literature and arts classrooms that center around the experiences, achievements and perspectives of Asian Americans and Pacific Islanders across U.S. history.

Transfer Goal: Students will be able to independently use their learning to identify themselves as an integral part of Earth's systems and recognize their continued impact across all systems.

As aligned with LRHSD Long Term Learning Goal(s):

- design, critique, and carry out experiments in order to investigate scientific questions and/or propose solutions
- collect, interpret, and analyze data in order to solve a defined problem
- apply mathematics to express relationships efficiently and accurately
- draw evidence-based conclusions from data in order to make informed decisions;
- construct, interpret, and refine models (scientific and mathematical) to explain the physical and natural world
- effectively communicate scientific ideas and evidence-based arguments to an appropriate audience through written and oral means
- evaluate the validity of arguments that rely on scientific reasoning presented in the popular press and informational sources

Enduring Understandings

Students will understand that . . .

EU 1

ecosystems are the result of the interactions among Earth's biosphere, geosphere, atmosphere, and hydrosphere.

Essential Questions

EU 1

- What are systems and how do feedback loops affect them?
- How can the Earth be viewed as a set of interconnected systems and why is this interconnection so vital?
- How do the nonliving parts of earth's systems provide basic materials to support life?

EU 2

the rate at which resources are available and consumed vary.

EU 3

humans impact the environment when they consume resources to live and survive.

EU 4

environmental scientists use different indicators to measure human impact on the environment.

EU 5

humans play an active role in developing sustainable behaviors that ensure the protection of Earth's systems and the health and safety of future generations.

- How and why do elements such as carbon, nitrogen, and phosphorus cycle through ecosystems?
- How is the flow of energy different from the cycling of matter in the environment?

EU 2

- Why does the rate at which different resources are used matter?
- Which resources are more sustainable to use?

EU 3

- What are the major environmental issues of today?
- How does the consumption of resources relate to environmental issues?
- How do we avoid the tragedy of the commons?
- What is the importance of your ecological footprint?

EU 4

- What are the major environmental indicators that scientists use to study human impact?
- How can data be used to explain trends and patterns in the natural world?
- What constitutes useful scientific evidence?
- What factors influence the acceptable baselines of measurements used in environmental testing?
- How does scientific knowledge benefit from scientists sharing and debating ideas and information with peers?

EU5

- What is the goal of environmental science?
- How do we achieve sustainability?
- What is our role in creating a healthy relationship with our environment?

	<ul style="list-style-type: none"> ● What is the government's role in achieving sustainability and a healthy relationship with the environment?
<p><u>Knowledge</u> Students will know . . .</p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> ● Earth's systems interact and overlap to form our environment. (ESS2.D, ESS3.D) (ESS3.D) ● the difference between positive and negative feedback loops. (ESS3.D) ● Earth is a set of interdependent systems that humans play a major role in. (ESS3.A, ESS3.B) (ESS3.D) (ESS2.D, ESS3.D) ● life depends on abiotic resources the environment provides. (ESS2.D, ESS3.D) ● elements such as carbon, nitrogen, and phosphorus cycle through both the abiotic and biotic parts of the environment.(LS2.B) ● matter cycles and is conserved but energy has a one way flow. (LS2.B) (LS2.B) (ESS2.D, ESS3.D) <p><i>EU 2</i></p> <ul style="list-style-type: none"> ● resources can be consumed at a greater rate than they can be replenished. (ESS3.A, ESS3.B) 	<p><u>Skills</u> Students will be able to. . .</p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> ● model the interrelationships among the spheres in the Earth's systems by using imagery. (ESS2.D, ESS3.D) (ESS3.D) ● analyze and identify examples of positive and negative feedback loops. (ESS3.D) ● recognize that human impact cascades through all of earth's systems. (ESS3.A, ESS3.B) (ESS3.D) (ESS2.D, ESS3.D) ● identify all abiotic resources provided by the environment. (ESS2.D, ESS3.D) ● illustrate how elements cycle through the environment. (LS2.B) ● explain how energy and matter are neither created or destroyed, just recycled into different forms. (LS2.B) (LS2.B) (ESS2.D, ESS3.D) ● relate how the biosphere can only use energy in the form of chemical energy. (LS2.B) (LS2.B) (ESS2.D, ESS3.D) <p><i>EU 2</i></p> <ul style="list-style-type: none"> ● simulate the tragedy of the commons through a lab activity. (ESS3.A, ESS3.B)

- the difference between renewable and nonrenewable resources. (ESS3.C)

EU 3

- people, just like every other species, affect the environment. (ESS3.A, ESS3.B) (ESS3.C, ETS1.B) (ESS2.D, ESS3.D)
- when we consume resources we create pollution and destroy habitat. (ESS3.A, ESS3.B) (ESS2.D, ESS3.D)
- recent trends in human population and resource consumption. (ESS3.A, ESS3.B) (ESS2.D, ESS3.D)
- current events within environmental science such as pollution, overpopulation, deforestation, global warming and natural resource depletion. (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- there is a tendency to overexploit and misuse resources that are shared by all. (ESS3.C)
- how to calculate and interpret the number of earth's our population would need to sustain our current lifestyle. (ESS3.A, ESS3.B) (ESS3.C, ETS1.B)

EU 4

- recent trends in environmental indicators such as biodiversity, food production, average global surface temperature, human population, and resource depletion. (LS2.A, LS2.C) (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- how to use data to answer questions in science. (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- mathematical tools and technology are used to gather, analyze, and communicate results. (LS2.A, LS2.C) (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)

- determine what makes a resource renewable and nonrenewable by providing examples of each. (ESS3.C)

EU 3

- identify the resources humans rely on within the environment. (ESS3.A, ESS3.B) (ESS3.C, ETS1.B) (ESS2.D, ESS3.D)
- interpret data from multiple time periods throughout human history to compare the escalation of pollution and habitat destruction. (ESS3.A, ESS3.B) (ESS2.D, ESS3.D)
- select and summarize current events from credible resources (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- discuss lessons learned from the tragedy of the commons to raise awareness. (ESS3.C)
- calculate your ecological footprint and relate to resource usage and sustainability. (ESS3.A, ESS3.B) (ESS3.C, ETS1.B)

EU 4

- analyze data by identifying trends to formulate predictions. (LS2.A, LS2.C) (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- apply the scientific method to conduct a procedure to test hypotheses. (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- understand, analyze, and interpret visual representations such as charts, graphs, tables, and diagrams of environmental concepts and processes. (LS2.A, LS2.C) (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- construct and defend arguments supported with evidence pertaining to environmental issues. (LS4.C)

- scientific reasoning is used to evaluate and interpret data patterns and scientific conclusions. (LS2.A) (LS2.A, LS2.C)
- both physical models and computers can be used in various ways to aid in the engineering design process. (LS2.A) (LS2.A, LS2.C) (ESS3.C, ETS1.B) (ESS3.D) (ESS2.D, ESS3.D)
- how to make a persuasive presentation which takes into account social, cultural and environmental impacts. (LS4.C)

EU 5

- Environmental scientists study how the natural world works and how humans in the environment affect each other (ESS3.A, ESS3.B) (ESS3.C, ETS1.B) (ESS2.D, ESS3.D)
- when evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts (LS4.C, LS4.D, ETS1.B)(ESS3.A, ETS1.B)
- humans have the potential to understand their personal impact and be stewards of their environment. (LS2.C, LS4.D, ETS1.B)
- empirical evidence is used to construct and defend arguments. (e.g. seismic waves/activity and plate tectonics as evidence for earth's interior) (LS4.C, LS4.D, ETS1.B)
- science involves using language, both oral and written, as a tool for creating an informed public. (LS4.C)
- Environmental policy makes use of science, ethics, economics, and an understanding of the political process to solve environmental problems. (LS2.C, LS4.D, ETS1.B)

EU 5

- construct, interpret, and refine models (scientific and mathematical) to explain the physical and natural world. (ESS3.A, ESS3.B) (ESS3.C, ETS1.B) (ESS2.D, ESS3.D)
- design, critique, and carry out experiments in order to investigate scientific questions and/or propose solutions. (LS4.C, LS4.D, ETS1.B)(ESS3.A, ETS1.B)
- evaluate personal habits to determine our individual environmental impact and how to reduce it. (LS2.C, LS4.D, ETS1.B)
- collect, interpret, and analyze data in order to solve a defined problem. (LS4.C, LS4.D, ETS1.B)
- analyze protocols by using data to assess their impact(s) and if they are holding up to their claims. (LS4.C)
- research, read and interpret current policies in order to determine if current policies are effective or if new policies need to be created.(LS2.C, LS4.D, ETS1.B)

- Environmental government agencies such as EPA, DEP, NFW, IUCN can implement laws to protect wildlife and habitat to achieve sustainability. (LS2.C, LS4.D, ETS1.B)

Stage Two - Assessment

Stage Three - Instruction

Learning Plan: Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections: Each learning activity listed must be accompanied by a learning goal of **A= Acquiring basic knowledge and skills**, **M= Making meaning and/or a T= Transfer**. The following color codes are used to notate activities that correspond with interdisciplinary connections and 21st Century Life & Career Connections (which involves Technology Literacy): **Red = Interdisciplinary Connection**; **Purple = 21st Century Life & Career Connection**

PHENOMENON: Easter Island Picture Before & After (A/M, EU1-5) <https://drive.google.com/file/d/1QUIKR0-asu9zyl8eIVmkAUyBz0A7kR7R/view?usp=sharing>

The island of Rapa Nui once supported a large community of Polynesians that are best known for the massive statues (moai).

However when sailors arrived on the island in the 18th century the people were barely hanging on.

GOAL: Students will discover the impacts humans can have when they use resources and interact with the environment and how this interaction can impact their own lives and survival.

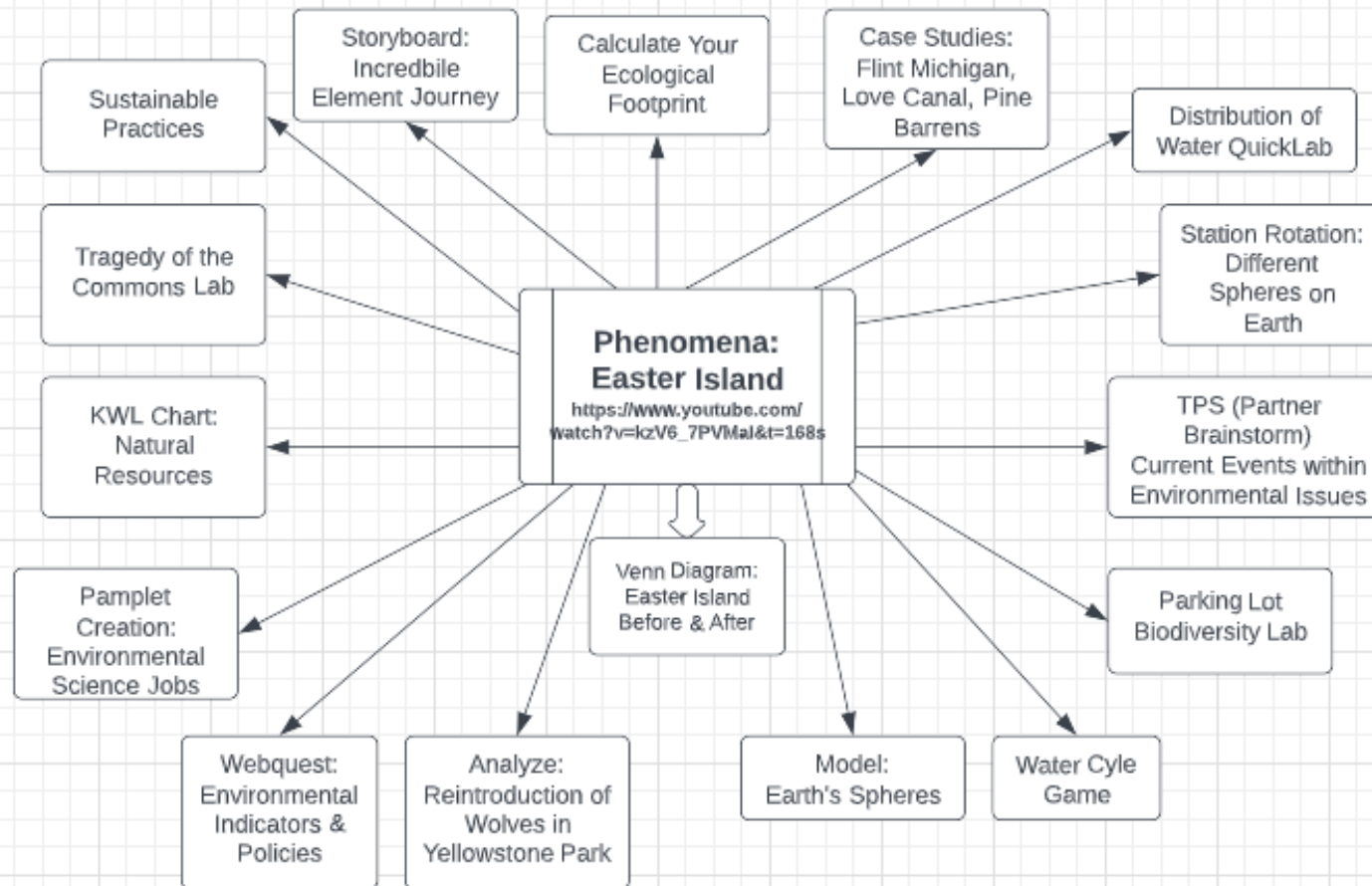
1. Compare and contrast the before and after picture of Easter Island (A/M EU 1,4,5)
 - a. Do this independently for a few minutes, then have a paired discussion. (A/M)
 - b. Identify reasons for how this change may have come about. (A/M)
 - c. Discuss a method to investigate and collect data related to one of these reasons. (A/M)
 - d. Watch EdPuzzle - Nova Mystery of Easter Island (PBS Documentary) (A/M)
 - e. Result/Connection to Phenomenon: Humans changed the environment on Easter Island. (T)
 - f. Research how big their eco footprint is and explain how they can improve it and what might happen if they don't (T)
2. Identify students' knowledge on the different types of resources.
 - a. Students will create KWL charts about resources. (A/M, EU 2-3)
 - b. Teacher-led discussion on different types of resources & sustainable behavior/choices. (A/M, EU 2-3)
 - c. Result/Connection to Phenomenon: Some resources are more sustainable to rely on than others. (T, EU 2-3)

3. Activity: In groups students will complete the Tragedy of the Commons Fishing Simulation (A,M,T EU 2,3,5)
<https://docs.google.com/document/d/1XBDbcZND5puX3Ubj3FOAileZYnewlFOOT8u6Ht29VjU/edit>
 - a. Result//Connection to Phenomenon: Certain behaviors are more sustainable than others.
4. Students will calculate their eco footprint using website: <https://www.footprintcalculator.org/home/en> (M/T EU 2-5)
 - a. Result//Connection to Phenomenon: Evaluation of personal resource use and environmental impact and ways to minimize impact to live more sustainably.
5. Students will investigate a case study such as Flint Michigan, Love Canal, Sanctuary & Pine Barren Rattlesnake (M,T EU 1,3-5)
 - a. Quickly research case study. (A)
 - b. Teacher will summarize case study events *incorrectly*.
 - c. In groups, students will identify what parts of the story were told incorrectly and why. (M)
 - d. Use responses to discuss systems and feedback loops. (A/M)
 - e. Result//Connection to Phenomenon: The environment consists of different Earth systems that interact with and affect each other that can be disrupted by human activity. (T)
6. Activity: Students will rotate between various stations investigating the different spheres of Earth & biogeochemical cycles that are part of each. (A,M EU 1)
<https://docs.google.com/document/d/13XMyZ4eKauNpUVBupxIJ9NsUQkDvdOzhS7dBnFpKnBA/edit>
https://docs.google.com/document/d/1n1W50sMx1vdu7Gf7z7_2c3IYeyhk-ONavnIgtUEZJ9M/edit
 - a. Result//Connection to Phenomenon: The environment consists of different Earth systems that interact with and affect each other that can be disrupted by human activity. (T)
7. Students will analyze, interpret, and evaluate real life data using such sources as current events, EPA website, and/or trivia. (A/M/T EU3-5)
 - a. In pairs students will brainstorm major modern environmental issues. (A)
 - b. Use responses to discuss as a class and compile a combined list. (A)
 - c. Students will choose one issue and research data that has/is being collected to investigate/monitor this issue. (A/M)
 - d. Result//Connection to Phenomenon: Identification of data and information used as indicators of environmental health and change. (M/T)
8. Activity: Parking lot Biodiversity Lab (A/M/T EU4-5)
https://docs.google.com/document/d/1z3UK7GoiXQ5dlpNNgRZXnA8md2DU5HPV_A-o8KcNNr8/edit
 - a. Introduce biodiversity as an environmental indicator and how to measure/calculate it. (A/M)
 - b. In groups, students will collect data about the different types of cars in 3 school parking lots. (A/M)
https://docs.google.com/document/d/1T-SBg_O1DWR7AYOvkK5fED8INM_9rj-174Fv6R1Jwr4/edit
 - c. Students will use and analyze this data to determine which parking lot is the most diverse. (M/T)
9. Refer back to Phenomenon by leading discussion: How can the lessons learned from Easter Island be applied to our everyday lives and relationship with the environment today and in the future? (M/T) EU 1-5
 - a. Students, using their learning experiences, need to explain what will happen if we, as a society, continue to use resources

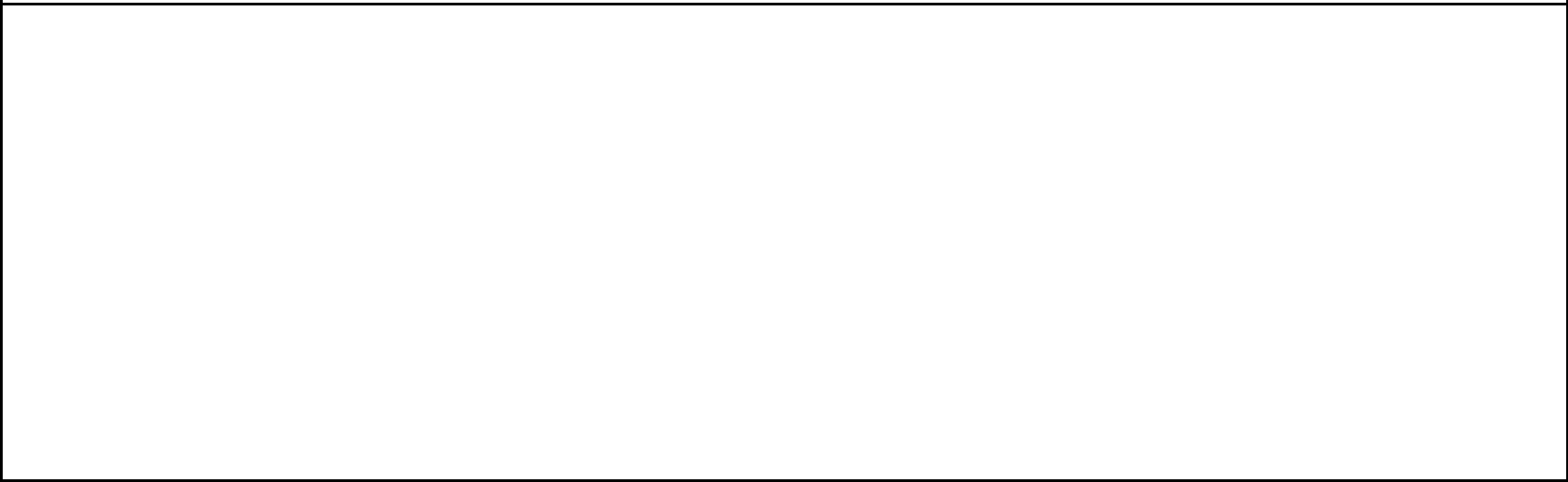
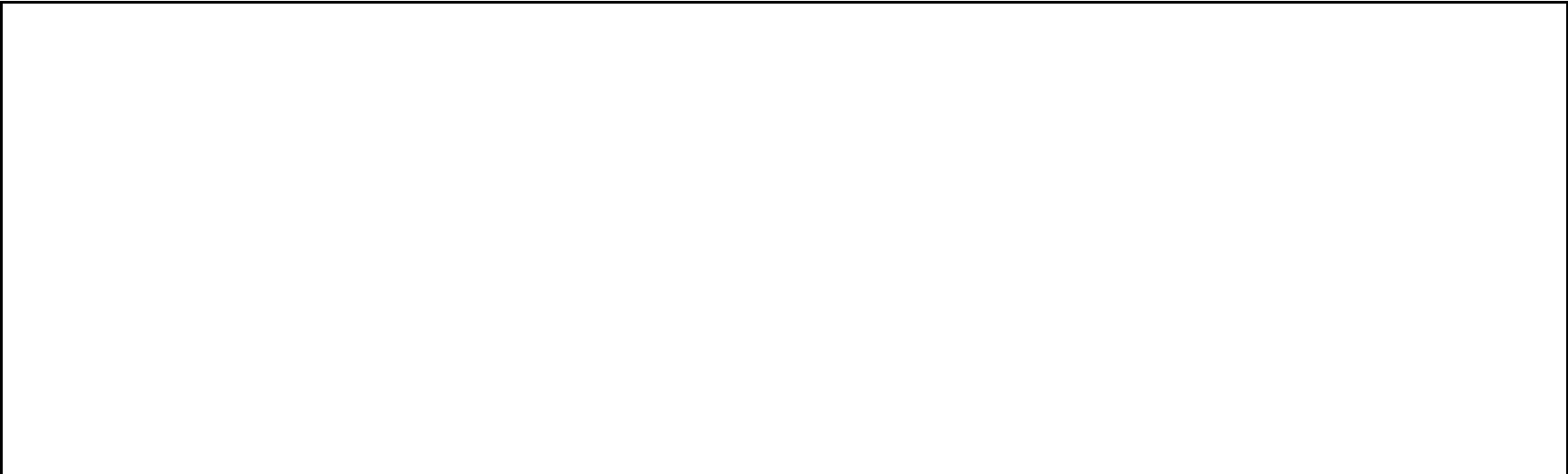
at the current rate.

Additional suggested ideas:

- Pamphlet of different Environmental Science Jobs (EU5) (A)
- Environmental indicators and policy webquest (EU5) (M,T)
- Students create a scale model of one or more of Earth's spheres (EU5) (A,T)
- Water cycle game (EU4) (M)
- Distribution of water quick lab (EU2)(A,M)
https://docs.google.com/document/d/10_8lX2hPHdrg3g2lNhGvKXQaomGzR2S3dTmDJ7wOzno/edit
- Incredible Element Journey (EU1) (M,T)
<https://docs.google.com/document/d/10xtMILrtbRNwyxrAgEsDIPs3kcZkiYL0AedtBZL3SYY/edit>
- Reintroduction of Wolves to Yellowstone Park (EU1) (EU5) (M)



https://lucid.app/lucidchart/8c16caa8-f7cf-49cc-aaf7-6fab153c921f/edit?viewport_loc=159%2C-25%2C1682%2C752%2C0_0&invitationId=inv_3cc85880-c208-4cfb-8db7-58c837358fc5#



Pacing Guide

Unit #	Title of Unit	Approximate # of teaching days
1	Earth's Systems, Resources and Human Impact	25
2	The Living World	55
3	Human Population and Land Use	55
4	Energy Resources and Sustainability	45

Instructional Materials

A fully equipped Environmental Science Lab including but not limited to the following items:

- Large Post-It Note Presentation Boards
- Goldfish Crackers & Straws
- Biome Map
- World Globe
- Periodic Table of Elements
- Meter stick
- Graduated Cylinders

Accommodations

Special Education: The curriculum will be modified as per the Individualized Education Plan (IEP). Students will be accommodated based on specific accommodations listed in the IEP.

Students with 504 Plans: Students will be accommodated based on specific accommodations listed in the 504 Plan.

English Language Learners: Students will be accommodated based on individual need and in consultation with the ELL teacher.

Students at Risk of School Failure: Students will be accommodated based on individual need and provided various structural supports through their school.

Gifted and Talented Students: Students will be challenged to enhance their knowledge and skills through acceleration and additional independent research on the subject matter.