Course: Environmental Science **Unit #2: The Living World**	**Year of Implementation:** 2023-2024

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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***
    - HS-LS2-1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems.
    - HS-LS2-2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity in ecosystems.
    - HS-LS2-3 Construct and revise an explanation based on evidence for the cycling of matter (biogeochemical cycles) and flow of energy (food chains/webs).
    - HS-LS2-4 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.
    - HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
    - HS-LS4-5 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.
    - HS-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

- 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.
- HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
- HS-ESS3-3 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.
- HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on climate change and other natural systems.
- 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.
- 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.

- ***21st Century Life & Career Standards***
  - 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.
  - 9.2.12.CAP.13: Analyze how the economic, social, and political conditions of a time period can affect the labor market.
  - 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas
  - 9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
  - 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
  - 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.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.

- ***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.
- NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- NJSLSA.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.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.
- 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.11-12.7 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.
- 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.
- WHST.9-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
- WHST.9-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- 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.
- 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.
- HSS-IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
- HSS-IC.B.6 Evaluate reports based on data.

- ***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 (NJSLS) 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 analyze how life on Earth depends upon interactions among organisms and the environment.

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. . .	*Essential Questions*

EU 1 the living world is a result of the interactions among organisms and between organisms and their environment. *EU 2* the disruption of ecosystem services can have negative consequences. *EU 3* it is important to protect and preserve biodiversity in order to maintain ecosystem stability.	*EU 1* ● How is the concept of trophic levels related to energy flow within an ecosystem? ● How do species' roles differ within an ecosystem? ● How can environmental conditions affect species population, growth and distribution? *EU 2* ● How do ecosystem services maintain the health and balance of environments? ● How do communities respond to a natural or human-caused disturbance? ● How do humans interrupt the flow of energy through ecosystems? ● What factors determine how and whether a species will adapt and survive to changing environmental conditions? ● How does natural selection increase the species' chance to survive and reproduce? *EU 3* ● Why do ecosystems with more biodiversity function more effectively? ● What are the major causes of biodiversity loss? ● How can we conserve and protect biodiversity?

EU 4 measurement and observation tools are used to collect and categorize data to represent and interpret the natural world and human's impact on it. *EU 5* there are major environmental factors that determine the kind of community that develops in an area.	● How has introducing legal or illegal species into the environment affected communities? ● What is the relationship between species diversity and ecosystem stability? *EU 4* ● How do we build and refine models that describe and explain the natural and designed world? ● How do we describe and measure populations and how is it useful? ● How do we measure biodiversity? *EU5* ● What factors determine climate? ● How do environmental conditions control the distribution of biomes? ● How do environmental pressures shape the adaptations necessary to survive in a particular biome? ● Which world ecosystems are most productive in terms of biomass and why? ● What are the different ways humans impact the various biomes?

Knowledge *Students will know . . .*	*Skills* *Students will be able to. . .*
EU 1 ● all of the factors that make up an environment.HS-LS2-6 (LS4.C)(LS2.C) ● kinds of ecosystems and communities.HS-LS2-6(LS4.C(LS2.C) ● the difference between a habitat and a niche. HS-LS2-6(LS4.C)(LS2.C) ● how to look at an organism in terms of genes, population and species.HS-LS2-6(LS4.C) ● how each species of organism is specifically adapted to a particular habitat. HS-LS4-4(LS4.C)(LS2.C) ● the concept that two or more species of organisms can each influence the evolutionary direction of the other. HS-LS2-7(LS4.C)(LS4.A)	*EU 1* ● identify and list the biotic and abiotic factors in an ecosystem.HS-LS2-6(LS4.C) ● explain the significance of limiting factors.HS-LS2-6(LS4.C) ● distinguish between habitat and niche.HS-LS2-6(LS4.C) ● distinguish between a population and a species.HS-LS2-6(LS4.C) ● describe how the process of natural selection operates to shape the ecological niche of an organism. HS-LS2-6(LS4.C) ● describe the processes that lead to speciation, extinction and coevolution.HS-LS4-5(LS4.C) ● describe the predator-prey, parasite-host relationships. HS-LS4-5(LS4.A) ● differentiate between a community and an ecosystem. HS-LS4-5(LS4.A) ● explain the roles of producer, consumer and decomposer. HS-LS4-5(LS4.A) ● describe the energy flow through an ecosystem.HS-LS2-3 ● describe why some organisms are considered to be keystone species in their ecosystemsHS-LS2-6(LS4.C)(LS4.A)
EU 2 ● the role biotic and abiotic factors play within a particular ecosystem. HS-ESS3-5(LS4.A)(LS2.C)	*EU 2* ● describe how humans have altered the carbon, nitrogen, phosphorus and water cyclesHS-LS2-7(LS4.D)

● that any disruption of an ecosystem will have an effect on the organisms of that ecosystem. HS-LS2-7(LS4.A) ● human activities have altered every ecosystem in some way. HS-LS2-7(LS4.D) ● that organisms will be affected by every change in a given ecosystem. HS-LS4-5 ● that organisms will either adapt to environmental changes or become extinct due to those changes. HS-LS4-5(LS2.C) *EU 3* ● all organisms carry out important life processes. HS-ESS3-5(LS2.C) ● all organisms interact with their environment and with other organisms. HS-LS4-5(LS4.A) ● the interaction between organisms with each other and their environment determines the flow of energy and matter through natural ecosystems.HS-LS2-3 HS-LS2-6(LS4.C)(LS4.A)(LS2.C) ● the growth of the human population and how we interact with our environment drives biodiversity loss. HS-LS2-7(LS4.D) ● the value of maintaining biodiversity.HS-LS2-2(LS4.D) *EU 4* ● scientific inquiry often begins with an observation. HS-LS2-7(HS-LS1-3) ● observations often lead to questions about those observations. HS-LS2-7(HS-LS1-3) ● a hypothesis is a statement that provides a possible explanation to an observation. HS-LS2-7(HS-LS1-3)	● describe an environmental disruption and explain how that disruption may affect the organisms within a given ecosystem HS-LS4-5(LS4.A) ● identify how organisms have responded due to changes in a given ecosystem. HS-LS4-5 *EU 3* ● explain biodiversity and its various components.HS-LS2-2 ● describe the factors that result in variation in the number of species in a particular area. HS-LS4-5 ● describe how nature's contributions to people and how biodiversity is linked to human well being.HS-LS2-2(LS4.D) ● explain how biodiversity affects ecosystem function and stability.HS-LS2-2(LS4.A) ● describe ecosystem, landscape and species level approaches to conserving biodiversity.HS-LS2-2 *EU 4* ● understand that science is usually reliable due to the manner in which information is gathered. HS-LS2-7(HS-LS1-3) ● use data to make predictions. HS-LS2-7(HS-LS1-3) ● describe the lag, exponential growth, deceleration, and stable equilibrium phases of a population growth curve.HS-LS2-6(LS4.C)(HS-LS1-3) ● describe how limiting factors determine the carrying capacity for a population.(HS-LS2-1) (HS-LS1-3)

- an experiment is a recreation of an occurrence in a way that enables a scientist to support or disprove a hypothesis. HS-LS2-7(HS-LS1-3)
- experiments must be able to be reproduced. HS-LS2-7(HS-LS1-3)
- experiments generate data that can be used. HS-LS2-7(HS-LS1-3)

EU 5

- that biomes are determined by climate.HS-ESS3-1(LS1.C)
- climate is determined by moisture, temperature, light and elevation.HS-ESS3-1(LS1.C)
- how each abiotic factor of an ecosystem determines which organisms live there. HS-LS4-4(LS1.C)
- the major biomes of the world in terms of climate and organisms that live there.HS-ESS3-1(LS1.C)
- the current human impact on each of the major biomes. HS-LS2-7; HS-ESS2-2(LS4.D)

- describe using data how maintenance of biodiversity has health and economic value.HS-LS2-2(LS4.A)(HS-LS1-3)

EU 5

- identify the major environmental factors that determine the kind of community that inhabits an area. HS-ESS3-5(LS1.C)
- identify the major abiotic and biotic characteristics of the various biomes. HS-ESS3-5(LS1.C)
- describe the role of organisms in various biomes. HS-ESS3-5(LS1.C)
- understand the role of fire in natural ecosystems.HS-LS2-6(LS4.C)(LS1.C)
- describe the human impacts on each of the major biomes.HS-LS2-7(LS4.D)

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- Some Animals are More Equal than Others (HHMI BioInteractive Video)
https://www.biointeractive.org/classroom-resources/some-animals-are-more-equal-others-keystone-species-and-trophic-cascades

GOAL: Students will discover that everything in our environment is interrelated and interdependent of one another.

1. Show students video on Trophic Cascades: Some animals are more equal than others.(EU 1) (A)
   https://www.youtube.com/watch?v=hRGg5it5FMI
   a. After the video, have students independently list any important takeaways or observations. (A,M)
   b. Discuss as a class and compile a list of concepts needed to be learned in order to solve and understand this problem. (M,T)
2. Activator: Pick a side! Does our class make up a population or a community?(EU2)(A,M)
   a. Independently students must pick a side of the room representing either a community or population.(EU 2) (M)
   b. Each group will discuss why they made their choice and how to defend it.(T)
   c. Each side gets a chance to make their argument.(T)
   d. Teacher led discussion on levels of organization in an ecosystem.(EU 2) (A)
   e. Students will have a chance to change sides given new information. (T)
3. Case Study: What Happened to the Golden Tree Frog?(EU 2)(M,T)
   Pearson Environmental Science, Your World Your Turn, by Jay Withgott pg. 99
   a. Students will identify how the population of Golden Tree Frogs has changed over time and what may have caused this change.(M,T)
   https://docs.google.com/document/d/1pYfkj_VYQ8Yd2IgygYw0vHifG3obQ4h2tyXijF4_uUY/edit
4. Activity: How to measure with Random Sampling: How Many Sunflowers Are In the Field? (EU 4)(M,T)

https://docs.google.com/document/d/1I3Zf-oLLYNkSjDwFtIgOGgWty6bQqozySLpcUCmgz3s/edit

5. Population Ecology Graphs: Growth Trends and Carrying Capacity (EU 4)(A,M)
    a. Teacher led discussion on population growth trends. (A)
    b. Students will independently complete the worksheet. (M)
    c. Use the review of these answers to guide class discussion.(M)
6. Activity: Adaptation Simulation Lab (EU 3) (M,T)
    a. Students will work within small groups to discover how adaptations arise over long and short horizons from: diversity, mutation, environmental conditions, mating patterns, etc. (M)
    b. Students will have multiple models of "beaks" and "food" to record which beak consumes which food most efficiently (M,T)
7. 3D Model: Trophic Pyramid (A,M,T)(EU 1)
    a. Teacher led discussion on food chains, food webs, and energy flow. (A)
    b. Students will independently model organisms within an ecosystem by identifying their trophic level(M) https://drive.google.com/file/d/1kr6asMWoN78cnCvpzd5qrt9Qakxbz6kW/view?usp=sharing
    c. Students will complete practice questions and calculations using the 10% biomass rule.(M,T) https://docs.google.com/document/d/144w3Ptzg5IlsSzTIH8Ccq0_xKGHDX6SJbofJry9nwgM/edit
8. Activity: Trophic Cascades Card Game → + or - ? (EU 3)(M,T)
https://docs.google.com/document/d/14Ui7Cw1r0hCSSh3IcGaBe5jSOOG5fc4418lKLoAzRJc/edit
    a. Students will be given multiple cards obtaining images of different organisms unique to their habitat
        i. Level 1: Students will collaboratively group organisms based on which ecosystem they inhabit(T)
        ii. Level 2: Students will collaboratively organize the proper organisms within their habitat into a food chain(T)
        iii. Level 3: Teacher will remove a keystone species from each group's food chain to provoke discussion within groups as to what would occur within that ecosystem if that organism was not present (M,T)
        iv. Students will construct a new food web with that particular keystone species removed from that food chain. (T)
9. Discussion: Biodiversity (EU 4)(A,M,T)
    a. Teacher led discussion(A)
    b. EdPuzzle - Biodiversity(A,M)
    c. Explores examples of how changes in one species can affect species at other trophic levels and ultimately the entire ecosystem. https://www.biointeractive.org/classroom-resources/exploring-trophic-cascades Lesson Assessment Questions(T)
10. Activity: Biodiversity (EU 4)(M,T)
    a. Students will measure the species richness and evenness of different communities. (M)
        i. *Part 2 of Data Collection in "Biodiversity Parking Lot Lab" in Unit 1*
    b. Students will use this data to rank the overall biodiversity of these different communities.(T)
    c. Students will analyze how these different communities will respond to both natural and human disturbances as a result. (T)
11. Group Station Activity: Loss of Biodiversity (EU 4)(A,M,T)

a. Students will be assigned a station related to one of the major causes of biodiversity loss: HIPPCO (habitat destruction, Invasive species, pollution, poaching, climate change, overharvesting)
b. Students in each group will collaborate to establish a CER (claim evidence and reasoning) statement related to their particular cause on a large poster. (A,M)
c. Each station will present this CER statement to the class. (A,M)
d. Students will then try to place causes in order of largest effect on loss of biodiversity to least. (T)

12. Article & Debate: "Is the Endangered Species Act a success or failure?"(A,M)(EU 5)
    a. Independently students will read article and decide whether they think the ESA should be considered a success or failure and why. (A,M) https://www.biologicaldiversity.org/campaigns/esa_wild_success/#:~:text=The%20Act%20has%20been%20more,the%20law's%20passage%20in%201973.
    b. Students must pick a side of the room representing their choice. (M)
    c. Each side gets a chance to make their argument. (M)
    d. Teacher led Discussion: Protecting Biodiversity and Conservation (A, EU 4)
    e. Students will have a chance to change sides given new information. (T)

Phenomenon- Polar Bear (EU 5)
https://drive.google.com/file/d/1j4LnvGHjMoz46T9IzWVA8uspWUU7dIqk/view?usp=sharing

Goal: Students will discover the major environmental factors that determine the kind of community that inhabits an area.

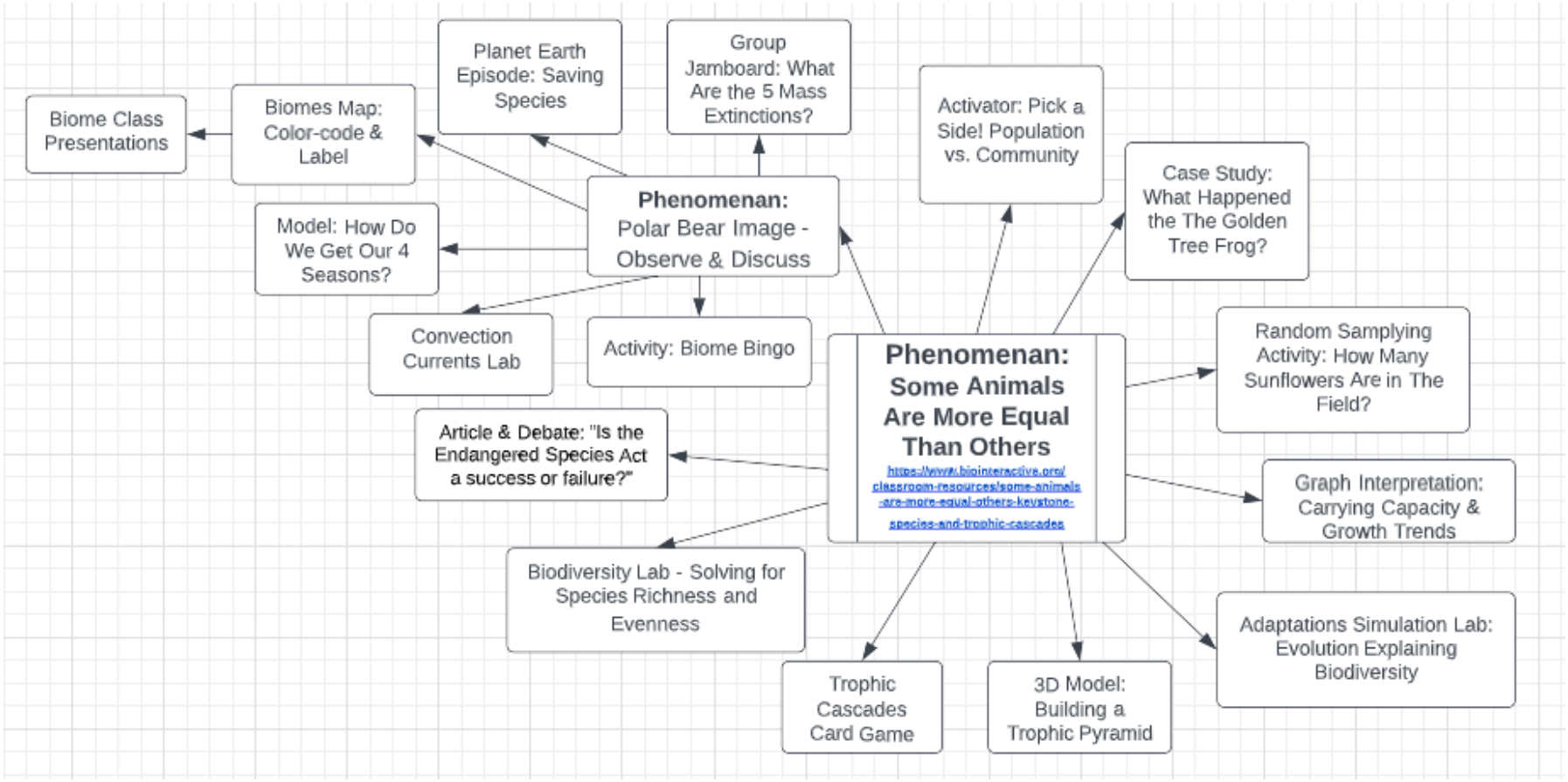
1. Group Jamboard: What Are The 5 Mass Extinctions? (EU 5)(A,M)
    a. Each group is assigned a major mass extinction to research and share with the class(M,T)
2. Planet Earth Episode: Saving Species (Polar Bears, Amphibians, Elephants)(EU 5)(A,M)
3. Color-Code Biomes on World Map (EU 5)(M,T)
    a. Students independently make a key of all terrestrial and aquatic biomes (A, M)
    b. Students shade sections of the world map according to which biome is present based on the color selected in the key
4. Biome Partner Project (M EU 5)
    a. Students are to research biome topography, climate, precipitation, native plant and animal species, and unique characteristics of their assigned biome
5. Model & Class Discussion: How we get our 4 seasons (EU 5)(A,M,T)
    a. Students are to draw their answer to, "How do we get our 4 seasons?" to identify misconceptions (A, M)
    b. Teacher directed model with *Illuminated Sun, Earth & Moon Orbital Model (M, T)*
    c. Students reflect back on misconceptions given new information. (T)
6. Convection Currents Lab (EU 4,5 M,T)
    a. Students simulate how warm and cold water initiates a convection current by inserting a pipet of colored-die in a box-shaped tub filled with a gallon of water
        i. The first model has hot water in the center of the tub

ii. The second model has hot water on each opposing side of the tub
iii. Students are to create their own simulation in their third trial

7. Activity: Biome Bingo (EU 5 M, T)
    a. The teacher reads either a species, climate, precipitation, latitude/longitude, or unique fact about a specific biome, as the students are to assess their knowledge of the description to which biome it belongs.

Additional suggested ideas:

- AmeriCorps New Jersey Watershed Ambassador/Pinelands Preservation Alliance Guest Speaker (A,M,T)
    - Enviroscape Watershed Presentation
- Primary and Secondary Succession Webquest (EU 3) (M) https://docs.google.com/document/d/1t4vkAU5vecS7_9rB-wJUaXqc0ek1kpqEk1vpOe6GZCY/edit
- Species Interactions Hunt (chart with placing image of species interactions as competition, predation, parasitism, herbivory, mutualism, commensalism) (A,M,T)
- Netflix Series (A,M)
    - Our Great National Parks with Barack Obama
    - Down to Earth with Zac Efron
    - One Strange Rock



https://lucid.app/lucidchart/1f68e2ee-b2cd-4f61-b2c6-5e57e60506fb/edit?beaconFlowId=665B56D9E0114C8B&invitationId=inv_6ff083d0-8690-4ec4-98ab-216c984419e6&page=0_0#

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:

- Illuminated Sun, Earth & Moon Orbital Model, 12.25"H x 16.25"W - 12V Light Bulb Demonstrates Sunlight on Earth & Moon - Includes Experiment Guide - Eisco Labs
- Trophic Cascade Species Cards
- Hot Plate

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.