


6th Grade

How do My Habits affect Their Habitats?

Eco-Energy for Schools



Unit Overview	
Unit Title	How do My Habits affect Their Habitats?
Unit Summary	Students will begin their study of this unit by investigating habitat loss and man's impact on the environment. The unit will include the study of geography, biomes, habitats, agriculture, transportation, renewable and nonrenewable energy, biological communities, and man's impact on communities. The students will read, research, write, and present data related to conservation and sustainability. The culminating event for this unit will be an El Nino study. The overall goal for this unit is to engage students in the study of how humans impact the environment and their responsibility to support sustainability.
Subject Area Strands	Science – Inquiry & Interdependence Math – Ratios & Proportions, Number System, Graphing ELA – Literature, Informational Text, Communication, Writing Social Studies – Geography, Agriculture, Environmental Issues & Climate Change
Grade Level	6 th Grade
Appropriate Time	20 days

			<p>deadlines, and define individual roles as needed.</p> <ol style="list-style-type: none"> c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing. <ol style="list-style-type: none"> 4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas of themes; use appropriate eye contact, adequate volume, and clear pronunciation. 5. Include multimedia components (e.g. graphics, images, music, and sound) and visual displays in presentations to clarify information.
TN Standards			
		<p>Science</p>	<ul style="list-style-type: none"> • GLE 0607.Inq.1 Design and conduct open-ended scientific investigations. • GLE 0607.Inq.2 Use appropriate tools and techniques to gather, organize, analyze, and interpret data. • GLE 0607.Inq.3 Synthesize information to determine cause and effect relationships between evidence and explanations. • GLE 0607.Inq.4 Recognize possible sources of bias and error, alternative explanations, and questions for further exploration. • GLE 0607.Inq.5 Communicate scientific understanding using descriptions, explanations, and models. • GLE 0607.T/E.1 Explore how technology responds to social, political, and economic needs. • GLE 0607.T/E.2 Know that the engineering design process involves an ongoing series of events that incorporate design constraints, model building, testing, evaluating, modifying, and retesting. • GLE 0607.T/E.3 Compare the intended benefits with the unintended consequences of a new technology. • GLE 0607.2.1 Examine the roles of consumers, producers, and decomposers in a biological community. • GLE 0607.2.2 Describe how matter and energy are transferred through an ecosystem. • GLE 0607.2.3

		<p>Draw conclusions from data about interactions between the biotic and abiotic elements of a particular environment.</p> <ul style="list-style-type: none"> • GLE 0607.2.4 Analyze the environments and the interdependence among organisms found in the world's major biomes. • GLE 0607.8.1 Design and conduct an investigation to determine how the sun drives atmospheric convection. • GLE 0607.8.2 Describe how the sun's energy produces the wind. • GLE 0607.8.3 Investigate the relationship between currents and oceanic temperature differences. • GLE 0607.8.4 Analyze meteorological data to predict weather conditions.
	Social Studies	<p>6.3</p> <ul style="list-style-type: none"> • Explain the importance of the discovery of metallurgy and agriculture. (E, H) <p>6.4</p> <ul style="list-style-type: none"> • Evaluate the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter. (C, G, H) <p>6.5</p> <ul style="list-style-type: none"> • Summarize the impact of agriculture related to settlement, population growth, and the emergence of civilization. (C, G, H) <p>6.6</p> <ul style="list-style-type: none"> • Identify and explain the importance of the characteristics of civilizations, including: (C, E, G, H, P) <ul style="list-style-type: none"> ○ The presence of geographic boundaries and political institutions ○ An economy that produces food surpluses ○ A concentration of population in distinct areas or cities ○ The existence of social classes ○ Developed systems of religion, learning, art, and architecture ○ A system of record keeping ○ Technology <p>6.8</p> <ul style="list-style-type: none"> • On a historical map, locate and describe the Tigris and Euphrates Rivers, Zagros and Caucasus Mountains, Persian Gulf, Caspian and Black Sea, Dead Sea and Sea of Galilee and explain why the region is referred to as the Fertile Crescent. <p>6.15</p> <ul style="list-style-type: none"> • On a historical map locate the Mediterranean and Red Seas, the "Nile River and Delta, and the areas of ancient Nubia and Egypt. Identify the locations of ancient Upper and Lower Egypt and explain what the terms mean. On the modern map, identify the modern countries of Egypt and the Sudan. (G, H) <p>6.23</p> <ul style="list-style-type: none"> • Locate and describe the Himalayas and the major river systems, including Indus and Ganges and evaluate the importance of each. (E, G, H). <p>6.30</p> <ul style="list-style-type: none"> • Identify and locate on a map the geographical features of China, including the Huang He (Yellow) River, Plateau of Tibet, and Gobi

	<div data-bbox="345 102 420 161" data-label="Image"></div> <div data-bbox="345 1033 641 1110" data-label="Section-Header"> <p>Next Generation Science Standards</p> </div>	<p>Desert. (G)</p> <p>Asking Questions and Defining Problems</p> <ul style="list-style-type: none"> Asking questions and defining problems in grades 6–8 builds from grades K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models. <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> Planning and carrying out investigations to answer questions or test solutions to problems in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or design solutions. Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim. (MS-PS2-2) Conduct an investigation and evaluate the experimental design to produce data to serve as the basis for evidence that can meet the goals of the investigation. (MS-PS2-5) <p>Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-PS2-3),(MS-PS2-5)</p> <p>Constructing Explanations and Designing Solutions</p> <ul style="list-style-type: none"> Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. <p>Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process or system. (MS-PS3-3)</p> <p>Influence of Science, Engineering, and Technology on Society and the Natural World</p> <ul style="list-style-type: none"> All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. (MS-ETS1-1) The uses of technologies and limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. (MS-ETS1-1) <p>MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of</p>
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organisms in an ecosystem.

LS2.A: Interdependent Relationships in Ecosystems

- Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1)
- In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2-1)
- Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)
- Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. (MS-LS2-2)

LS2.B: Cycle of Matter and Energy Transfer in Ecosystems

- Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (MS-LS2-3)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

- Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. (MS-LS2-4)
- Biodiversity describes the variety of species found in Earth's terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health. (MS-LS2-5)

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LS4.D: Biodiversity and Humans

- Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling. (secondary to MS-LS2-5)

MS-ESS2-5.

Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.

MS-ESS2-6.

Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

ESS2.A: Earth's Materials and Systems

- All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms. (MS-ESS2-1)
- The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS-ESS2-2)

ESS2.D: Weather and Climate

- Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns. (MS-ESS2-6)
- Because these patterns are so complex, weather can only be predicted

Lesson Foundation – Big Ideas & Cross-Curricular Connections

Big Idea

- What is a habitat?
- How are habitats similar and different?
- How do humans impact the environment?
- What is the relationship between man's actions and other species' habitats?

Cross-Curricular Connections

- Students will learn how all subject areas can be utilized to learn about the topic of man's impact on

the environment and habitats. This unit will integrate a variety of fiction and non-fiction texts to support the scientific content taught. The students will use mathematic skills and social studies skills to document their understanding of the content.

Lesson Foundation – Essential Questions

1. How do habitats compare and contrast?
2. What is man's effect on habitats and the environment?

Lesson Foundation – Student Objectives

Going Beyond

- I can design and conduct an open-ended scientific investigation to answer a question that includes a control and appropriate variables.
- I can identify tools and techniques needed to gather, organize, analyze, and interpret data collected from a moderately complex scientific investigation.
- I can use evidence from a dataset to determine cause and effect relationships that explain a phenomenon.
- I can review an experimental design to determine possible sources of bias or error, state alternative explanations, and identify questions for further investigation.
- I can design a simple experimental procedure with an identified control and appropriate variables.
- I can select tools and procedures needed to conduct a moderately complex experiment.
- I can explore how the unintended consequences of new technologies can impact society.
- Research bioengineering technologies that advance health and contribute to improvements in our daily lives.
- I can distinguish between the intended benefits and the unintended consequences of a new technology.
- I can differentiate between renewable and nonrenewable resources in terms of their use by man.
- I can evaluate how human activities affect the earth's land, oceans, and atmosphere.
- I can determine the impact of man's use of renewable and nonrenewable resources on future supplies.
- I can evaluate how human activities affect the condition of the earth's land, water, and atmosphere.
- I can analyze and evaluate the impact of man's use of earth's land, water, and atmospheric resources.

Mastery

- I can design and conduct open-ended scientific investigations.
- I can use appropriate tools and techniques to gather, organize, analyze, and interpret data.
- I can synthesize information to determine cause and effect relationships between evidence and explanations.

- I can recognize possible sources of bias and error, alternative explanations, and questions for further exploration.
- I can communicate scientific understanding using descriptions, explanations, and models.
- I can explore how technology responds to social, political, and economic needs.
- I can describe how the engineering design process involves an ongoing series of events that incorporate design constraints, model building, testing, evaluating, modifying, and retesting.
- I can compare the intended benefits with the unintended consequences of a new technology.
- I can examine the roles of consumers, producers, and decomposers in a biological community.
- I can describe how matter and energy are transferred through an ecosystem.
- I can draw conclusions from data about interactions between the biotic and abiotic elements of a particular environment.
- I can analyze the environments and the interdependence among organisms found in the world's major biomes.
- I can compare and contrast the different methods used by organisms to obtain nutrition in a biological community.
- I can create a graphic organizer that illustrates how biotic and abiotic elements of an environment interact.
- I can use a food web or energy pyramid to demonstrate the interdependence of organisms within a specific biome.
- I can create poster presentations to illustrate differences among the world's major biomes.
- I can classify organisms as producers, consumers, scavengers, or decomposers according to their role in a food chain or a food web.
- I can interpret how materials and energy are transferred through an ecosystem.
- I can identify the biotic and abiotic elements of the major biomes.
- I can identify the environmental conditions and interdependencies among organisms found in the major biomes.
- I can design and conduct an investigation to determine how the sun drives atmospheric convection.
- I can describe how the sun's energy produces the wind.
- I can investigate the relationship between currents and oceanic temperature differences.
- I can analyze meteorological data to predict weather conditions.
- I can recognize how convection currents in the atmosphere produce wind.
- I can design an experiment to investigate differences in the amount of the sun's energy absorbed by a variety of surface materials.
- I can design an experiment to demonstrate how ocean currents are associated with the sun's energy.
- I can analyze ocean temperature data to demonstrate how these conditions affect the weather in nearby land masses.
- I can interpret data found on ocean current maps.
- I can analyze data to identify events associated with heat convection in the atmosphere.

	<ul style="list-style-type: none"> • I can recognize the connection between the sun's energy and the wind. • I can describe how temperature differences in the ocean account for currents. • I can interpret meteorological data to make predictions about the weather. • I can analyze various types of energy transformations. • I can recognize that energy can be transformed from one type to another.
Building the Basics	<ul style="list-style-type: none"> • I can explore different scientific phenomena by asking questions, making logical predictions, planning investigations, and recording data. • I can select and use appropriate tools and simple equipment to conduct an investigation. • I can organize data into appropriate tables, graphs, drawings, or diagrams. • I can identify and interpret simple patterns of evidence to communicate the findings of multiple investigations. • I can recognize that people may interpret the same results in different ways. • I can describe how tools, technology, and inventions help to answer questions and solve problems. • I can recognize that new tools, technology, and inventions are always being developed. • I can identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem. • I can investigate different nutritional relationships among organisms in an ecosystem. • I can explain how organisms interact through symbiotic, commensal, and parasitic relationships. • I can establish the connections between human activities and natural disasters and their impact on the environment. • I can evaluate producer/consumer, predator/prey, and parasite/host relationships. • I can compare the climates of coastal and inland areas at similar latitudes to demonstrate the ocean's impact on weather and climate. • I can use land maps to demonstrate how mountain ranges affect weather and climate. • I can use weather maps of the United States to graph temperature and precipitation for inland and coastal regions. • I can conduct experiments on the transfer of heat energy through conduction, convection, and radiation. • I can describe the differences among conduction, convection, and radiation. • I can demonstrate difference ways that energy can be transferred from one object to another. • I can use data from an investigation to determine the method by which heat energy is transferred from one object or material to another.

Lesson Foundations – Prerequisite Content & Skills

Content Knowledge

- Students can describe an investigations.
- Students can identify data.
- Students can describe cause and effect relationships.
- Students can describe technology.
- Students can provide examples of technology.
- Students can explain how technology impacts life.
- Students can identify a model of a concept.
- Students can provide an example of a benefit.
- Students can provide an example of a consequence.
- Students can differentiate between living and nonliving items.
- Students can use a graphic organizer to organize information.
- Students can group items based on a common characteristic.
- Students can identify an organism.
- Students can use a map to gather information.
- Students can make inferences.

Skills

- Students can analyze presented and collected information.
- Students can describe and explain relationships between two or more objects.
- Students can appropriately measure distances using rulers, meter sticks, or a measuring tape.
- Students can create charts with appropriate headings and titles.
- Students can create graphs provided information.
- Students can create graphs with appropriate headings, legends, colors, and titles.
- Students can create a written explanation.
- Students can organize information, grade level appropriate.
- Students can diagram and illustrate a process.
- Students can infer when provided content information.
- Students can collaborate and work within in team.
- Students can communicate effectively with other classmates.

Unit Anchor Text

Unit Anchor Text



The Lorax

By Dr. Seuss

Unless someone like you...cares a whole awful lot...nothing is going to get better... It's not."

Long before saving the earth became a global concern, Dr. Seuss, speaking through his character the Lorax, warned against mindless progress and the danger it posed to the earth's natural beauty.

Unit Companion Texts

Informational Text(s)

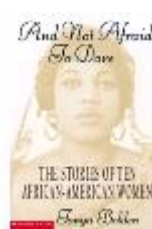


The 7 Habits Of Highly Effective People

by Stephen R. Covey

Covey, an internationally respected leadership authority, realizes that true success encompasses a balance of personal and professional effectiveness; this book is a manual for performing better in both arenas. His anecdotes are as frequently from family situations as from business challenges. This highly regarded book describes a methodology of personal effectiveness that has literally changed the lives of many people.

Biography study examples –



And Not Afraid to Dare: The Stories of Ten African-American Women

by Tonya Bolden

The ten women in this book are just a few of the African Americans who have made exceptional contributions to American life. Refusing to bow to social and political restrictions, they triumphed over racism and sexism to fulfill their aspirations and realize their dreams.

Ellen Craft, dressed as a man, risked her life to escape from slavery and work for the liberation of others. Ida B. Wells faced death threats in her crusade against lynching. Clara Hale gave up retirement to dedicate her life to healing and helping babies and young children.

Even more recently, Toni Morrison has written of the nightmares and legacies of African Americans, transforming many people's thinking. And Jackie Joyner-Kersey, who was dead last in her first running race, went on to become an Olympic gold-medal-winning track star.

Despite a lengthy history of invisibility and rejection, these women, and the five others featured in this book (Mary Fields, Charlotte Forten Grimké, Mary McLeod Bethune, Leontyne Price, and Mae C. Jemison), were determined to be free, to be heard, to succeed. In heartfelt biographies, Tonya Bolden celebrates their lives and achievements.



Anne Frank: Beyond the Diary: A Photographic Remembrance

by Rian Verhoeven

This elegant photographic remembrance of Anne Frank appears at first like any family album. Translated from the Dutch, this photobiography, like the famous diary, captures the ordinariness of Anne and her family's life. Individual photos are mostly informal snapshots and are a bit blurry at times. But this photobiography chronicles a far-from-ordinary life, and the Association of the Anne Frank House in Amsterdam sets Anne's story in a larger context, examining

Hitler's rise to power, developing her family history, and the larger fate of the Jews during WWII. The establishment of the Anne Frank House in 1960 is also described.

The photographs are well captioned and the book is handsomely designed, with short essays in easily readable text. A facsimile of her last diary entry has also been included, as well as maps, interviews, chronology, and notes on different versions of her famous diary. This is a poignant, respectful tribute to Anne Frank.

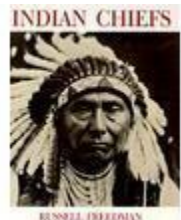


Confucius: The Golden Rule

by Russell Freedman, illustrated by Frederic Clement

"Do not impose on others what you do not wish for yourself." This was one of the guiding principles of life that Confucius taught his followers, five centuries before Jesus taught the Golden Rule with similar words. His principles of fair government influenced the very writers and thinkers who, thousands of years later, would develop the democratic ideals of our own government. And yet, today, in the western world, the great Chinese philosopher is still commonly portrayed as a comic sage, a loony philosopher whose remarks always begin "Confucius say."

Renowned biographer Russell Freedman's fascinating, witty introduction to the life and teachings of Confucius should finally set the record straight. Using the rigorous, lively technique that his readers have come to expect, Freedman traveled to China's Shandong province to visit Confucius's birthplace, interviewed his descendants, and plumbed the famous Analects — the teachings of the sage, written down by his followers.

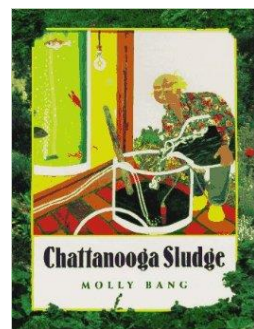


Indian Chiefs

by Russell Freedman

In this award-winning collective biography, acclaimed author and historian Russell Freedman profiles six Western chiefs who led their people in a time of crisis: Red Cloud of the Oglala Sioux, Santanta of the Kiowas, Quanah Parker of the Comanches, Washakie of the Shoshonis, Joseph of the Nez Perces, and Sitting Bull of the Hunkpapa Sioux. Each man had to decide whether his people should fight or cooperate with the white pioneers encroaching on their lands, and each faced the decision in his own way.

As told by Newbery Medalist Freedman, each of the six accounts is fascinating in content and unsentimental in tone. The chiefs come to life in all their human complexity they are family men as well as visionaries, poets as well as fierce warriors. Freedman does not romanticize the Native American viewpoint, nor does he judge the white: he presents a factual account of cultures in conflict and trusts young readers to draw their own



conclusions. Striking period prints and black-and-white photographs add to the immediacy of the text, and an approachable bibliography is included, making *Indian Chiefs* an excellent first stop for research projects.

Chattanooga Sludge Hardcover

by Molly Bang

	The true story of John Todd's ingenious plan to clean toxic waste from a Tennessee creek describes the 150 years of pollution buildup that prompted his decision and his construction of the Living Machine. Children's BOMC Feat.
Assessments	
Formative Assessments	<ul style="list-style-type: none">○ Unit Pre-Assessment○ Graphic organizers○ Partners Practice○ Independent Practice○ Jigsaw Activities○ Drawings, Diagrams, and Illustrations of Content○ Review
Summative Assessments	<ul style="list-style-type: none">○ Writing assignments○ Unit Summative Assessment
Writing Assessments	<ul style="list-style-type: none">○ Graphic Organizers○ Research Paper
Unit Vocabulary	
Term	Definition

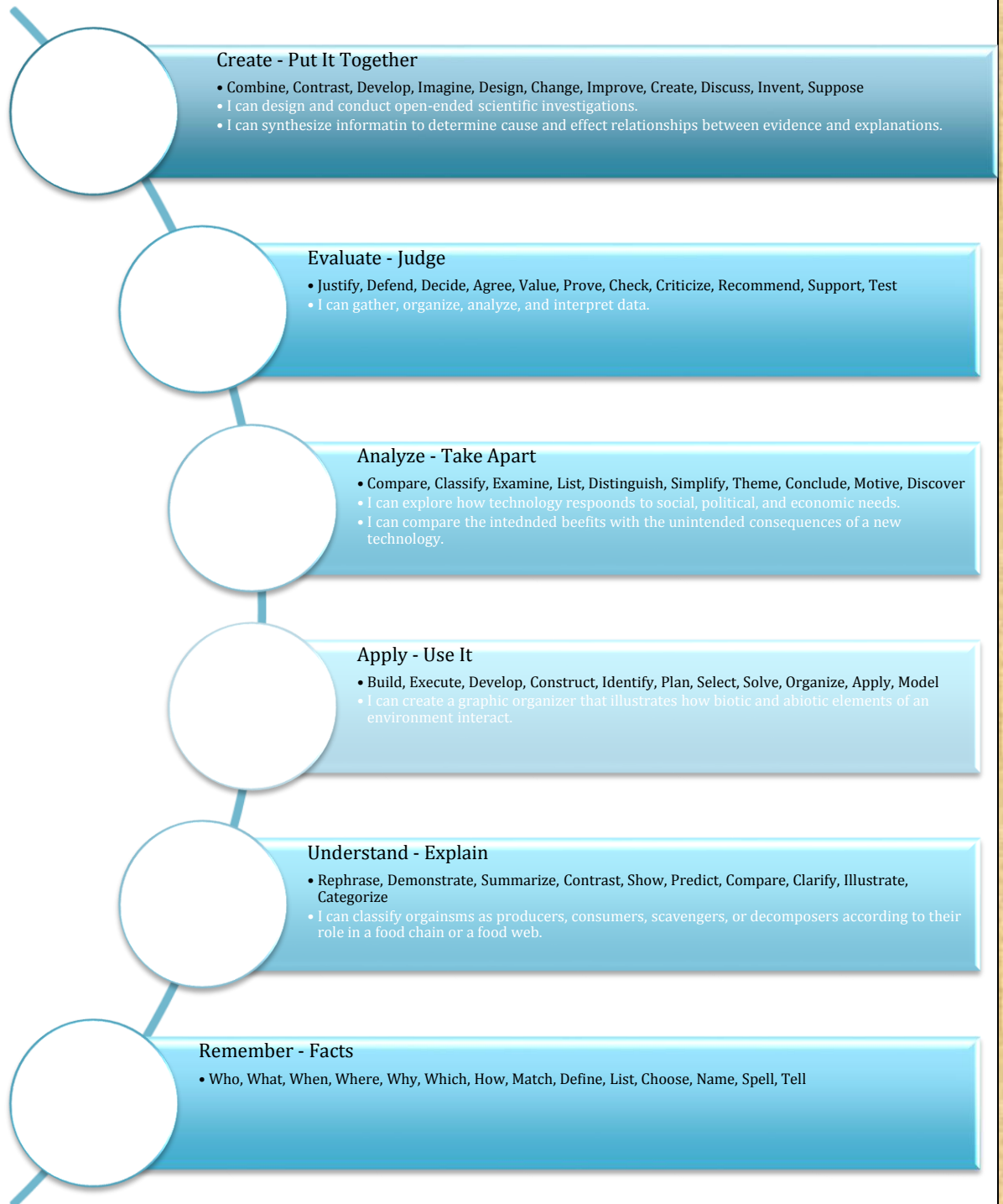
Consumer	An organism, usually an animal that feeds on plants or other animals.
Producer	(1) An <u>autotrophic organism</u> capable of producing <u>complex organic compounds</u> from simple <u>inorganic molecules</u> through the process of <u>photosynthesis</u> (using light energy) or through <u>chemosynthesis</u> (using chemical energy). (2) The first <u>trophic</u> level in a <u>food chain</u> in which it serves as a food source for <u>consumers</u> or for higher trophic levels.
Decomposer	An organism, usually a bacterium or fungus that breaks down the cells of dead plants and animals into simpler substances.
Community	A group of interdependent organisms living and interacting with each other in the same habitat.
Ecosystem	A system formed by the interaction of a community of organisms with their environment.
Biotic	Pertaining to life.
Abiotic	Of or characterized by the absence of life or living organisms.
Interdependence	The quality or condition of being interdependent, or mutually reliant on each other.
Biomes	A complex biotic community characterized by distinctive plant and animal species and maintained under the climatic conditions of the region, especially such as community that has developed to climax.
Nutrition	The act or process of nourishing or of being nourished.
Scavenger	An animal or other organism that feeds on dead organic matter.
Food Chain	A series of organisms interrelated in their feeding habits, the smallest being fed upon by a larger one, which in turn feeds a still larger one, etc.
Food Web	A series of organisms related by predator-prey and consumer-resource interaction; the entirety of interrelated food chains in an ecological community.
Atmospheric Convection	The vertical transport of atmospheric properties, especially upward (distinguished from advection).
Currents	(1) Something that flows, as of a river. (2) A large portion of air, large body of water, etc., moving in a certain direction. (3) The speed at which such flow moves; velocity of flow.
Transform	To change in condition, nature, or charter; convert.

Teaching the Unit

Initial Strategies	Students will watch a short video – approximately 15 minutes – about habitats and human impact on habitats. The students will be given a response style-writing prompt after the video. The writing prompt will be titled “Where have all the Habitats Gone? – What is my part of this mess?” The setup of this writing prompt will be similar to the state writing assessment to provide students with practice on this style of assessment. The same prompt will be given at the end of the unit to determine how their opinion, subject knowledge, and content area writing have improved through the unit.
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Direct Instruction	<p>Science:</p> <ul style="list-style-type: none"> ○ Biomes PPT ○ Land Use, Water Quality, & Pollution PPT ○ Causes of Pollution, Types of Pollution, Water Quality, and Land Use PPT ○ Man's Effect of the Environment PPT ○ Interdependence PPT ○ Ecosystems PPT ○ Creating Models and Applying the engineering Design Process PPT ○ Energy and the Environment PPT ○ Climate Change and Global Warming PPT ○ Climate Change, Alternate Energy, and Your Responsibility PPT ○ The Sun, Convection Currents, and Weather PPT <p>Math:</p> <ul style="list-style-type: none"> ○ Collecting, Organizing & Analyzing Data PPT ○ Calculating Percentages, Graphing, and Pie Charts PPT <p>ELA:</p> <ul style="list-style-type: none"> ○ Outlines and Organization PPT ○ Theme, Setting, and Purpose of Texts PPT ○ Writing an Editorial or Opinion Piece PPT ○ Outlines and Writing a Research Paper PPT ○ Peer Editing PPT ○ Writing PPT ○ Oral and Digital Presentations PPT ○ Media and Advertising PPT <p>Social Studies</p> <ul style="list-style-type: none"> ○ Geography Basics PPT

Higher-Level Cognitive Function Strategies



Guided Practice & Activities

Lesson 1

- Formative Assessment
 - Unit Pre-Assessment
- ELA
 - What are habits?
 - The teacher will ask the class “What are habits?”
 - Each student will provide a working definition of habits. If your students are unfamiliar with “working” definitions the teacher will need to model this portion of the lesson for the class.
 - The class will discuss their working definitions. The teacher will address any misconceptions during this discussion.
 - Each student will then add three examples of habits to their working definition.
 - The teacher will then ask the class “What makes a habit good or bad?”
 - The teacher will instruct the students to respond to this question using the Think-Pair-Share method.
 - 7 Habits of Highly Successful People: By Stephen Covey
 - The teacher will read a summary of this book.
 - The class will discuss each of the 7 Habits.
 - Student will complete a written reflection activity regarding the “7 Habits of Highly Successful People” by Stephen Covey. The written reflection will be in the form of a graphic organizer. The teacher will pose a question – “Do you think ...” Why or why not. The students will provide their opinion and response, then cite three supporting pieces of evidence from the text, lastly the students will use these components of the graphic organizer to create one complete sentence to answer the posed questions.
 - The teacher will setup a Jig Saw activity where students will study two of the seven habits in expert groups and create a presentation in their home groups. The presentation will review the seven habits and examples of individuals who exhibit these habits.
 - Biography Study
 - The class will visit the school library or will search online to find a biography of a successful individual. Each student will select their own biography with teacher approval. The students will then be grouped to form reading groups that will discuss their biography.
 - During lesson one each student will read the first chapter or section of their biography independently.
 - Direct Instruction – “Outlines and Organization”
 - The teacher will present a power point on how to make an outline and the importance of organization when writing.
 - The teacher will model how to make an outline using the introductory book and activities from “7 Habits of Highly Successful People” by Stephen Covey.
 - The students will then create an outline of the first section or chapter of their selected biography.
 - The students will get in their assigned groups and share their outlines.
- Science
 - Direct Instruction – “Biomes” PPT

- Students will compare and contrast biomes utilizing a comparison chart. The teacher will provide the qualities or characteristics that each student will research for each biome. The class will then review the charts and biome characteristics.
- Social Studies
 - Direct Instruction – “Geography Basics” PPT
 - The students will then create a second chart. The chart will compare the geography components of each biome. The teacher will provide the geography qualities and characteristics that each student will research for each biome. The class will then review the charts and geography characteristics of each biome.
- Math
 - Direct Instruction – “Collecting, Organizing, & Analyzing Data”
 - The teacher will explain to the class that we have created two charts and we will now review analyzing data and making graphs.
 - Graphing Practice
 - Students will work in pairs to complete a graphing practice extension. The groups of two will make a visual representation describing biomes that includes the two charts made earlier in the lesson and three graphs of information about biomes (from the charts) that your group found interesting. The teacher will monitor and provide scaffolding as needed for each group.
 - The final visual presentation will include three graphs, two completed charts, one title, and one illustration.
- Closure
 - The students will complete a formative assessment that includes practice summative assessment questions. The practice test questions will be ten multiple choice and will include the following topics: biomes, geography, data, charts, and graphs.

Lesson 2

- Set
 - Graphic Organizer- Which biome would you reside and why?
 - Biomes video clip
- Biome Presentations
 - Student groups will present their visual presentations to the class.
 - The teacher will allow for approximately thirty minutes for student presentations.
- Science
 - Students will complete the Biomes Independent Practice.
 - Direct Instruction – “Land Use, Water Quality, & Pollution” power point. Students will take notes in their science notebook or their note taking app.
 - The teacher will lead the class in a discussion on land use, water quality, and pollution embedding information about how each concept is related to each biome.
 - Students will complete a provided chart to aid in organizing this data and information. The teacher will provide specific questions regarding land use, water information, and pollution then students will record information for each biome after discussion and research has been completed.
- Math
 - Direct Instruction – “Calculating Percentages, Graphing, and Pie Charts”

power point

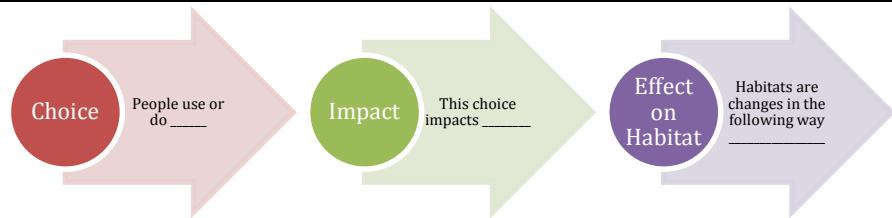
- The class will work in pairs to make pollution pie charts for each continent or biome. The teacher will guide the class in completing one pollution pie chart. The class will then assist the teacher in completing a second pollution pie chart for a second biome or continent. The students will then work in pairs to complete the remaining pollution pie charts. The students must cite resources and references for their information.
- Social Studies
 - Video Clip – Causes of Pollution
 - Direct Instruction – Causes of Pollution, Types of Pollution, Water Quality, and Land Use. The teacher will embed information about change through time due to innovation throughout the presentation.
 - The students will take notes using a notebook or a note taking app.
 - Students will create a timeline of pollution (types and percentages) versus society's advances (such as cars, planes, air conditioning, etc...)
- ELA
 - Writing – RAFT
 - R: Role = News reporter for local newspaper
 - A: Audience = Local community
 - F: Format = News article with illustration (or a news report – video format)
 - T: Biomes and man's effect on the environment

Lesson 3

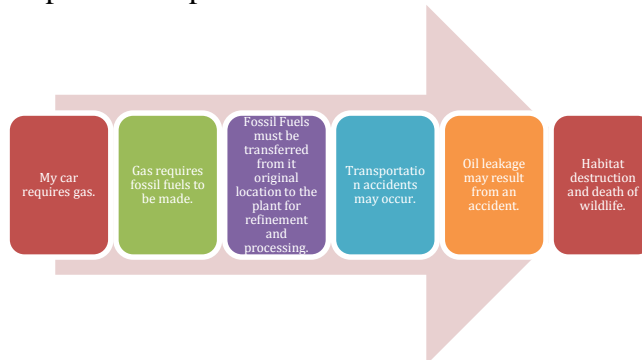
- ELA
 - Informational Text – “Chattanooga Sludge”
 - The class will determine how pollution has affected this area according to the text.
 - The teacher will read the first ten pages aloud to the class.
 - The students will work with their assigned reading groups to read the next ten pages.
 - The students will then read the next ten pages on their own.
 - The students will write a reflection on the text that has been read.
 - The students will meet with their reading group over the next few lessons to complete reading the text. At the end of the reading the students will complete a comprehension activity.

Lesson 4

- Set
 - The teacher will ask the class – “What is the impact of lifestyle and everyday choices on wildlife and the environment?”
 - The class will discuss this question.
 - Students will make a flow map that includes two choices and their effect until the student is able to make a connection that illustrates the impact on habitats and wildlife. The students will then share and discuss their flow maps with their table group or a partner.



- Video Clip
 - Topic: Man's effect on the environment
 - The class will review the video content using a formative assessment and oral discussion.
- ELA
 - Students will work in their reading groups to review the "Chattanooga Sludge" text.
 - The reading groups will determine the theme, setting, and purpose of the text.
 - Direct Instruction – "Theme, Setting, and Purpose of Texts" power point. The students will take notes using their notebook or a note taking application.
 - The students will then return to their reading groups to compare their notes from the presentation to evaluate their selections for the theme, setting, and purpose of "Chattanooga Sludge".
 - The class will then discuss the correct theme, setting, and purpose of the text. The teacher will address any misconceptions at this time.
 - Direct Instruction – "Writing an Editorial or Opinion Piece"
 - The teacher will present a power point presentation instructing students on the writing criteria for editorials and opinion pieces. The presentation will also include examples. The teacher will model the outline of this style of writing and answer any questions.
 - The students will then complete individual reflection writings. The reflection writing will be an opinion piece on the content of "Chattanooga Sludge" and will one page in length.
- Science
 - Flow Map
 - Students will create a flow map that starts with their most common mode of transportation and leads to man's effect on the environment. Students will be given time to complete this assignment individually. The teacher will only facilitate and guide this process, allowing students to create the flow map as they perceive according to the .experiences. The flow map could resemble the following example. The teacher will model how to correctly create and complete a flow map on this topic after the class discusses and shares their flow maps.

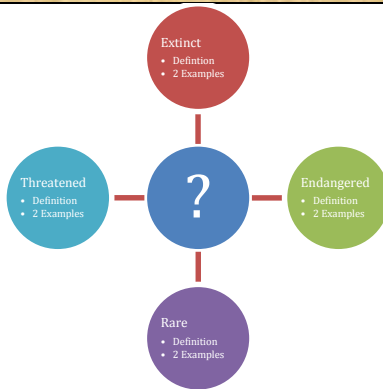


- Video Clip

- Students will watch a video clip about the Exxon Valdez and the BP Oil spills.
- The class will discuss the impact of these accidents on habitats and wildlife.
- Direct Instruction – “Man’s Effect on the Environment”
 - The teacher will present a power point on Man’s Effect on the Environment. The students will take notes in their notebook or in a note taking application. The class will discuss the materials and content presented in the power point. The teacher will address any misconceptions and answer any student questions.
- Oily Birds Lab
 - Students will work in groups of three to complete the Oily Bird Lab. This lab will demonstrate the effects of an oil spill and man’s effect on the environment.
- Writing Reflection
 - Students will write an opinion response to a newspaper article from the BP oil spill. The teacher will prepare a minimum of four different newspaper articles about the BP oil spill. The teacher will then assign the articles to students to ensure that there is an equal amount of each article being read and written reflections created.
- Habits Review
 - Students will list any habits that they think may lead to habitat destruction. Students must create a list that includes a minimum of five habits and how each habit effects on habitats.
 - The students will then share their lists in a think-pair-share activity.
- Reading Groups
 - Students will meet in their reading groups and complete their biography reading.
 - Students will compare and contrast the people that they have read about.
 - The students groups will then create a digital presentation that includes information about each of the people that they have researched and read about. The presentation will also need to include information from the “7 Habits of Highly Successful People” text. Students will then include information about their own habits and the effects of those habits, along with what they have learned about becoming successful through their research and associated activities.
 - The teacher will provide a rubric for the digital presentation along with a roles and responsibilities to aid the group in completing the task.

Lesson 5

- Set
 - Graphic Organizer
 - Students will create a graphic organizer to define and determine the relationship between the following terms:
 - Extinct
 - Endangered
 - Rare
 - Threatened
 - The graphic organizer will be in the following format:



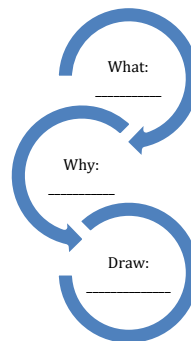
- Video: Habitat Destruction
 - The students will watch a short video about Habitat Destruction. The students will complete an independent review about the video.
- Guest Speaker
 - Topic: Wildlife Conservation
 - The teacher will invite a local STEM professional to serve as a guest speaker and discuss how wildlife conservation is related to the local community.
- Research
 - This research project will be completed in approximately one week.
 - The teacher will introduce the research project to the class.
 - Each student will be assigned on endangered species to create a report.
 - The teacher will provide a rubric and an example of good work and poor work.
 - Direct Instruction – “How to Conduct Research”
 - The teacher may wish to have the librarian conduct this direct instruction. Students will be provided a guide sheet to direct their research.
 - The teacher will allow students time to research and read about their assigned endangered species. The teacher will aid students in selecting books, articles, and reference materials and texts.
 - Guest Speaker – Citing Sources
 - The teacher will invite the school librarian or a local librarian to teach students the importance of citing source and how to cite a source.
 - The guest speaker will teach students how to create citation cards using index cards. The students will practice creating index cards as a whole class. Then the students will create citation cards for each of the sources they are utilizing for their research project.

Lesson 6

- ELA
 - Research
 - Students will be given time to research in the library.
 - Students will be given time to read their resources and prepare additional citation cards.
 - Direct Instruction – “Outlines and Writing Research Papers”
 - The teacher will present a power point that reviews how to create an outline and introduces the components and expectations of a research paper. The teacher will address any misconceptions and answer any student questions.
 - The students will then create an outline and construct a rough draft of their

research paper (length will be determined by the teacher so that the paper is grade level appropriate).

- Direct Instruction – “Peer Editing”
 - The teacher will present a power point about Peer Editing. The students will learn about the process and importance of peer editing. The teacher will model this process for the class. The teacher will also show examples of good and back work (including how to cooperate and communicate effectively with a partner).
- Students will work in pairs to peer edit one another’s outlines and rough drafts.
- Science
 - Direct Instruction – “Interdependence”
 - The teacher will present an “Interdependence” power point that includes information about the roles of those that make up an ecosystem (consumers, produces, decomposers, etc.).
 - The students will take notes in their note books or note taking application.
 - The teacher ill address any misconceptions and answer any student questions throughout the presentation.
 - Video Clip – Ecosystems and Interdependence
 - The students will view a brief video on ecosystems and interdependence. The students will complete a formative assessment at the conclusion of the video. The class will discuss the content of the video.
 - Endangered Species Research Project
 - Students will determine their assigned species’ role in their ecosystem. Students will create a graphic organizer in the form of think, write, draw.



- The students will share the graphic organizer in small groups.
- Habitat Shoebox Project
 - Students will create habitat model for their assigned endangered species.
 - The students will bring in their materials to build the model in class.
 - The students will utilize their research to complete this project.
 - The teacher will provide students with a rubric that will guide the completion of their project.
 - During today’s lesson the students will brainstorm ideas for their model and research the components needed to create an accurate model. The students will continue work on the project throughout the remaining unit lessons.

- ELA
 - Outline Review

- The students will review their outline to include information about their species ecosystem, the species role in the ecosystem, information about their food web, energy pyramid, biome, etc.
- The students will be given time to begin their research to acquire any information needed. The teacher may choose to take the students to the library for research.

- Closure

- Reflection Writing

- Students will respond to the following questions on a provided stationary so that the writing may be posted in the classroom. The teacher will pose the following questions: “Why is your assigned species endangered? What is man’s effect on this species? What can we do to change the effect – refer to human habits and needs?”

Lesson 7

- ELA

- Direct Instruction – Writing

Review ELA writing expectations

- Endangered Species – Detailed Outline Components Review

The teacher will review each of the following components in detail with students. Students will then continue to research their assigned endangered species to complete the components of the outline. The teacher will then work with students in small groups to review the research process and how to construct and complete an outline. For remediation the teacher will provide an outline template with example website and guidance notes for researching. Students will have their detailed outline completed at the end of this task.

- Role of their organism in its’ ecosystem
 - Description of the organism’s ecosystem
 - Illustration or diagram of the organism’s ecosystem with components labeled as biotic or abiotic.
 - An example food web that includes their organism
 - An example energy pyramid that includes their organism
 - A written description and diagram of their organism’s biome
 - Why their organism is endangered?
 - What is man’s impact or effect on their organism and their status as endangered?
 - Why can we do to change the outlook for this organism’s survival and their status as endangered?
 - How do human habits and human needs/wants impact the outlook for this organism’s survival and their status as endangered?

- Science

- Direct Instruction – Ecosystems PPT

- The teacher will discuss ecosystems, food webs, abiotic & biotic factors during the direct instruction portion of the lesson. Students will record their notes in a science notebook or in a note taking app.

- Learning Stations =

- Students will rotate through learning stations in small groups – groups of four. At each station the teacher will have review work to be completed by each student individually, but students may cooperate and communicate with one another to peer tutor. Based on

the needs of the class the teacher will determine if students will rotate every 45 minutes or every hour. The review work will include hands-on activities, informational text reading, and a visual arts component related to each of the following topics:

1. Ecosystem
 2. Energy Pyramids
 3. The Math of an Ecosystem
 4. Food Webs
 5. Abiotic and Biotic Factors
- Whole Class Modeling Activity
 - Student will model the components of an ecosystem and create a food web using yarn.
 - The components of the ecosystem will include multiple examples of abiotic and biotic components, herbivores, carnivores, omnivores, scavengers, and decomposers. The teacher will assign each student a role in the ecosystem. Each student's role will be communicated using a labeled index card attached to the student's search with a wooden clothespin clip.
 - The teacher can do this modeling activity a second time to practice math standards and objectives. The teacher will each student a role and an energy value (numerical). This will allow students to calculate the energy transferred to each trophic level in an energy pyramid (using the ten percent rule) in an example food web.

Lesson 8

- ELA
 - Student Conferences
 - The teacher will conduct individual student conferences to assess the progress of each student on their endangered species research project.
 - The student will ask any questions they have regarding the project.
 - The teacher will review the project rubric with the student and provide verbal feedback on the work completed thus far.
 - The student and teacher will work together to complete a check list for the work remaining and work to be revised before submitting the assignment for grading.
- Science
 - Direct Instruction – Creating Models and Applying the Engineering Design Process
 - Student will complete an Engineering Design Process graphic organizer while reviewing the notes with the teacher as a whole class.
 - Applying the Engineering Design Process – Individual Practice
 - Students will plan the design for their habitat model.
 - They will create scaled drawing/ blueprints for their model.
 - They will also create a materials list for the project model.
 - The students will then create procedures for constructing the project model.
 - Design habitat – what will you need?
How will you do it? (materials procedures)
- Learning Stations =
 - Students will rotate through learning stations in small groups – groups of

four. At each station the teacher will have review work to be completed by each student individually, but students may cooperate and communicate with one another to peer tutor. Based on the needs of the class the teacher will determine if students will rotate every 45 minutes or every hour. The review work will include hands-on activities, informational text reading, and a visual arts component related to each of the following topics:

1. Habits of Successful Teenagers (Refer to The 7 Habits Of Highly Effective People)
2. Interdependence
3. Math – Percentages & Multiplication, with Manipulatives
4. Math – Graphs & Charts
5. Building Your Habitat

Lesson 9

- ELA

- Final Paper Preparations

- Students will work independently to complete their research paper.
- During this independent work students will rotate through stations. The teacher will have stations setup for each portion of the research paper. This will allow students to spend time on each section of the research paper and then compile their work. The stations may focus on the following –
 1. Role
 2. Ecosystem – labeled abiotic and biotic factors
 3. Food web
 4. Energy pyramid
 5. Biome
 6. Why is this species endangered?
 7. What is man's effect on the status of this species?
 8. What can we do to change the outlook for this species?
- The teacher may choose to provide students with a report cover or a folder to compile their paper. If the students are typing each section of their paper the teacher may wish to provide students with an online drop-box to turn in work or teach students how to use a program such as Live-Binder to compile their work.
- The teacher will provide feedback and guidance as students complete their final paper.
- Students will read one another's papers and provide peer feedback on index cards.
- Student will turn in their final written or typed research paper at the end of this lesson.

- Oral and Digital Presentation Preparation

- Direct Instruction: Oral and Digital Presentations
- The teacher will guide student in creating a ten slide power point presentation. The teacher may choose to use other digital presentation tools (Prezi, iBook, Glogster, etc.) based on the classes' experience with technology.
- The students will create index cards for their oral presentation.
- The students will then practice their oral presentations with partners. Students will provide one another with feedback to better their oral presentations. The students will then rotate and switch partners to

practice their oral presentations. Students will rotate partners until they have practice and received feedback from five students.

Lesson 10

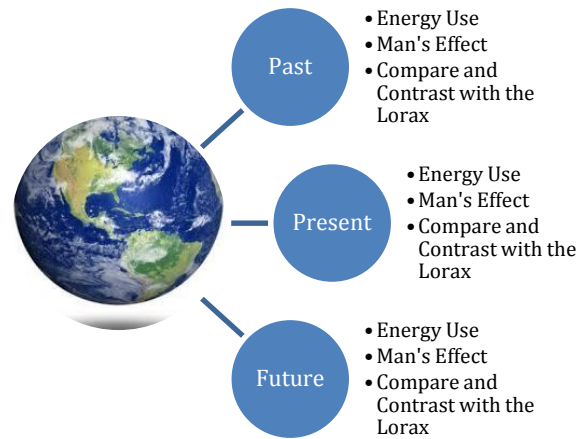
- Class Presentations
 - The students will present their research papers and their models associated with this project.
 - The teacher will invite parents and community members for the students to present their work.

Lesson 11

- Set
 - How do my habits affect their habitats?
 - Students will give 3 ways that human habits affect habitats. Student will provide three habits that they learned about through the class's digital and oral presentations.
 - What can you do to change your habits so that habitats are not negatively impacted?
 - Students will share their responses with the class.
- Science
 - Video: Man's Effect & Natural Solutions
 - The students will discuss what they have learned from the video.
 - Direct Instruction: Energy and the Environment
 - The teacher will present a power point on Energy and the Environment. The students will learn about how energy is produced, renewable energy, nonrenewable energy, how energy is consumed, the effect of energy production and consumption, and alternate energy.
 - At the end of the presentation and class discussion students will create a foldable creating and contrasting renewable and nonrenewable energy. The foldable will include a working definition, an illustration, and examples of each type of energy, how each type of energy is related to habitat destruction or conservation, and the impact of each type of energy.
- Math
 - Students will complete word problems that utilize renewable and nonrenewable energy data and facts.
- ELA
 - Students will create a written reflection. The students will reflect on the benefits and consequences of renewable energy. The students will also reflect on the consequences of nonrenewable energy.
 - Jigsaw Activity
 - Student will participate in a jigsaw activity that will allow the students to work in a home group and an expert group.
 - This jigsaw activity will be focused on an Alternate Energy article.
 - Student groups will work together to create a summary of the article. The teacher will provide students with a rubric for this project.
 - Students will then work individually to create a wanted poster to promote the use of renewable energy and advertise alternate energy. The teacher will provide students with a rubric for this project.

Lesson 12

- Set
 - How could utilizing renewable energies benefit wildlife & habitats?
 - The teacher will give students fifteen minutes to research the pose set question.
 - The students will provide two examples and a rationale to support their response.
 - Think – Pair- Share
- Science
 - Direct Instruction: Climate Change & Global Warming
 - The teacher will present a power point presentation on Climate Change and Global Warming. The students will take notes in their notebook or note taking app. The teacher will address any misconceptions or questions during the presentation.
 - Climate Change Video
 - Research Activity
 - Students will research the political, social, and economic implications of environmental issues.
 - Students will work in pairs to research the given topic.
 - Student pairs will create a flow chart to represent and communicate their research findings.
 - Students will then create a timeline of environmental legislation, renewable energy and climate change legislation, and societal concerns.
 - Guest Speaker
 - The teacher will invite a guest speaker to discuss Climate Change and Environmental issues.
 - The students will work with the guest speaker to research how politics are related to energy use and global warming.
 - The students will work independently to create a bumper sticker design to express their environmental point of view based on the research completed during this unit.
- ELA
 - Direct Instruction: Media and Advertising
 - The teacher will present a power point on Media and Advertising tactics and purpose. The students will take notes in their notebook or in their note taking app.
 - The teacher will discuss how media and advertising can be used in political initiatives. The teacher will provide specific examples of how politics have used media and advertising related to energy use, renewable energy, global warming, and climate change.
 - The Lorax
 - The students will read The Lorax independently.
 - The teacher will then read The Lorax aloud to the class.
 - The students will create a reflection about what must we do to prevent living in a world that is artificial like Ted & Audrey. The students will be provide a rubric for their writing and the other components of this project. The students will then draw our world in three different time frames - past, present, and future. The drawings must include multiple aspects of the renewable and nonrenewable energy and man's effect on the environment.



Lesson 13

- Set
 - It is our responsibility
 - Students will respond to the following questions. Students will then share their responses with their table groups.
 1. What is responsibility?
 2. What types of responsibilities do you have?
- ELA
 - Lit Circles
 - Final discussions of the “7 Habits of Highly Successful People” text.
 - Students will create a one paragraph book review. The teacher will provide students with a template and content guide for their book review.
 - Students will also create a one paragraph reflection on how this has changed their perception of responsibility & habits.
 - Students will respond to the following questions - How could the lessons that you have learned and your new perception affect your outlook and your idea of your responsibility for the environment, habits, wildlife, and earth’s health?
- Science
 - Direct Instruction: Climate Change, Alternate Energy, and Your Responsibility
 - Students will take notes in their notebook or their note taking app. The teacher will use a power point to present how climate change, alternate energy, and human responsibility are related.
 - The class will discuss their questions or opinions throughout the presentation.

Lesson 14

- Culminating Event
 - El Nino Study
 - Students will work in groups of three.
 - Direct Instruction – The Sun, Convection Currents, and Weather

The students will learn about the relationship between the sun, convection currents, wind, surface characteristics, and ocean currents. The teacher will utilize a power point to teach students about these concepts and the teacher will address any

	<p>misconceptions and student questions throughout the presentation.</p> <ul style="list-style-type: none"> - Students will rotate between three lab stations to model the information learned during the power point presentation and class discussion. <ol style="list-style-type: none"> 1. Pie Plate Wind Maker 2. Coloring Currents 3. Ocean Currents - Jigsaw Activity Student will participate in a jigsaw activity that will allow the students to work in a home group and an expert group. This jigsaw activity will be focused on an El Nino and Climate Change article. Student groups will work together to create a summary of the article. The teacher will provide students with a rubric for this project. - The teacher will show the students a video on the causes and effects of El Nino. The class will create a foldable that describes man's effect on the environment and the El Nino. - Students will work in their groups to make El Nino media collages (these can be completed digitally if the teacher wishes). - Students will complete math word problems that include El Nino data and facts. - The teacher may access NOVA Lab Videos on pbs.org to further the student's understanding of the man's effect on the environment and the weather. - The students will then create an extended version of the Think-Write, Think-Draw activity to record their reflection on how humans are responsible for some of the aspects of El Nino. <p><u>Lesson 15</u></p> <ul style="list-style-type: none"> • Unit Review • Unit test • Writing Closure <ul style="list-style-type: none"> ○ Write a letter to your parents about why human behavior and habits change is necessary for sustainability.
STEM Projects	<ul style="list-style-type: none"> • Biography Study • Visual Presentation – Biography Study • Biome Presentations • Oily Birds Lab • Endangered Species Research Project • Habitat Shoebox Project • Learning Stations – Ecosystem, Energy Pyramids, The Math of an Ecosystem, Food Webs, Abiotic and Biotic Factors • Modeling Activity – Components of an Ecosystem and Food Web • Learning Stations – Habits of Successful Teenagers, Interdependence, Math – Percentages and Multiplication (with manipulatives), Math – Graphs and Charts, Building Your Habitat • Research Activity – Political, Social, and Economic Implications of Environment Issues

STEM Culminating Event	<p><u>El Nino Study</u></p> <ul style="list-style-type: none"> - Students will work in groups of three. - Direct Instruction – The Sun, Convection Currents, and Weather The students will learn about the relationship between the sun, convection currents, wind, surface characteristics, and ocean currents. The teacher will utilize a power point to teach students about these concepts and the teacher will address any misconceptions and student questions throughout the presentation. - Students will rotate between three lab stations to model the information learned during the power point presentation and class discussion. <ol style="list-style-type: none"> 1. Pie Plate Wind Maker 2. Coloring Currents 3. Ocean Currents - Jigsaw Activity Student will participate in a jigsaw activity that will allow the students to work in a home group and an expert group. This jigsaw activity will be focused on an Alternate El Nino and Climate Change article. Student groups will work together to create a summary of the article. The teacher will provide students with a rubric for this project. - The teacher will show the students a video on the causes and effects of El Nino. The class will create a foldable that describes man’s effect on the environment and the El Nino. - Students will work in their groups to make El Nino media collages (these can be completed digitally if the teacher wishes). - Students will complete math word problems that include El Nino data and facts. - The teacher may access NOVA Lab Videos on pbs.org to further the student’s understanding of the man’s effect on the environment and the weather. - The students will then create an extended version of the Think-Write, Think-Draw activity to record their reflection on how humans are responsible for some of the aspects of El Nino.
Differentiated Instruction	<ul style="list-style-type: none"> • Provide support and prompting • Small group teacher led instruction and remediation • Provide leveled books and articles • Alter writing assignments to accommodate different learners • Small group activities allow for peer collaboration and tutoring • Allow calculators
Re-teaching Strategies	<ul style="list-style-type: none"> • The teacher can re-teach and provide guided notes for each of the direct instruction portions of the unit. • The teacher will provide small group teacher led instruction and remediation utilizing models and manipulatives. • Students will be allowed to use calculators. • To aid in comprehension of texts, students reread parts of text with peers and teacher. • Students keep a literacy journal on each text with notes on themes, supporting details, and draw pictures of events in sequence. • Students will create thinking maps and flashcards on points such as plot, set, characters, and vocabulary. • Students will create mnemonic device to remember skills, formulas, and key facts. • Students will be given visual support in understanding key concepts.

Enrichment Strategies	<ul style="list-style-type: none"> • Peer Tutoring • Differentiate Learning Station Activities
Independent Practice Activities	<ul style="list-style-type: none"> • Outlines • Graphing Practice • Graphing Practice Extension • Graphic Organizers • Pollution Pie Charts • Pollution Timeline • RAFT Writing Activities • Reflection Writing • Flow Maps • Habits Review • Research Activities • Rough Draft Writing • Applying the Engineering Design Process Practice • Research Paper • Index Cards for Oral Presentation • Class Presentations • Word Problems that utilize Renewable and Nonrenewable Energy Data and Facts • Wanted Posters • Book Review • Math Word Problems
Materials & Resources	<p>Materials</p> <ul style="list-style-type: none"> • Throughout the Unit <ul style="list-style-type: none"> ○ Computer or Electronic Device ○ Pencils ○ Paper ○ Science Notebook ○ Notes App • Lesson 1 <ul style="list-style-type: none"> ○ 7 Habits of Highly Successful People, by Stephen Covey ○ Graphic Organizer ○ Outlines and Organization PPT ○ Biomes PPT ○ Comparison Chart ○ Geography Basics PPT ○ Comparison Chart ○ Collecting, Organizing, and Analyzing Data PPT ○ Graphing Practice ○ Graphing Practice Extension ○ Visual Representation Items ○ Formative Assessment • Lesson 2 <ul style="list-style-type: none"> ○ Graphic Organizer ○ Biomes Video Clip ○ Biome Presentations ○ Biomes Independent Practice ○ Land Use, Water Quality, and Pollution PPT ○ Organization Chart

- Calculating Percentages, Graphing, and Pie Charts PPT
- Causes of Pollution Video Clip
- Causes of Pollution, Types of Pollution, Water Quality, and Land Use PPT
- Timeline Paper
- RAFT Writing rubric
- RAFT Writing template

- Lesson 3

- Chattanooga Sludge book
- Reflection writing template
- Reflection writing rubric

- Lesson 4

- Flow Map template
- Man's Effect on the Environment Video Clip
- Theme, Setting, and Purpose of Texts PPT
- Writing an Editorial or Opinion Piece PPT
- Reflection writing template
- Reflection writing rubric
- Flow Map template
- Flow Map rubric
- Exxon Valdes and BP Oil Spill Video Clip
- Man's Effect on the Environment PPT
- Oily Bird Lab (per group)
 - beakers (2)
 - bird feathers (white or light colored)
 - vegetable oil or olive oil
 - red, blue, and green food coloring
 - paper towels
 - water
 - cotton balls
 - cotton swabs
 - sponge
 - toothbrush
 - dish soap
- Reflection Writing Template
- Reflection Writing Rubric
- Biography reading
- Digital Presentation Rubric
- Roles and Responsibilities for Reading Groups

- Lesson 5

- Graphic Organizer
- Habitat Destruction Video Clip
- Wildlife Conservation Guest Speaker
- Research Paper Expectations
- Research Paper Rubric
- Good Work and Poor Work Examples
- How to Conduct Research PPT
- Citing Sources Guest Speaker

- Lesson 6

- Library or Digital Research Space
- Outlines and Writing a Research Paper PPT
- Outline Template
- Outline Rubric

- Rough Draft Checklist
- Peer Editing PPT
- Interdependence PPT
- Ecosystems and Interdependence Video Clip
- Endangered Species Research Project Guidelines
- Endangered Species Research Project Rubric
- Habitat Shoebox Project Guidelines and Expectations
- Habitat Shoebox Project Model Rubric
- Reflection Writing Template
- Reflection Writing Rubric
- Lesson 7
 - Writing PPT
 - Endangered Species Detailed Outline Template
 - Endangered Species Detailed Outline Rubric
 - Ecosystem PPT
 - Learning Stations Items
 - Food Web Modeling Activity – index cards, yarn, clothespin clips
- Lesson 8
 - Student Conference Record Sheet
 - Student Conference Checklist
 - Creating Models and Applying the Engineering Design Process PPT
 - Applying the Engineering Design Process Individual Practice
 - Learning Stations Items
- Lesson 9
 - Report cover or Folder
 - Live Binder Software
 - Oral and Digital Presentation PPT
 - Presentation Tools – Prezi, iBook, Glogster, etc.)
 - Index Cards
- Lesson 10
 - Class Presentation Decorating Materials
 - Class Presentation Invitations
 - Class Presentation Recording Device
- Lesson 11
 - Man's Effect and Natural Solutions
 - Energy and the Environment PPT
 - Foldable materials
 - Word Problems
 - Writing Reflection Template
 - Writing Reflection Rubric
 - Jigsaw Activity – Alternate Energy Articles, Wanted Poster Materials, Wanted Poster Rubric
- Lesson 12
 - Climate Change and Global Warming PPT
 - Climate Change Video
 - Research Activity – Research space and devices
 - Climate Change Guest Speaker
 - Media and Advertising PPT
 - The Lorax

	<ul style="list-style-type: none"> ○ Writing Reflection Template ○ Writing Reflection Rubric ● Lesson 13 <ul style="list-style-type: none"> ○ Lit Circles Roles ○ Lit Circles Responsibilities ○ Book Review Template ○ Book Review Content Guide ○ Reflection Writing Template ○ Reflection Writing Rubric ○ Climate Change, Alternate Energy, and Your Responsibility PPT ● Lesson 14 <ul style="list-style-type: none"> ○ El Nino Study Materials ○ The Sun, Convection Currents, and Weather PPT ○ Pie Plate Wind Maker Activity <ul style="list-style-type: none"> - Scissors - Aluminum pie plat - Fine-tipped permanent marker - Ruler - Small Philips-head screwdriver - Small jelly jar or glass with an opening about 2 inches wide - Pair of cutting pliers to cut the tail off the pen cap - Pen cap that is pointed at the closed end - Modeling clay - Clean, dry, short glass soda bottle with a narrow neck, 8 to 16 ounce size - 3 inch sewing needle - Four tea light candles - matches ○ Coloring Currents Activity ○ Ocean Currents Activity ○ Jigsaw Activity – El Nino and Climate Change Articles ○ Causes and Effects of El Nino Video ○ Man’s Effect on the Environment and El Nino Foldable items ○ Media Collages ○ Math Word Problems ○ NOVA Lab Videos ○ Think-Write-Draw Activity materials ● Lesson 15 <ul style="list-style-type: none"> ○ Unit Review ○ Unit Test ○ Writing Closure – Letter Template ○ Writing Closure – Letter Rubric
	<p>Resources</p> <ul style="list-style-type: none"> ● http://www.citrus.k12.fl.us/ims/macginnisk/Oily%20Birds.html ● http://www.msc.ucla.edu/oceanglobe/pdf/climatecurents/currentsentire.pdf
Comments	If you have an questions you may contact: Jessica Carr at jessicawcarr@hotmail.com

