

Scope and Sequence
Science - 7th Grade Gen Ed

Unit : Scientific Method

| Vocabulary Terms: | Scientific Method, Research, Hypothesis, Data, Analysis, Observation, Conclusion, Inference, Metric System, Graduated Cylinder, Beaker, Mass, Volume, Density, Meter, Liter, Gram, SI Unit, Absolute Zero, Kelvin | | | | |
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| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 1st Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |
| | <p><i>"Today's Scientist at Work", Dr. Benjamin Carson</i> - Read aloud and discuss: how can Dr. Carson be an inspiration to young people? When did he realize that he was intelligent? Who specifically is mentioned as believing in his abilities? Teacher to search for key information from the text to help build content skill understanding - 10 min</p> | <p><i>"Scientific Thinking Handbook", Predicting and Hypotheizing, Page R3</i> - Read aloud and discuss: what is the difference between a hypothesis and a prediction? Students in pairs, teacher to assign a topic (What liquid makes plants grow best?) and students will create a hypothesis and predictions about that topic; as a class, review responses and why - 20 min</p> | <p>Watch "Inference and Observation" on YouTube (4:36 min) and discuss: what is the difference between observations and inferences? Teacher to create a mock-experiment about a fake "Crime Scence" and students to discuss potential observations and inferences from them; what may be seen that would lead to specific false conclusions? - 20 min</p> | <p><i>"Scientific Thinking Handbook", Identifying Cause and Effect, Page R5</i> - Read aloud and discuss: how does Cause and Effect relate to hypothesis? How about Inferences? Teacher to review content understanding to create questions based upon the reading for review of material - 15 min</p> | <p>Watch "Science Project - 7. Create Graphs & Charts, then Analyze the Data" on YouTube (5:41 min) and discuss: why should you keep a journal (data log) when you conduct experiments? Why should you display data on a graph? How does this video recommend that you create your graphs? - 10 min</p> |
| | <p><i>"Scientific Thinking Handbook", Making Observations, Page R2</i> - Read aloud and discuss: what is the difference between quantitative observations and qualitative observations? Using Table 1, explain the differences; teacher to create examples and students will analyze which category they fit into - 10 min</p> | <p>Students in pairs, answer and discuss: Using Google Docs, answer and submit to your teacher the following - Review "More About Hypothesis" on page R3; students will respond via Google Docs why each of those three statements must be valid when conducting the experiment that they just discussed previously (liquid for plant growth); after students submit, teacher to discuss responses aloud - 10 min</p> | | <p><i>"Scientific Thinking Handbook", Identifying Cause and Effect, Pages R28-29</i> - Read aloud and discuss: why should you conduct research about your topic BEFORE you begin an experiment? Review the example experiment on pages R28-R29 and discuss hypotheses and inferences from it - 15 min</p> | <p>Teacher to create a mini-lab with stations; using "Scientific Thinking Handbook", pages R12-R19 as a guide, students will review the different equipment and gather measurements; they will create a data log in a journal</p> |

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| | Watch "Scientific Method for Kids Learn all about the Scientific Method Steps" on YouTube (9:26 min) and discuss: what is the purpose of the Scientific Method? What happens if one part of it isn't inline with the other parts? How is "observation" possibly the first step? What is a hypothesis? Why are they important to the rest of the scientific method? - 15 min | "Scientific Thinking Handbook", <i>Inferring</i> , Page R4 - Read aloud and discuss: what are inferences? Why are they both helpful and harmful for experiments? What are observations? Teacher to use the previous mock-experiment and discuss possible observations and inferences - 15 min | Teacher-provided worksheet about five potential experiments or situations; students in pairs, reply in Google Docs to the scenarios by making hypothesis, predictions, and inferences about them; submit to your teacher, then review responses as a class - 20 min | Teacher to show lab equipment and discuss its use; teacher to review how to measure using beakers, scales, balances, and cylinders; students volunteer to assist in gathering data - 10 min | of the measurements of the various beakers, test tubes, weights of items on a scale, weights of items on a balance, etc. Teacher to collect data logs as students will graph this data later in this unit - 25 min |
| Daily Journal or Bell Work: | Write everything that you know about the Scientific Method | Define a hypothesis in your own terms | What are "observations" during a science experiment? How are they different than a final review? | What is an Inference? How are they helpful and harmful to science experiments? | In a science experiment, what is a data log and why is it important? |
| Daily Homework: | Written Response: How can the Scientific Method relate to everyday and real-life scenarios? Provide an example and use the steps to outline your thoughts (one paragraph or a list) | Written Response: How is a hypothesis different than a prediction? How much analyzing is done when making a hypothesis? Why is that? (one paragraph) | Written Response: Why are observations an important part of your science experiment? How can they be misleading? (one paragraph) | Written Response: Why is conducting research on your topic best to do before making a hypothesis? What would happen if you were uninformed about a general topic? (one paragraph) | Written Response: Why is keeping a data log important during an experiment? Why should experiments be done several times in order to ensure accuracy? How to data logs support accuracy? (one paragraph) |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 2nd Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |
| | Watch "Basic Chemistry Lab Equipment" on YouTube (14:41 min) and discuss: relate to your book and the previous lab, how did you do in using them? What inferences did you create when you used the materials? Did you use anything incorrectly? - 20 min | (Part I of III) Using Google Sheets, students will enter their data from their experiment last week into the columns to begin creating graphs; students will save their graphs and data, then submit it to their teacher when complete - 15 min | (Part II of III) Using Google Sheets, students will enter their data from their experiment last week into the columns to begin creating graphs; students will save their graphs and data, then submit it to their teacher when complete - 15 min | (Part III of III) Using Google Sheets, students will enter their data from their experiment last week into the columns to begin creating graphs; students will save their graphs and data, then submit it to their teacher when complete - 15 min | Watch "Metric Conversion Trick!! Part 1" on YouTube (6:27 min) and discuss: How is this video helpful? What tips are beneficial from it? Is the mnemonic easy to remember? - 10 min |
| | "Scientific Thinking Handbook", | | | | |

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| | Making Data Tables and Graphs, Pages R23-R27 - Read aloud and discuss: what is a data table? How does the data table help you to create graphs? Review the different axis and titles for each, how does math relate to these? - 15 min | Teacher to create a lab using Spring Scales and balances; students to weigh various items using the equipment and enter the data into their logs - 25 min | Teacher to conduct a new lab using graduated cylinders, beakers, rulers, and scales; students to go to stations to correctly take measurements; turn in lab and data when complete - 25 min | "Scientific Thinking Handbook", The Metric System and SI Units, Pages R20-R21 - Read aloud and discuss: what are the SI Units for measuring the basic properties? What are the prefixes for the base units? What mneumonics can you think of to remember them in order? teacher to practice converting from one unit to another - 25 min | Students in pairs, answer and solve: teacher to create mini-lab of measuring items using beakers and spring scales; convert answers to different requested units per teacher descretion - 20 min |
| Daily Journal or Bell Work: | Why is it important to follow each step of the Scientific Method in order and correctly when conducting an experiment? | Write step-by-step how to use a graduated cylinder to take a measurement. Write at least five steps. | Which type of graph is easier for you to read, a pie graph or a bar graph? Why is that? | What is the metric system and why is it important in science? | What are SI Units and why are they important in all experiments? |
| Daily Homework: | Written Response: What did you do correctly in your previous use of the lab equipment? What did you do incorrectly? What can you do better? (one paragraph) | Written Response: Explain step-by-step how to take measurements from a spring scale and a graduated cylinder (min. five steps per tool) | Written Response: What are three benefits of a pie(circle) graph? What are three benefits of a bar graph? | Teacher-created worksheet about converting SI Units from one unit to another (ten problems) | Teacher-created worksheet about converting SI Units from one unit to another (ten problems) |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 3rd Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Test on "Terms to Know" from Week One, Scientific Method, Metric System, and Lab Equipment - 30 min |
| | Watch "What is Absolute Zero Temperature" on YouTube (2:27 min) and discuss: what is Absolute Zero? What is Kelvin? Review "Scientific Thinking Handbook", The Metric System and SI Units, Page R21 about Temperature Conversions - 15 min | Teacher to review SI Units and conversions; students to seek help as needed - 15 min | Teacher to create a lab using meter sticks, graduated cylinders, balances, and spring scales; students to measure using each by rotating stations; convert results to other SI Units and base measurements; Lab to include solving Kelvin conversions; students to create line or bar graphs of their measurements at each station when complete - 40 min | Review study guide on Scientific Method - 25 min | |
| | Students in pairs, answer and solve: teacher to create several problems converting Kelvin to Celsius, Celsius to Kelvin, and Fahrenheit to Kelvin; complete and discuss answers to review accuracy - 20 min | Teacher to create lab using meter sticks to measure distance of items/objects; teacher to request conversions of measurements into other SI Units as part of the lab - 25 min | | Using Google Docs, students will define each of the "Terms to Know" from Week One and submit them to their teacher - 20 min | Quick Write: Via Google Docs, write down anything that you know about this topic that was not on your test; submit to your teacher - 15 min |
| Daily Journal or Bell Work: | Teacher-created SI Unit conversions (three problems) | Teacher-created SI Unit conversions (three problems) | Teacher-created SI Unit conversions (three problems) | Teacher-created SI Unit conversions (three problems) | None |

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| Daily Homework: | Teacher-created worksheet about converting Kelvin to Celsius, Celsius to Kelvin, and Fahrenheit to Kelvin (ten problems) | Teacher-created worksheet converting Kelvin and other SI Units (fifteen problems) | Teacher-created worksheet on converting to different units in the metric system (fifteen problems) | Study for your Test on the Scientific Method, the Metric System, Lab Equipment, and the "Terms to Know" from Week One! | None |
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Unit : Biomes - Includes a research project completed in Google Docs

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| Project Theme: | <i>Students will conduct research on one of the biomes discussed in class and incorporate a plausible food-web as identified from biotic organisms living in that biome. This research essay will be completed in Google Docs and will be submitted to their teacher when complete or by the due date (whichever is sooner). This essay will be written in Times New Roman, 12-font, double-spaced, and a minimum of one page in length.</i> | | | | |
| Food Web Breakdown: | <i>Students will correctly identify organisms that reside within their selected biome and will create a food-web of at least twelve organisms from their biome. Students may not randomly select organisms, they MUST come from that particular biome. The food web must include producers and consumers, and students must correctly identify the organism as a predator or prey, as well as a producer, herbivore, carnivore, or omnivore.</i> | | | | |
| Essay Breakdown: | <i>Students will compose their essay as instructed above. Students are to research the following items to include in their research essay about their biome: What is the average high temperature in your biome? What is the average low temperature in your biome? How much rainfall occurs yearly in inches? Conduct math, how much rain falls (in inches) on average per day in your biome? What is the top predator in your biome? Where continents on Earth is your biome mostly found (include at least two)? What are three countries that your biome exists in? Name three major cities located anywhere on Earth within your biome. What are three important features of your biome that were not already requested in this project? Include a photo of your biome with your essay.</i> | | | | |
| Biomes to Select From: | <i>Desert, Tundra, Deciduous Forest, Coniferous Forest, Tropical Rain Forest, Savanna (Grassland), Taiga</i> | | | | |
| Vocabulary Terms: | <i>Ecology, Ecologist, Biome, Ecosystem, Food Web, Coniferous Forest, Deciduous Forest, Seed, Desert, Savanna, Tundra, Herbivore, Carnivore, Omnivore, Scavenger, Predator, Prey, Biotic, Abiotic</i> | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; Listen to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |
| | Draw a "nature scene". What items in this scene are alive? Which items are not alive? Which items function with each other in a relationship? - 15 min | Teacher-led Discussion: what biomes and ecosystems can you think of? Teacher to create a list on the board; what are characteristics of each? Think of the four abiotic factors from last class, how do they effect each biome/ecosystem that we've listed? - 20 min | Teacher to review the lab from the previous class; what important characteristics did the soils have? Which type is best suited for plant growth? How does each type of soil relate to ecosystem? Relate how the water passed through sand to a desert - 15 min | <i>ML Science, Ecology, Page 19</i> - Students in pairs, work together to complete the Mini-Lab as indicated on page 19; answer all three questions via Google Docs and submit to your teacher; one page per student - 20 min | Watch "Biogeochemical Cycles" on YouTube (8:35 min) and discuss: how do the water cycle, nitrogen cycle, and carbon cycle overlap? Students do not need to know the phosphorus cycle but can observe how it overlaps into the biosphere - 15 min |

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| 4th Week | <i>ML Science, Ecology, Pages 9-13</i> - Using a frame game diagram, describe ecosystem, biotic, and abiotic; Read aloud and discuss: what elements in your illustration were biotic? Which were abiotic? Label them each; what are four abiotic factors that can effect an ecosystem? How do light, soil quality, and water effect an ecosystem? - 25 min | <i>ML Science, Ecology, Chapter Investigation, Pages 14-15</i> - Following the Scientific Method as provided on these pages, students will work in pairs to study this section; create a table as indicated on page 15 to chart the information; students to use the Scientific Method to complete the lab as directed - 30 min | <i>ML Science, Ecology, Page 16-20</i> - Use a Word Wheel organizer to make important notes about the water cycle; what is the water cycle? What are the major components of the water cycle? Define precipitation, evaporation, and condensation; how are the carbon cycle and nitrogen cycle similar to the water cycle? How may they work together? - 25 min | (Part I of III) Using poster board, divide it evenly into four quadrants; in one quadrant illustrate, color, and label the water cycle; in another, the carbon cycle; in another the nitrogen cycle; in the final quadrant, define precipitation, evaporation, condensation, biotic, abiotic, runoff, and ecosystem - 30 min | (Part II of III) Continue work on your poster board of the water, nitrogen, and carbon cycles with definitions - 25 min |
| | | | | | Teacher to introduce project and requirements - 10 min |
| Daily Journal or Bell Work: | What is an ecosystem? What would you find in it? | Define biotic, abiotic, and ecosystem | Write the six steps to the Scientific Method | Teacher to prepare students for lab today | How do the water, carbon, and nitrogen cycles overlap with eachother? |
| Daily Homework: | List five abiotic factors that effect your life; how do they effect what you do daily? | <i>ML Science, Ecology, 1.1 Review, #'s 1-5, page 13</i> - Complete each question in complete sentences; due tomorrow! | Document one area where you specifically observe the water cycle, carbon cycle, and nitrogen cycle at work by your home | <i>ML Science, Ecology, 1.2 Review, #'s 1-6, page 20</i> - Complete each question in complete sentences; due tomorrow! | Begin thinking about the project and how to successfully accomplish all parts |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 5th Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Quiz: Food Webs and the terminoloty associated with them - 20 min |
| | <i>ML Science, Ecology, Pages 22-25</i> - Read aloud and discuss: use a Concept Map to link together each term in this section to the carbon cycle and nitrogen cycle; Define producer, consumer, and decomposer - 20 min | <i>ML Science, Ecology, Pages 26-29</i> - Read aloud and follow the arrows for the energy flow through the food web; how does energy decrease as you move up the food web? DDT (page 29) is now illegal, why do you think that is so? - 25 min | <i>ML Science, Ecology, Pages 30-34</i> - Read aloud and use a table while you read to list each biome and some characteristics (focus upon temperature, amount of water, and soil type); teacher to create the table on the board and students copy it as they proceed - 25 min | <i>ML Science, Ecology, Pages 35-37</i> - Read aloud and discuss marine and freshwater biomes; how are they similar to the other biomes? How are they different? How does life vary in each? What factors effect life in each? Add these to the table from the previous class - 20 min | |
| | Teacher to review terms from the reading thus far; Teacher to introduce food chains and food webs; Help determine which organism is a producer, consumer, and decomposer - 15 min | Teacher to provide several organisms from our local ecosystem (squirrel, raccoon, mouse, insects, etc.) and students | Watch "Biomes of the World for Children: Oceans, Mountains, Grassland, Rainforest, Desert - FreeSchool" on YouTube (12:54 min) and discuss - 15 min | <i>ML Science, Ecology, Page 35</i> - Students in pairs, using graph paper and the Internet complete the Mini-Lab on page 35; observe by creating | <i>ML Science, Ecology, Page 39</i> , Students in pairs - answer and |

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| | Watch "Food Webs: Crash Course Kids #21.2" on YouTube (3:52) and discuss: create a food web of six organisms, labeling consumer, producer, and decomposer; now eliminate one organism from the web and explore how that removal changes the web - 15 min | will create a food web based upon the organisms provided; students should list if they are a producer or consumer; teacher to introduce the terms "predator, prey, herbivore, carnivore, omnivore," and "biome" - 20 min | Teacher to introduce the project (research essay) and the requirements of the essay - 10 min | the graph how rainfall and temperature effect the quality of life in our area (ecosystem); review data over the last 20 years and graph that data as well; what patterns do you observe? Answer all questions via Google Docs and submit to your teacher - 30 min | students in pairs, answer and discuss: Using Google Docs submit the answers to your teacher to #'s 7-16; discuss answers as a class when complete - 30 min |
| Daily Journal or Bell Work: | Define producer, consumer, and decomposer | Define primary, secondary, and tertiary | What do you know about biomes right now? | What biome will you do your research essay on? Why did you choose that biome? | None |
| Daily Homework: | Create a food chain with at least five organisms; label each one a producer, consumer, or decomposer | <i>ML Science, Ecology, 1.3 Review, #'s 1-6, page 28</i> - Complete each question in complete sentences; due tomorrow! | Create a food web with six organisms; label the producers, consumers, decomposers, and primary /secondary levels; due tomorrow! | Study for Quiz tomorrow on Food Webs and the terminology associated with them | <i>ML Science, Ecology, 1.4 Review, #'s 1-6, page 37</i> - Complete each question in complete sentences; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 6th Week | Journal; complete in Google Docs, send to your teacher - 10 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min |
| | <i>ML Science, Ecology, Page 25</i> - Students in groups of 3 or 4, complete Mini Lab on page 25 together; complete questions after the two week span is completed - 30 min | <i>ML Science, Ecology, Pages 48-51</i> - Read aloud and discuss the five vocabulary terms; teacher to review each term; students to create a Concept Map linking together the five vocabulary terms with organisms as shown on page 49 in the text - 25 min | <i>ML Science, Ecology, Pages 54-57</i> - Read aloud and discuss: use a four square diagram to outline the terms predator, prey, cooperation, and competition; discuss examples of each in our home communities and in various biomes - 20 min | <i>ML Science, Ecology, Pages 58-61</i> - Read aloud and review the different relationships that animals have in an ecosystem; Watch "Symbiosis: Mutualism, Commensalism, and Parasitism" on YouTube (5:17 min) and discuss - 20 min | Field Trip to Cleveland Metroparks Zoo - Must be scheduled on a Monday, call the zoo PRIOR to the trip to schedule; charge \$5.00 per child for the trip, students must pack lunches or bring money to purchase lunch at the food court; Teacher to create a packet of information about food webs and biomes that students must complete as they tour the Zoo (NO EXCEPTIONS and it's not okay to lose it!); the purpose of the trip is to examine animal interaction in a |
| | <i>ML Science, Ecology, Pages 45-48 (stop at "Communities")</i> - Use a four square diagram for each vocabulary term in this section; In Literacy Circles, read aloud and | Review your Concept Maps and discuss: how do the organisms in your maps relate to predator & prey? What level in the food web are they each (Primary, Secondary, etc.)? - 10 min | Teacher to review the savannah and tropical rain forest biomes; what predator/prey relationships may be found there? What cooperation or competition among species may be found there? Relate to the Google Docs project - 10 min | Teacher to review the tundra and desert biomes; what predator/prey relationships may be found there? What symbiotic relationships among species may be found there? Relate to the Google Docs project - 10 min | |

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| | discuss: what is a species? How do population, habitat, niche, and community all relate to one another? Submit all four square diagrams to teacher when completed - 20 min | <i>ML Science, Ecology, Page 45</i> - Complete the demonstration in groups of 3 or 4; how does this Mini-Lab display how scientists calculate a population of a species in a community? Answer all questions and submit your answers to your teacher - 10 min | In-class time to work on your Google Docs project - 20 min | In-class time to work on your Google Docs project - 20 min | model-biome or ecosystem (habitat) and determine their interactions with other organisms from that biome - Schedule as a Three-to-Four Hour Trip |
| Daily Journal or Bell Work: | <i>ML Science, Ecology, Page 40 - #'s 22-23</i> - Complete and be ready to discuss! | Check your 2-Liter for results! | Check your 2-Liter for results! | Check your 2-Liter for results! | Check your 2-Liter for results! |
| Daily Homework: | <i>ML Science, Ecology, Page 40 - #'s 18-19</i> - Complete and submit to your teacher! | Find at least two naturally occurring predators and their prey in your home community; write them down and submit to your teacher | <i>ML Science, Ecology, 2.1 Review, #'s 1-6, page 51</i> - Complete each question in complete sentences; due tomorrow! | <i>ML Science, Ecology, 2.2 Review, #'s 1-6, page 61</i> - Complete each question in complete sentences; due tomorrow! | Work on your Google Docs Biome project! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 7th Week | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Check 2-Liter bottles for observations of the fruit slices; record observations in Google Sheets - 5 min | Test on Biomes and Food Webs - 30 min |
| | Students in groups of 3 or 4, select ten animals that were observed on the zoo field trip; create a food web of those animals listing each as an herbivore, carnivore, omnivore, producer, predator, prey, and their level on the food web; share with the class - 20 min | <i>ML Science, Ecology, Pages 66-68</i> - Read aloud and discuss: what is a pioneer species? Why do you think it is called that? What is secondary succession? Where are two areas that you may see both of these? - 15 min | (Part II of II) Complete your illustration and coloring of a scene of Cleveland being abandoned and plants/animals reclaiming the city; what would it look like? What species would move it first? Don't just draw a picture! Put thought into the video and book to help you; you should have accurate animals and plants for this; you're NOT just drawing a picture! - 30 min | Review Study Guide on Biomes and Food Webs for Test Tomorrow! - 30 min | |
| | <i>ML Science, Ecology, Pages 63-65</i> - Read aloud and discuss: use a four-square diagram for the terms "limiting factor" and "carrying capacity"; why don't animals continue to breed if they can? What factors limit them? - 15 min | Watch "Pioneer species-Stages Primary Succession Ecology Basics " on YouTube (2:41 min) and discuss: what are some areas that you can think of where you've seen primary succession? Think of an empty field where a building once was - 10 min | | | Final day to check 2-Liter bottles for observations of the fruit slices; record observations in |

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| | In Google Docs, submit these answers to your teacher: think of the biome that you are writing your essay on; what limiting factors may effect the organisms in it? Why would those effect it? Would a carrying capacity exist for your organisms? Why or why not? - 15 min | In groups of 3 or 4, answer and discuss: imagine that every person moved out of the City of Cleveland due to a deadly disease; how would plants and animals reclaim the city as shown in your text? Discuss some ideas (10 min) then illustrate and color your idea on computer paper (part I - 10 min) - 20 total min | <i>ML Science, Ecology, Page 71</i> - students in pairs, answer via Google Docs and share with your teacher; complete #'s 6-15 as requested (multiple choice or short answer) - 20 min | In-class time to work on your Google Docs project - 15 min | Print, record observations in Google Sheets; review all data to answer the questions on page 25; submit to your teacher - 20 min |
| Daily Journal or Bell Work: | Check your 2-Liter for results! | Check your 2-Liter for results! | Check your 2-Liter for results! | Check your 2-Liter for results! | None |
| Daily Homework: | Written Response: How may "limiting factor" relate to the human population in a given area? What factors may stop human expansion? (one paragraph) | <i>ML Science, Ecology, 2.3 Review, #'s 1-6, page 68</i> - Complete each question in complete sentences; due tomorrow! | Work on your Google Docs Biome project! | Study for Test on Biomes and Food Webs Tomorrow; Review your Vocabulary Terms to Know | Work on your Google Docs Biome project! |

Unit: Taxonomy & Classification (Project: Students will create a Google Slides presentation about their organism)

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| Project Theme: | <i>Students will create a presentation in Google Slides that is a minimum of 10-slides long. The presentation will answer the questions and requirements about your assigned organism. The presentation is due to your teacher by the due date or when your project is completed (whichever time is sooner). Students must choose from the options provided below. Students will also create a food web including your organism with ten total organisms correctly identified in relation to it. As part of your food web, students will orrectly label as applies the terms herbivore, carnivore, omnivore, and producer, as well predator and prey as they apply in your web.</i> |
| Project Breakdown: | <i>Students will answer the following questions and requirements about their organism: Include a photo of your organism. Is your organism single-cellular or multi-cellular? What Kingdom is it found in? Does it undergo metamorphosis or does it simply "grow up"? Does it reproduce sexually, asexually, or with spores? How does your organism move (such as cilia, flagellum, pseudopods, water currents, bipedal, quadpedal)? What type of Biotic Relationship does it have with other organisms? Is it a vertebrate or invertebrate? Does it live by itself mostly or in groups (or colonies)? What is the average size (or height) of your organism? What is the average mass (or weight) of your organism? How many offspring does your organism usually produce? Is your organism a carnivore, herbivore, or omnivore? Is your organism usually a predator, prey, or a scavenger? Does your organism lay eggs or give live birth? Is your organism warm-blooded, cold-blooded, or aqueous? What is the proper Genus and Species name of your organism? What biome is your organism mostly found in? Name three interesting facts about your organism that were not requested for this project.</i> |
| Project Options: | <i>Grey Wolf, Sea Cucumber, Paramecium, Portugese Man-of-War, Sea Slug, Green Newt, Tuna, Black Coral, Chimpanzee, Chambered Nautilus, Siberian Tiger, East African Lion, Killer Whale, Common House Fly, Amoeba, House Mouse, Squid, Barn Owl, Boa Constrictor, Red-tailed Hawk, Western Coyote, Flying Squirrel, Basilisk Lizard, Rainbow Trout, Giraffe, Earthworm, Snow Hare, American Crocodile, Great Blue Heron, African Elephant, Great White Shark, Blue Whale,</i> |

| Vocabulary Terms: | <i>Taxonomy, Carl Linnaeus, Bacteria, Archaea, Protista, Fungi, Plantae, Animalia, Sporozoan, Binary Fission, Cilia, Flagella, Psuedopod, Amoeba, Paramecium, Binomial Nomenclature, Diatom, Parasite, Producer, Consumer</i> | | | | |
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| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 8th Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |
| | <p><i>ML Science, Diversity of Living Things, Pages 9-11 (stop at "Living Things that share...")</i> - Using a Description Wheel graphic organizer, describe how organisms can be different from one another - 20 min</p> | <p>Teacher and students to go to the following website: "www.ric.edu/faculty/ptiskus/six_Kingdoms/index.htm" and discuss how different forms of life are similar to each other; some are very close, others are NOT; what is the binomial nomenclature of the tiger? - 10 min</p> | <p>Students and teacher to go to: "www.classzone.com/science_book/mls_grade6_FL/316_323.pdf" and reread page 319; make a Description Wheel graphic organizer to link this information together - 20 min</p> | <p>Teacher to provide students with the email link to the reading for this online section (9.3) to reference; using Chromebooks as a tool, students will locate images of an Archae, Bacteria, Protist, and Fungi; they will illustrate, color, and label their findings on computer paper; students will write a statement under each image describing the organism and it is has a cell wall, nucleus, and if it is complex or simple - 30 min</p> | <p>ML Science, Diversity of LT, Page 14 - Review "Viruses are not alive"; students in pairs, make a T-chart comparing how viruses and cells (in general) share similar and different characteristics; share your results with the class - 20 min</p> |
| | <p>Watch "Classification of Living Things" on YouTube (4:00 min) and discuss what classifies a lion in the manner that it does; what is a scientific name? Use the term "Binomial Nomenclature" for the scientific name - 10 min</p> | <p>Using Chromebooks, students will go to the following site: "www.classzone.com/science_book/mls_grade6_FL/316_323.pdf" and read aloud 316-319; how did Linnaeus divide all life? Why did he place them in groups? What are the most familiar groups? Which ones do we know the least about? - 25 min</p> | <p>Students and teacher to go to: "www.classzone.com/science_book/mls_grade6_FL/316_323.pdf" and reread page 320; what specifically "makes a plant a plant" and "makes an animal an animal"? What are the characteristics of each? Use a Venn Diagram to compare and contrast the characteristics - 15 min</p> | <p>Teacher to provide students with the email link to the reading for this online section (9.3) to reference; using Chromebooks as a tool, students will locate images of an Archae, Bacteria, Protist, and Fungi; they will illustrate, color, and label their findings on computer paper; students will write a statement under each image describing the organism and it is has a cell wall, nucleus, and if it is complex or simple - 30 min</p> | <p>Watch "Daphnia magna under the Microscope" on YouTube (4:53 min) and discuss which Kingdom you believe it is in based upon its characteristics; does it have gills? An eye? Does it have "arms"? It's nickname is the "water flea", why do you think that is? - 10 min</p> |
| | <p>Students to use their Chromebooks to go to "www.biology4kids.com/files/studies_humans.html"; discover what the Kingdom, Phylum, Class, Order, Family, Genus, and Species are of humans; These words MUST BE KNOWN and are important for this unit - 15 min</p> | <p>Under the teacher's guidance, students will use the Internet to search for and share images of Protists, Archaea, and Bacteria; students to share their images with the class and note the differences - 10 min</p> | <p>Students and teacher to go to: "www.classzone.com/science_book/mls_grade6_FL/316_323.pdf" and read pages 321-323 together; what is the major difference between Archaea, Bacteria, and Protists? Why are Fungi in their own Kingdom? - 15 min</p> | <p><i>ML Science, Diversity of Living Things, Pages 11-14</i> - Read aloud and discuss how cells are fundamental in classification; what is binary fission? Calculate how fast a bacteria colony would reproduce in ten minutes if one cell made one new cell every thirty seconds - 20 min</p> | <p>Mini-debate: Should the "water flea" be in Kingdom Animalia or Kingdom Protista? Why do you feel this way? Students to debate and argue their cause about this organism - 15 min</p> |
| Daily Journal or Bell Work: | What are some ways that humans are similar to dogs? What about cats? | Name any of the names used for classification that you can remember | Name the six Kingdoms of life | What is Binomial Nomenclature? | What is the Binomial Nomenclature of the following: human, house cat, wolf, and a chimpanzee? Use your Chromebooks to help you. |

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| Daily Homework: | Think of three ways each that humans are similar to the following animals: giraffe and gorilla | Think about classification in your answer (not the size of the animal): how may a dog, wolf, coyote, and fox all be the same? How may they be different? | Written Response: If you had to organize people in our school, how may you do so? Provide a well-thought plan that is school-appropriate (one paragraph) | Written Response: Describe how a single-celled organism is organized, grows, and reproduces (one paragraph) | <i>ML Science, Diversity of LT, 1.1 Review, #'s 1-5, page 14</i> - Complete each question in complete sentences; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 9th Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min |
| | <i>ML Science, Diversity of Living Things, Pages 16-18</i> - Use a Main Idea Web graphic organizer and read about Archaea; how small are bacterium? Do Archaea have a nucleus? Name two features that all bacteria share - 20 min | <i>ML Science, Diversity of LT, Pages 19-21</i> - Using a Description Wheel graphic organizer, outline pages 19-21 and the types of bacteria; how would these fit into a food web? - 20 min | Teacher to place a medium-sized blob of shaving cream on each child's desk; using shaving cream as a medium, students will illustrate a bacterium, the three shapes of bacteria, the difference between cilia and flagela; and a water flea - 20 min | <i>ML Science, Diversity of LT, Page 28</i> - Read aloud and discuss how viruses today are mutating and becoming more deadly than ever; discuss ways to combat unhealthy conditions and being more fit - 15 min | <i>ML Science, Diversity of Living Things, Pages 30-32</i> - Students in pairs, read and use a Concept Map to take notes on information; teacher to review the following: why are protists considered the most diverse Kingdom? How do protists resemble other Kingdoms of life? - 25 min |
| | <i>ML Science, Diversity of LT, Page 17</i> - Bacteria come in three shapes; teacher to Google the images of the three shapes of bacteria; what do bacteria cause? Are they mostly good, bad, or neither? - 10 min | <i>ML Science, Diversity of LT, Page 20</i> - Review the photo on page 20 about nitrogen-producing bacteria; discuss what would happen if these bacteria did not exist on Earth anylonger - 10 min | <i>ML Science, Diversity of LT, Pages 24-27</i> - Read aloud and discuss viruses and how they were discovered; what does virus mean in Latin? Are viruses alive? Students in pairs, compare and contrast viruses to bacteria using a T-chart (you compared viruses to cells earlier) and share your results with the class - 25 min | Watch "Top 10 Deadliest Viruses on Earth" on YouTube (4:38 min) and discuss what are the worst viruses ever to have existed? What does it mean to say that smallpox is eradicated? - 10 min | Teacher to use Google Images to locate images of the following organisms: Diatoms, Volvox, Seaweed, and Euglena; students to illustrate the images in their science notebooks for a future lab - 20 min |
| | Students to illustrate a bacterium and label the parts of it (cell wall, flagela, DNA, cell membrane, cytoplasm) - 15 min | Students in pairs, use a Venn Diagram to compare & contrast Helpful and Harmful Bacteria; have two statements for each section (six total statements); share with the class when completed - 15 min | | Using your Chromebooks, research two of the following deadly virus-related illnesses: Spanish Flu, H1N1, Yellow Fever, Rotavirus, Rabies, Hepatitis B, Ebola, or HIV; make a chart to answer the following questions: what is the fatality rate of this virus? How many people die each year from it? Where is this virus most-commonly found today? illustrate what it looks like - 25 min | <i>ML Science, Diversity of LT, Page 33</i> - Read aloud about algae and plankton; what cellular features do algae have? What is phytoplankton? Why are algae important to humans? - 15 min |
| Daily Journal or Bell Work: | What do you know about bacteria? What is a bacterium? | Halophiles can survive if an ocean dries up; how can these be used to prove that life once existed on Mars? | Thermophiles can survive in extremely hot conditions; how can these be used to support the possibility of life on other planets or moons? | Virus mean "poison" in Latin; why do you think that name applies? | Explain two reasons why a virus is not dead or alive |

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| Daily Homework: | Written Response: How do you think it is possible that there is good bacteria and bad bacteria? Provide two reasons | <i>ML Science, Diversity of LT, 1.2 Review, #'s 1-5, page 21</i> - Complete each question in complete sentences; due tomorrow! | Presume that one virus reproduces every minute; each minute, it makes 100 new viruses; how many viruses are made after 5 minutes? Ten minutes? | <i>ML Science, Diversity of LT, 1.3 Review, #'s 1-5, page 28</i> - Complete each question in complete sentences; due tomorrow! | Seaweed is NOT a plant although it looks a lot like one; explain how this is possible. |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 10th Week | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Test: Single-celled life - 30 min |
| | <i>ML Science, Diversity of Living Things, Pages 34-35</i> - Read aloud about protozoa and discuss three examples (ciliates, flagellates, pseudopods); what is a parasite? How are some protozoans parasites? What are slime molds? - 20 min | <i>ML Science, Diversity of Living Things, Page 31</i> - Students in pairs, complete lab on page 31 as instructed in the textbook; teacher to gather pond water BEFORE the lab and ensure that it is returned properly afterwards (we care for the sanctity of ALL LIFE!); students to illustrate what they see in each segment as requested in the lab - 50 min | Students in pairs, create a Venn Diagram comparing & contrasting Protozoans and Bacteria; two statements for each section, six total statements; share with the class when completed - 20 min | As a class, create a food web with diatoms, bacteria, amoeba, minnow, bass, pike, and a hawk; label the producer, consumer, predator, prey, and draw arrows for energy flow - 10 min | |
| | Watch "How Do Protozoa Get Around?" on YouTube (10:42 min) and discuss how organisms that are microscopic move around; what are ciliates? What are flagellates? What are pseudopods? Use your Chromebooks to search for these answers if needed; illustrate an amoeba, paramecium, and Euglena in your science notebooks - 25 min | | As a class, create a food chain of protozoans, phytoplankton, and small fish at the top of the food chain; list the predator and prey in the relationship; which one is the producer and consumer? - 10 min | Students individually, illustrate, color, and label on computer paper a food web of fifteen organisms interacting together; include a decomposer, parasite, host, at least three Protists, bacteria, and arrows showing energy flow; share with the class when complete - 20 min | Students to go to the following website and play " www.vocabulary.com/signup/ "; students may need to create an account the first time that they play and can sign in with their Google account; make sure to indicate that you are part of our school and search by zip code (44104); after you sign-in, go to "Play" to begin - 20 min |
| Daily Journal or Bell Work: | What is algae? Name two types of it | What is a protozoa? What is an example of a protozoa? | Watch "Various Ciliated Protozoa. Kingdom Protista. DIC Lighting Technique." on YouTube (2:47 min) and discuss how these ciliates move | What are pseudopods? How does an organism with pseudopods move? | None |
| Daily Homework: | <i>ML Science, Diversity of LT, 1.4 Review, #'s 1-4, page 35</i> - Complete each question in complete sentences; due tomorrow! | Define any ten of your "Terms to Know from Week Eight" for tomorrow! | Define any ten of your "Terms to Know from Week Eight" for tomorrow! They CANNOT be the same as yesterday! | Study for Test tomorrow on Single-celled life; Review Vocabulary Terms to Know | Work on your Animal Project! |

| Vocabulary Terms: | <i>Symbiosis, Parasite, Mutualism, Commensalism, Food Web, Metamorphosis, Vertebrate, Invertebrate, Notochord, Chordata, Seven Stages of Classification, Carl Linnaeus, Neanderthal, Biotic, Abiotic, Aerobic, Anaerobic, Budding</i> | | | | |
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| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 11th Week | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |
| | Teacher to review the three types of symbiotic relationships; Introduce the terms "biotic" and "abiotic" (meaning "living" and "not living"); create a food web of six organisms with biotic and abiotic organisms - 15 min | Teacher to provide an example of a mutual, commensal, and parasitic relationship; what are decomposers? What are biotic and abiotic organisms? 10 min | Watch "Top 10 Extinct Animals" on YouTube (11:32 min) and discuss the adaptations that each animal on the list had; why did these adaptations eventually prove to be not good enough? - 15 min | <i>ML Science, Diversity of LT, Pages 51-54</i> - Using a Main Idea Diagram, read aloud and write the main idea about plants, two main statements, and several follow-up statements about each of those two; what is photosynthesis? What is the formula for it? - 25 min | <i>ML Science, Diversity of LT, Pages 55-57</i> - Using a Four Square graphic organizer, read aloud and discuss how plants respond to their environment; how to plants respond to light, touch, and gravity? What organelle in the plant cell makes it a producer? - 20 min |
| | <i>ML Science, Diversity of Living Things, Pages 43-45</i> - Using a Four Square Diagram, read aloud and note the major area of the reading with four thoughts stemming from it; review the terms organs, tissues, and multicellular - 20 min | <i>ML Science, Diversity of LT, Pages 46-49</i> - Read aloud and discuss the adaptations made by the organisms on pages 46-47; what are some other animals that have made adaptations to their environment? Use Google to assist if needed - 25 min | Teacher to create T-chart on the board and students complete together: what are two ways that humans have adapted to living in the extreme- heat? What about living in the extreme-cold? Remember that adaptations are not lifestyle changes - 15 min | Students in pairs, think of and discuss three ways that plants adapt to living in different environments (cactus, conifers, Venus fly trap) and different ways that plants protect themselves (poison ivy, rose bush, honey locust); what are the benefits are each of these? - 20 min | Students in pairs, think of symbiotic relationships that animals and plants have together (come up with three); share those with the class and discuss; use your Chromebooks to help if needed - 15 min |
| | <i>ML Science, Diversity of Living Things, Pages 44</i> - Students in groups of 4 or 5, complete the mini-lab on page 44 together; answer the questions via Google Docs and submit to your teacher - 15 min | Students in pairs, make a table of animals and their adaptations to their environment; on the left column, write: bear, rabbit, butterfly; in the middle, think of two adaptations that each species has made to where it lives; on the right, write two places that this animal lives; discuss with the class - 20 min | <i>ML Science, Diversity of Living Things, Pages 48-49</i> - Discuss what budding is; teacher to use Google images to show examples of budding (coral); teacher to explain the different between sexual and asexual reproduction - 15 min | Teacher to use Google images to display the following: honey locust (tree with thorns), Pitcher plant (fills a tub with water), Corpse Flower (horrible order to attract beetles), and Lithops (resembles a rock for disguise); discuss these plants adaptations for survival - 10 min | As a class, create a food web of ten organisms that includes producers and consumers but include at least two symbiotic relationships; when complete students in pairs, create your own and share with the class - 15 min |
| Daily Journal or Bell Work: | Define mutualism, commensalism, and parasite symbiotic relationships | How are the organs of an owl similar yet different to a rabbit? | What are two ways that humans have apated to living in the extreme-cold? | What is photosynthesis? Do producers or consumers use it to make food? | What is an autotroph? Provide three examples |
| Daily Homework: | Make a Four Square Diagram for the work multicellular and provide examples | What are two ways that humans have adapted to living in the high-heat? | <i>ML Science, Diversity of LT, 2.1 Review, #'s 1-5, page 49</i> - Complete each question in complete sentences; due tomorrow! | Written Response: Which plant that we discussed today do you think was the most-interesting? Why? | <i>ML Science, Diversity of LT, 2.2 Review, #'s 1-4, page 57</i> - Complete each question in complete sentences; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |

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| 12th Week | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |
| | Teacher to review the three types of symbiotic relationships and the classification of life by Linneaus - 10 min | Teacher to review the seven stages of classification by Linneaus and provide a mnemonic for remembering them (King Phillip Came Over From Geneva Switzerland) - 10 min | <i>ML Science, Diversity of Living Things, Page 60</i> - Students in pairs, work together to complete the lab of dissecting owl pellets; answer the questions in the text via Google Docs; try to identify any bones found using your Chromebooks and an image of a mole skeleton; Answer: how did the owl process the food that it ate? What remnants of a mole did you discover? How do you think an owl eats? - 40 min | <i>ML Science, Diversity of Living Things, Page 64</i> - Read aloud and discuss migration and hibernation; what are examples of animals that migrate and hibernate? - 15 min | <i>ML Science, Diversity of Living Things, Page 75</i> - Students in pairs, use Venn Diagrams to answer #'s 1-6; have two statements for each section (six total per Venn Diagram); share with the class and discuss - 30 min |
| | Illustrate, color, and label three plants that have adaptations that we discussed in the previous lessons; use your Chromebooks for images if needed; label the name of the plant and write a sentence underneath the label indicating what the plant does as its adaptation - 40 min | <i>ML Science, Diversity of Living Things, Pages 58-61</i> - Using an outline format, as a class read aloud and discuss what a consumer / heterotroph is; define herbivore, carnivore, and omnivore; what are the three methods that animals obtain oxygen? - 25 min | | | |
| | Watch "Breathing in Animals" on YouTube (4:08 min) and discuss how lungs, gills, and spiracles work; teacher to ask: why do we yawn? Why do we breathe hard when we are exercising? - 15 min | <i>ML Science, Diversity of LT, Pages 62-63</i> - Read aloud and discuss the behaviors of animals; Define predator and prey; what are defense mechanisms? What is the human defense mechanism called (fight or flight)? - 15 min | Teacher to provide two blank maps of North American; on one map students will illustrate the migration of monarch butterflies as depicted via this website; on the other map, student will illustrate the migration of either hummingbirds or Bald Eagles as depicted via this website - 25 min | Review for quiz tomorrow on the Seven Stages of Classification and biotic relationships - 15 min | |
| Daily Journal or Bell Work: | Name the three types of symbiotic relationships | Teacher to discuss animal dissection and the permission slip needed to dissect further animals; one is NOT needed for the next day's lesson | How do you think an owl eats its food? | What are some ways that animals of the same species cooperate and compete? | Why do some animals migrate while other stay where they are all year? Provide two reasons |
| Daily Homework: | How are a fern, a pine tree, and a rose bush all different? How may they be classified differently by Linneaus? | Have your permission slip signed for animal dissection in class | Create a six animal food web listing the predator and prey in each relationship; you MUST include an owl and mole | <i>ML Science, Diversity of LT, 2.3 Review, #'s 1-5, page 64</i> - Complete each question in complete sentences; due tomorrow! | Study for Quiz on Classification of Life and Biotic Relationships |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min |

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| 13th Week | Quiz: Classification of Life and Biotic Relationships - 30 min | <i>ML Science, Diversity of LT, Pages 66-69</i> - Using a Concept Map, read aloud and record important information as it is presented in the text; discuss the different features of Fungi; define hyphae, spores, and mycelium; relate these to the different parts of a plant - 30 min | <i>ML Science, Diversity of Living Things, Page 66</i> - Students in pairs, complete the mini-lab together; prep it to examine tomorrow - 15 min | <i>ML Science, Diversity of Living Things, Page 66</i> - Students in pairs, complete the mini-lab together; examine the mushroom cap and answer the questions - 15 min | Debate on Fungi preparation time; topic: "Are fungi useful and helpful organisms? Or, are they nasty, disgusting things that we should eliminate?" - 20 min |
| | Go to " https://codecombat.com/ " to play Code Combat; teacher to set up the class code prior to starting but you can play without it (its more fun with one!); students to use scientific coding to play the game and move throughout it - 20 min | | Teacher to Google images of mushrooms, molds, and yeasts; teacher to demonstrate the different colors, varieties, and textures in Fungi - 10 min | Watch "How Penicillin Changed The World" on YouTube (2:10 min) and discuss how fungi is used to treat medical issues; refer to pages 68-69 for uses of Fungi under "Molds" - 10 min | Debate: students will be placed on either side that fits their opinion; students will discuss and debate the topic; teacher to serve as moderator of the discussion; students will have a opening argument, supporting statements, and closing argument; teacher to assist as needed - 30 min |
| | | Using a T-chart, teacher to compare the parts of a mushroom to the parts of a tree; compare each area in liketems - 15 min | Students to research and discuss what foods we eat that have Fungi in them; have a list of three; discuss the different foods that are made by or include fungi - 20 min | <i>ML Science, Diversity of Living Things, Pages 70-71</i> - Read aloud and discuss how lichen use a mutual relationship with algae; how do lichen contribute to erosion? Where on Earth are lichen found? How are fungi involved in parasitic relationships? - 20 min | |
| Daily Journal or Bell Work: | None | What are Fungi? What makes them different than plants and animals? | Penicillin is a fungus; when do you take penicillin? How may this fungus help you? | What are the three symbiotic relationships? | What are lichens and how are they helpful for farmers? |
| Daily Homework: | Play "Code Combat" at home for a minimum of twenty minutes | Define Hyphae, Spores, and Mycelium | Tell your family that cheese, blue cheese dressing, mushrooms, and soy sauce are made from or are fungi; what is their reaction? Inquire why they feel that way | <i>ML Science, Diversity of LT, 2.4 Review, #'s 1-5, page 71</i> - Complete each question in complete sentences; due tomorrow! | <i>ML Science, Diversity of LT, Page 75</i> - Complete #'s 7-17; due tomorrow! |

Unit: Plants and their Functions

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| Vocabulary Terms: | <i>Producer, Cell Wall, Chloroplast, Photosynthesis, Autotroph, Xylem, Phloem, Stomata, Cuticle, Vascular System</i> | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Journal; complete in Google Docs, send to your teacher - 10 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Bell Work; complete in Google Docs, send to your teacher - 5 min | Journal; complete in Google Docs, send to your teacher - 10 min |

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| 14th Week | <p><i>ML Science, Diversity of Living Things, Pages 85-87</i> - Take notes while you read to highlight key points; read aloud and discuss the diversity of plants; Teacher to Google "plants in biomes" and display the images of various plants in the different biomes; discuss the adaptations that each plant made in each situation - 35 min</p> | <p>Watch "Plant Cells vs. Animal Cells: Compare & Contrast!" on YouTube (5:26 min) and discuss similarities & differences; teacher to make a T-chart outlining the differences; focus upon chloroplasts, cell walls, and size of the cell - 15 min</p> | <p>Students in pairs, using a Venn Diagram compare and contrast plant cells and animal cells; have at least two statements per section (six total statements); share with the class when complete - 20 min</p> | <p>Students in pairs, create a Venn Diagram comparing & contrasting vascular plants to humans; have three statements per section (nine total statements); focus on human systems, not so much human processes or motion; one Venn Diagram per pair, share pairs with the class when complete - 20 min</p> | <p>Teacher to take students outside on a nature-walk to discover examples of oaks, maples, and other vascular trees in their habitat; students to illustrate, color, and label the different features of the trees while in their native state; illustrate the trees AS THEY APPEAR and then try to connect where you believe the xylem, phloem, and stomata are on each actual tree that you illustrate; include other man-made features in your illustrations; how do you believe these items effect the trees vascular systems directly? - 45 min</p> |
| | | <p><i>ML Science, Diversity of LT, Pages 88-91</i> - Students in pairs, read together and answer the following questions: what is photosynthesis? What is transpiration? How is transpiration similar to breathing in an animal? What are two ways that plants use to keep from losing water? Define: Xylem, Phloem, and Stomata - 25 min</p> | <p>Illustrate, color, and label the inside of a leaf as depicted on page 89 in your text; Include the cuticle, xylem, phloem, and stomata; specify where the chloroplasts are located; do your BEST WORK, do not rush through it! - 30 min</p> | <p>Teacher to show images of pollution around plants (the worse the image, the better); discuss how the pollution is harming the plant and ground; what can be done to prevent this? What are some polluted areas that you know? What can be done to help clean them up? - 10 min</p> | |
| | <p>Use a T-chart to compare the human body to plants; focus on the comparisons between veins and the vascular system; how are plant cells different than animal cells? - 10 min</p> | <p>Teacher to review content and refer to page 89 in the text; using online images via Google Images, display what the stomata, cuticle, xylem, and phloem do for a plant - 10 min</p> | | <p>Students to research in Google "Effects of pollution on plants" and share results as a class; what negative effects can pollution in plants have on humans? - 15 min</p> | |
| Daily Journal or Bell Work: | <p>What are two ways that plants cells and animal cells are different?</p> | <p>How are plants and animals similar? Think of two ways</p> | <p>Define Cuticle and Stomata</p> | <p>Define Xylem and Phloem</p> | <p>How does pollution effect plants? How does that pollution potentially reach your body?</p> |
| Daily Homework: | <p>Which Kingdom of life do you think has the most total number of organisms in it? Why do you think that is so?</p> | <p>Define any four of the "Words to Know Week Fourteen"; due tomorrow!</p> | <p>Define any four of the "Words to Know Week Fourteen"; due tomorrow!</p> | <p><i>ML Science, Diversity of LT, 3.1 Review, #'s 1-5, page 91</i> - Complete each question in complete sentences; due tomorrow!</p> | <p>None</p> |
| <p>Teacher to ensure that the Explore Learning Gizmos Account is activated prior to this week as students will use Gizmos daily for several weeks.</p> | | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | <p>Journal; complete in Google Docs, send to your teacher - 10 min</p> | <p>Bell Work; complete in Google Docs, send to your teacher - 5 min</p> | <p>Bell Work; complete in Google Docs, send to your teacher - 5 min</p> | <p>Bell Work; complete in Google Docs, send to your teacher - 5 min</p> | <p>Journal; complete in Google Docs, send to your teacher - 10 min</p> |

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| 15th Week | Debate - Students will debate whether or not humans have the right to pollute as much as they want, wherever they want; is it our right as the most-advanced species on Earth to treat it how we want? Or should we take care of our Earth better and do our part to clean it up? Are we, as humans, ruining Earth? Or is it our privilege to treat our planet how we want? - 45 min | <i>ML Science, Diversity of LT, Pages 92-94</i> - Read aloud and discuss the first plants? What were they like? What limits the size of moss? - 20 min | Teacher to discuss why mosses and simple plants are the first to grow after a forest fire; how do seeds and spores withstand the fire/heat? - 10 min | Discussion: what are monocots and dicots? How are they related to all plants? What type of plant is a fern? What type of vascular system does a fern have? - 10 min | Teacher to review monocots and dicots; what are taproots? How do they relate to vascular plants? - 10 min |
| | | <i>ML Science, Diversity of Living Things, "Lab Handbook - Recording Observations", Page R33</i> - Review how to best make observations and tips for tracking them appropriately - 10 min | <i>ML Science, Diversity of Living Things, Pages 95-97</i> - Read aloud discuss what spores are; using a T-chart, as a class compare vascular & nonvascular plants with examples from the text; what are benefits to each? What are drawbacks to each? - 20 min | Teacher to review ferns, mosses, spores, and other simple plants and their parts; review vascular systems - 10 min | As a class, teacher to model using a "Sequence" graphic organizer complete a step-by-step process for how pine trees pollinate each other; include the pollen (sperm) and scales (egg) in your description; students to come to the Clever board to interact & complete - 20 min |
| | | <i>ML Science, Diversity of Living Things, Page 92</i> - Students in pairs, complete the mini-lab on this page by either leaving the classroom to view moss outside or the teacher bringing moss into the room for viewing - 20 min | Watch "Fern: The Life Cycle" on YouTube (2:21 min) and discuss how a fern reproduces through spores, grows, and changes throughout its life - 10 min | <i>ML Science, Diversity of Living Things, Pages 98-101</i> - Read aloud and use a "Main Idea & Supporting Ideas" graphic organizer to combine ideas for plants with seeds, germination, and what pollen is - 25 min | <i>ML Science, Diversity of Living Things, Pages 102-103</i> - Read aloud and use a "Concept Map" graphic organizer to combine your thoughts about gymnosperms; how are they adapted to living in cold climates? What are ginkgoes? What does "gymnosperm" mean? - 15 min |
| Daily Journal or Bell Work: | Do humans have a right to pollute wherever they want, as much as they want? Why or why not? | What do you think the world looked like before humans arrived? Why do you think this? | What are spores? What are they similar to (for some plants and fungi)? | Watch "Fern Time Lapse" on YouTube (1:05 min) and discuss the actions of a fern each day | What is the difference between seed and pollen? |
| Daily Homework: | What was your stance in the debate today? Why do you feel that way? | None | <i>ML Science, Diversity of LT, 3.2 Review, #'s 1-5, page 97</i> - Complete each question in complete sentences; due tomorrow! | Name two ways that seeds are different than spores | Define seed, embryo, and germination |
| Vocabulary Terms: | <i>Producer, Autotroph, Photosynthesis, Stigma, Pistol, Style, Stamen, Propagation, Xylem, Phloem, Stomata, Pollination</i> | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | <i>ML Science, Diversity of Living</i> |

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| 16th Week | Watch "Gymnosperms" on YouTube (4:31 min) on YouTube and discuss what characteristics of Gymnosperms are; what do each of these types of plants have similar? - 10 min | Students to define the "Terms to Know from Week Fourteen" via Google Docs and share with your teacher - 25 min | <i>ML Science, Diversity of LT, Pages 107-109</i> - Read aloud and discuss examples of angiosperms based upon what we read today; what advantages does having a seed kept internally in fruit provide? What advantages do flowers provide? - 20 min | <i>ML Science, Diversity of Living Things, Pages 110-113 (stop at "Humans Depend on Plants...")</i> - Read aloud and discuss the benefits and purposes of flowers and fruit; teacher to download an image of a flower for students to label as they read - 20 min | <i>ML Science, Diversity of Living Things, Pages 113-114</i> - Read aloud and discuss the ways that humans rely on plants for survival; aside from food, why do we need trees and other plants in our habitats? What health benefits do they provide to us? - 20 min |
| | Teacher to explain the formula for photosynthesis, including the reactants and products; teacher to explain how to properly read the arrow as "yields"; explain how the total of molecules doesn't change, just the arrangement - 10 min | <i>ML Science, Diversity of LT, "Extreme Science - Amazing Seeds", Page 106</i> - Read aloud and discuss how seeds help repopulate forests after fires; read the examples provided; answer #'s 1-2 as a class and discuss the reasoning for your answers - 25 min | <i>ML Science, Diversity of Living Things, Page 108</i> - Students in pairs, create "Word Triangles" for the terms Flower and Fruit; share your results with the class - 15 min | Students in pairs, create a T-chart listing the following animals on the left side (bees, squirrel, bat, bird, cow, bird, dog, and chipmunk) and how they each help to spread seeds and pollen; discuss your results with the class when complete; review monocots and dicots; what are taproots? - 25 min | Illustrate, color, and label the differences between how angiosperms sexually reproduce verses how gymnosperms sexually reproduce; include the cones and fruit as applicable; what is meiosis? Label the stages of each as show in your textbooks on pages 101 and 109 for each - 30 min |
| | <i>ML Science, Diversity of Living Things, Page 102</i> - Students in pairs, complete the lab on this page; finish all questions via Google Docs and submit to your teacher - 25 min | | Teacher to review symbiotic relationships (mutual, parasite, commensalism); what type of relationship do the following animals have with plants: bees, hummingbirds, butterflies, moths, bats, and birds - 10 min | | |
| Daily Journal or Bell Work: | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | None |
| Daily Homework: | What is a gymnosperm? Provide an example; how do they reproduce? | <i>ML Science, Diversity of LT, 3.3 Review, #'s 1-5, page 103</i> - Complete each question in complete sentences; due tomorrow! | Written Response: Explain how bees, butterflies, and moths are responsible for the pollination of flowers (one paragraph) | None | Finish your illustration, coloring, and labeling if needed |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | |

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| 17th Week | Students in pairs, teacher to provide a print out of a flower; using the following website and your textbook, " https://web.extension.illinois.edu/gpe/case4/c4facts1a.html ", identify and label the parts of a typical flower; review answers when complete - 10 min | <i>ML Science, Diversity of Living Things, Page 111</i> - Students in groups of 3 or 4, complete the mini-lab on this page by reviewing the parts of the flower, illustrating as requested, and answering all questions - 20 min | Teacher to introduce the difference between monocots and dicots, as well as taproots vs fibrous roots; go to the following website: " www.holganix.com/blog/monocots-vs-dicots-what-you-need-to-know " to see visuals of each; discuss examples - 20 min | Review Study Guide for your Test tomorrow on Plants and Symbiosis - 25 min | Test on Plants and Symbiosis - 30 min |
| | Students in pairs, create a T-chart listing the following animals on the left side (bees, squirrel, raccoon, birds, monkeys, and ants) and the type of symbiotic relationship that they have with plants on the right side; students should also explain that relationship with their response; share your results with the class - 20 min | <i>ML Science, Diversity of Living Things, Page 115</i> - Read aloud and discuss how chloroplasts can be counted and estimated on a leaf; complete #'s 1-4 using the leaf pictured in the book; complete "Challenge" by using either two actual leaves or two leaves that your teacher simulates from other materials; use the grid paper as requested to track your data changes - 25 min | <i>ML Science, Diversity of Living Things, Pages 117-118</i> - Teacher to provide each student a dollop of shaving cream to spread out across their desk; write their answers with their fingers; teacher to read aloud #'s 9-15 and students reply via the shaving cream, review answers for accuracy; teacher to also review #18-21, students draw diagram in the shaving cream with responses - 20 min | | |
| | Students to individually go to the following website on their Chromebook " https://web.extension.illinois.edu/gpe/case4/c4m1.html " and take the quiz regarding the parts of the flower - 10 min | | | Students in pairs, illustrate the difference between a monocot and a dicot including the vascular system and roots, label the parts and review as a class - 15 min | |
| Daily Journal or Bell Work: | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | None |
| Daily Homework: | Explain how humans and plants have symbiotic relationships | <i>ML Science, Diversity of LT, 3.4 Review, #'s 1-5, page 114</i> - Complete each question in complete sentences; due tomorrow! | <i>ML Science, Diversity of LT, Page 117</i> - Complete #'s 5-8; due tomorrow! | Study for your Test tomorrow on Plants and symbiosis | None |

Unit:

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| Vocabulary Terms: | <i>Invertebrate, Sponge, Larva, Sessile, Cnidarians, Echinoderms, Arthropods, Mollusks, Symmetry, Tentacles, Mobile, Gills, Bivalves, Gastropod, Cephalopod,</i> |
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Permission Slip Regarding Animal Dissection MUST go home prior to any work of that nature being completed!

| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
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| | Bellwork - 5 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min |
| Remember to use the specimens of preserved organisms that are in the Science Rooms to help expand student knowledge and show them the organisms directly | | | | | |
| 18th Week | <i>ML Science, Diversity of Living Things, Pages 123-126</i> - Read aloud and discuss; use a "Word Wheel" graphic organizer to outline what invertebrates are; what are spores? What are spicules? What type of animal is a sponge? - 25 min | <i>ML Science, Diversity of Living Things, "Math in Science", Page 127</i> - Read the passage about symmetry and discuss radial and bilateral symmetry; Complete #'s 1-5 as a class, review responses and discuss the symmetry of other organisms - 15 min | Watch "Symmetry in Animals" and discuss; Review Radial and Bilateral Symmetry; discuss examples of organisms with each type - 10 min | Teacher to Google images of "Flatworms", "Earthworms", and "Roundworms"; what are parasites? Which type of Annelid is a parasite? Where do they live on most organisms? Teacher may show the following website for more information www.healthline.com/health/worms-in-humans - 15 min | (Part II of II) Complete the illustrate, coloring, and labeling of the jellyfish life cycle and three types of Annelids - 20 min |
| | <i>ML Science, Diversity of Living Things, Page 124</i> - Students in groups of 3 or 4, complete the mini-lab about the appearance of sponges and how they collect food - 15 min | <i>ML Science, Diversity of Living Things, Pages 128-130</i> - Read aloud and discuss Cnidarians; Use the "Combination Notes" graphic organizer to list notes about Cnidarians and their features; what are nematocysts? Provide examples of cnidarians - 20 min | <i>ML Science, Diversity of Living Things, Page 130</i> - Review the life cycle of jellyfish; review what a medusa and polyp are; use a "Four Square" graphic organizer to outline the data of the cycle, parts, and features; why do you believe a stage is called medusa? - 15 min | (Part I of II) Students will fold a piece of computer paper in half; turn it vertically; on the top half illustrate, color, and label the stages of the jellyfish life cycle including a statement of what happens in each stage; on the bottom half, illustrate, color, and label three types of Annelids and write a statement about how they can reproduce - 30 min | Teacher to review Taxonomy and where these animals discussed so far fit onto the hierarchy; What Kingdom are they in? What is their Phylum (Molluska, Cnidaria, Annelida, Porifera); teacher should outline that Phylum Molluska will include several Classes to know - 15 min |
| | Discussion: how do you think the mini-lab will model how a sponge survives? How do you think it will catch food? - 10 min | Students in pairs, check the potato lab from yesterday; record your observations and submit results via Google Docs to your teacher - 10 min | <i>ML Science, Diversity of Living Things, Pages 131-133</i> - Read aloud, review symmetry of the pictured organisms; what are annelids? Why do you think it is possible for earthworms to be split into two pieces that both are alive? - 20 min | | Watch "5.5.4 Distinguish between Porifera, Cnidaria, Platyhelminthes, Annelida, Mollusca and Arthropoda" on YouTube (3:26 min) and discuss the difference in each type of animal; which Phylum is each in? How do they relate to each other? - 10 min |
| Daily Journal or Bell Work: | What is the most simple, or least complex, animal that you can image? Illustrate it! | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | List two animals with bilateral symmetry; list two animals with radial symmetry | Teacher to review the permission slip for animal dissection; MUST be signed before any dissection may occur! | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes |
| Daily Homework: | Written Response: Do you think a sponge should be considered an animal? Why or why not? | <i>ML Science, Diversity of LT, 4.1 Review, #'s 1-5, page 126</i> - Complete each question in complete sentences; due tomorrow! | Use a Venn Diagram to compare and contrast Sponges vs Cnidarians; have at least three statements per section (nine total statements) | <i>ML Science, Diversity of LT, 4.2 Review, #'s 1-5, page 133</i> - Complete each question in complete sentences; due tomorrow! | Bring your permission slip for animal dissection tomorrow! We will begin in the next lesson |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |

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| | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min |
| | Remember to use the specimens of preserved organisms that are in the Science Rooms to help expand student knowledge and show them the organisms directly | | | | |
| 19th Week | Lab: Students to complete a lab on worm dissection; note the heart, circulatory system, and segmented areas; there are large nerve gatherings that are the brain; find SPECIFICALLY where the hearts are located and decipher where a worm could be cut/broken to form two new organisms - 25 min | <i>ML Science, Diversity of Living Things, Pages 136-138</i> - Read aloud and discuss how each of these organisms are related to each other; how does a bivalve move? What are gills? Review what each name means in Greek to help students remember what organism is each - 25 min | <i>ML Science, Diversity of Living Things, Pages 139-140</i> - Read aloud and discuss how mollusks adapt by Class; How do echinoderms eat? What is the proper name for a starfish (ans. sea star)? What does "echinoderm" mean? What type of symmetry do they have? - 20 min | <i>ML Science, Diversity of Living Things, Page 141</i> - Students in groups of 3 or 4, in Literacy Circles read aloud and discuss sea stars regenerating; follow the observations and conclusions; complete via Google Docs the questions in "Evaluate the Conclusions" and "Challenge" submit to your teacher when complete - 15 min | <i>ML Science, Diversity of Living Things, Pages 142-145</i> - Read aloud and use a "Word Triangle" to illustrate and make notes for the different types of Arthropods; what are insects? What makes them similar to crustaceans? What is molting? What are some other animals that you can think of that also molt? - 20 min |
| | Students in pairs, create a T-chart comparing the organs and innerds of the worm to a human and other organisms that you're familiar with; share with the class when completed - 20 min | Students in pairs, create a concept map linking together the similarities and differences in Bivalves, Gastropods, and Cephalopods; include Greek names and symmetry; teacher to review and present to the class when complete - 20 min | Watch "Mollusca Features" on YouTube (2:49 min) and discuss the different organosms of Phylum Mollusca; Teacher to create a table listing the three major types and students provide characteristics of each Class - 15 min | Students in groups of 3 or 4, create four "Word Triangle" graphic organizers for Echinoderms, Cephalopods, Bivalves, and Gastropods; share with the class when complete - 20 min | Students in pairs, create a table that outlines the differences in Insects, Crustaceans, and Arachnids; include examples of each; create three columns with the headings "Class Insecta", "Class Crustacea", and "Class Arachnid" at the top of each to help organize; share with the class when complete - 20 min |
| | Teacher to introduce the term "regeneration" and apply it to Echinoderms; sea stars will regrow arms if they're broken or cut off; relate this to urchins as well; echinoderms will regenerate as long as the central area still remains; in fact, an arm with a piece of the central area will regrow a new star altogether - 10 min | Teacher to create a hierarchy map (similar to a concept map) of all organisms discussed so far on the Clever Board; Teacher to write the Kingdoms discussed, students to complete the hierarchy map by providing the Phylums and Classes learned so far with examples - 10 min | | | |
| Daily Journal or Bell Work: | Prepare for worm dissection lab; what Phylum are worms in? List three features of them | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes |
| Daily Homework: | What did you learn about worms today from the worm dissection lab? Think of at least three things | What type of symmetry does an octopus, snail, squid, clam, and earthworm have? | Define in your own words five of the "Terms to Know from Week Eighteen"; due tomorrow! | <i>ML Science, Diversity of LT, 4.3 Review, #'s 1-5, page 140</i> - Complete each question in complete sentences; due tomorrow! | Define in your own words five additional "Terms to Know from Week Eighteen" that you did not define earlier this week; due tomorrow! |
| Vocabulary Terms: | <i>Arthropods, Exoskeleton, Insects, Crustaceans, Arachnids, Molting, Metamorphosis, Vertebrate, Endoskeleton, Scale, Amphibian, Reptile, Ectotherm, Endotherm, Incubation, Mammal, Placenta, Gestation,</i> | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |

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| | Bellwork - 10 min | Bellwork - 15 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | |
| Remember to use the specimens of preserved organisms that are in the Science Rooms to help expand student knowledge and show them the organisms directly | | | | | | |
| 20th Week | <i>ML Scinece, Diversity of Living Things, Pages 142-145</i> - Review Arthropods, what does that word mean? What two characteristics do all adult insects share? Review body structures - 10 min | Lab: Students to complete a lab on crayfish dissection; note the heart, circulatory system, and jointed areas; there are large feathery gills that are easily noted as well as multiple stomachs and glands that help with digestion; there are very few blood vessels, most of the inerds of the body is part of the muscle and digestive systems - 25 min | Teacher to review symmetry of different examples of Crustaceans, Insects, and Arachnids; Use Google Images of different organisms to review Radial and Bilateral symmetry - 10 min | <i>ML Science, Diversity of Living Things, Page 152</i> - Students in groups of 3 or 4, complete #'s 24-30 via Google Docs; submit to your teacher when complete - 25 min | <i>ML Science, Diversity of Living Things, Page 153</i> - Read aloud and review the data table; teacher to inquire about units of measurement and other data; complete #'s 1-6 as a class and discuss each facet - 15 min | |
| | Using computer paper, students will illustrate, color, and label the similarities & differences in Crustaceans and Insects; students should fold the paper in half vertically and illustrate each animal from the top-down; students are to label features of each to compare - 20 min | | Students in pairs using computer paper pasted/taped to construction paper, complete a Venn Diagram comparing and contrasting Phylum Molluska to either Phylum Cnidaria or Phylum Arthropoda; students to have three statements per section (nine total statements); students will write examples of organisms as well; present to the class when complete - 30 min | | <i>ML Science, Diversity of Living Things, Pages 157-159</i> - Read aloud and discuss what a vertebrate is; what is Phylum Chordata (organisms with a backbone)? What is the purpose fo the skeleton and muscle systems? Use a "Mind Map" to outline what a vertebrate is with examples, include terms like endoskeleton, lungs/gills, and provide examples - 20 min | Watch "Animal Classification for Children: Classifying Vertebrates and Invertebrates for Kids - FreeSchool" on YouTube (6:52 min) and discuss how each organism is classified; how are vertebrates and invertebrates similar yet different? - 10 min |
| | Watch "Detailed Crayfish Dissection: Part I (Jr. High, High School and College Review)" on YouTube (10:45 min) and discuss any questions about the parts of the crayfish - 15 min | <i>ML Scinece, Diversity of Living Things, Pages 146-149</i> - Read aloud and discuss metamorphosis; what happens with each Class of Arthropods during metamorphosis? - 15 min | | | | <i>ML Science, Diversity of Living Things, Pages 157-159</i> - Review the content from this section; students as a class to openly discuss and create a T-chart comparing vertebrates and invertebrates - 15 min |
| Daily Journal or Bell Work: | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Watch "Detailed Crayfish Dissection: Part II (Jr. High, High School and College Review)" on how to conduct the crayfish dissection | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | <i>ML Science, Diversity of Living Things, Page 151</i> - Complete any four of #'s 1-8; review as a class | <i>ML Science, Diversity of Living Things, Page 151</i> - Complete any four of #'s 9-16; review as a class | |
| Daily Homework: | Consider molting, having an exoskeleton, or being organized into three main body sections; how would your life be different if this occurred for you? (one paragraph) | How did the dissection today help you to understand crustaceans better? How does their body structure differ from ours? Think of three ways. | <i>ML Science, Diversity of LT, 4.4 Review, #'s 1-5, page 149</i> - Complete each question in complete sentences; due tomorrow! | <i>ML Science, Diversity of Living Things, Page 151</i> - Complete #'s 17-19 in complete sentences; due tomorrow! | <i>ML Science, Diversity of Living Things, Page 152</i> - Complete #'s 20-23 in complete sentences; due tomorrow! | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" | |
| | Bellwork - 10 min | Bellwork - 5 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | |
| Remember to use the specimens of preserved organisms that are in the Science Rooms to help expand student knowledge and show them the organisms directly | | | | | | |

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| 21st Week | Discuss your prior knowledge of fish; what actually is a fish verses "what do you think is a fish?"; what do you believe are characteristics of fish? - 10 min | Using computer paper, students will compare and contrast the internal organs and characteristics of a typical fish verses a human; illustrate, color, and label the different parts of both a fish and human including similar organs; write a brief statement indicating their purpose to help compare; students should note that humans and fish have cartilage - 35 min | Discussion: review amphibians and their characteristics; compare their life cycle to a human life cycle, how are they similar and different? What is a larva? Do amphibians take care of their young? - 10 min | <i>ML Science, Diversity of Living Things, Pages 168-171</i> - Students in pairs, read together and take notes on important features; as a class review your notes and Teacher to verify important aspects (lungs, lay eggs, scales, ectothermic, reproduce sexually) - 25 min | Lab: Students to complete a lab on frog dissection; note the heart, circulatory system, and jointed areas; there are large feathery gills that are easily noted as well as glands that help with digestion; there are very few blood vessels, most of the inerds of the body is part of the muscle and digestive systems; open the brain and review the muscles of the legs - 45 min |
| | <i>ML Science, Diversity of Living Things, Pages 160-162</i> - Students in pairs, read together and take notes on what you feel are the most specific features of fish; review your notes when complete as a class; teacher to review and correct - 25 min | | <i>ML Science, Diversity of Living Things, Page 164</i> - Students in groups of 3 or 4, complete the mini-lab on this page; use a meter stick to measure the distance; Google the typical distance a frog can jump, calculate how far you would jump if you were a frog; answer questions together as a class - 15 min | Discussion: As a class, create a Venn Diagram comparing and contrasting Fish to eigher Amphibians or Reptiles; discuss important features of each; three statements for each section; Teacher to lead the discussion - 10 min | |
| | Review this section and discuss: what are gills? How do they work? What is the lateral line of a fish? What is its purpose? Why can't fish breathe out of water? - 10 min | <i>ML Science, Diversity of Living Things, Pages 164-167</i> - Read aloud and discuss how amphibians and reptiles have adapted to life on land; how are amphibians different than fish? How are they similar? Discuss the frog life cycle - 20 min | Teacher to review symmetry and food webs; Teacher to use Google to show images of various amphibians and discuss their symmetry; students in pairs, create a food web of ten organisms that includes amphibians and other Phylums that we've discussed, label herbivore, carnivore, omnivore, scavenger, and show the arrows indicating where the energy goes (who eats who) - 20 min | Watch "Frog Dissection" on YouTube (11:34 min) and discuss how to proceed properly for the next lesson - 15 min | |
| Daily Journal or Bell Work: | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Watch "Types of Fish-Animal Classification" on YouTube (2:13 min); provide examples of the three types of fish | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | <i>ML Science, Diversity of Living Things, "Lab Handbook", Pages R10-R11</i> - Read and review for tomorrow's frog dissection | Prepare for lab today; obtain your goggles, gloves, and all protective & lab materials |
| Daily Homework: | Work on "Google Slids Animal Project" | <i>ML Science, Diversity of LT, 5.1 Review, #'s 1-5, page 162</i> - Complete each question in complete sentences; due tomorrow! | Complete your food web if you did not finish it in class today; due tomorrow! Work on your "Google Slids Animal Project"! | <i>ML Science, Diversity of LT, 5.2 Review, #'s 1-5, page 171</i> - Complete each question in complete sentences; due tomorrow! | <i>ML Science, Diversity of Living Things, "Math in Science", Page 163</i> - Read and complete #'s 1-4; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 10 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 10 min | Bellwork - 10 min |
| Remember to use the specimens of preserved organisms that are in the Science Rooms to help expand student knowledge and show them the organisms directly | | | | | |

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| 22nd Week | <p><i>ML Science, Diversity of Living Things, Page 170</i> - Students in pairs, complete the lab on this page; examine the egg structure and compare it to any eggs that you observed during frog dissection; what are some major differences that you note? - 20 min</p> | <p><i>ML Science, Diversity of Living Things, Pages 173-175</i> - Read in pairs and discuss the main components of the material; students to use an graphic organizer that they choose to do so; what is an ectotherm? How do birds control their body temperature? What birds can you think of that do not fly? share results with the class; teacher to review - 25 min</p> | <p><i>ML Science, Diversity of Living Things, Pages 176-179</i> - Read aloud and discuss how many birds have adapted for flight; what are four adaptations that birds have made to fly? List the pros and cons of these adaptations; are birds "good mothers" to their young compared to other organisms we've studied? Why or why not? - 20 min</p> | <p>(Part II of II) Complete the illustration, coloring, labeling, and paragraph for comparing birds and fish to each other in three distinct ways - 20 min</p> | <p><i>ML Science, Diversity of Living Things, Pages 180-181</i> - Students in groups of 3 or 4, complete the lab together; use Google Sheets to record your data and answer the questions in each step; answer all questions in "Observe and Analyze" and "Conclude" directly into Google Sheets; one spreadsheet per student; submit to your teacher when complete - 30 min</p> |
| | <p>Teacher to review what amphibians and reptiles; what is an ectotherm? How do they maintain body temperature? What biomes do many reptiles and amphibians live in? - 10 min</p> | <p><i>ML Science, Diversity of LT, Page 173</i> - Students in pairs, teacher to provide feathers; students to review and organize them by characteristics; answer the questions provided via Google Docs and share with your teacher; discuss as a class - 15 min</p> | <p>(Part I of II) Review the internal structures of birds verses those of fish; they have very similar features but are also very distinct in their lifestyles and adaptations; illustrate, color, and label the similarities between birds and fish; what are three similarities that you see? how has each adapted differently for survival (BE SPECIFIC)? Write a few sentences discussing how you feel that the three similarities that you noticed help both types of organisms to survive in their own distinct way - 25 min</p> | <p>Watch "Beaks: Bird Feeding Adaptations (Short)" on YouTube (6:21 min) and discuss the adaptations that birds have made for survival; what are some of the differences that you notice? How have birds adjusted to different foods that are available? - 10 min</p> | |
| | <p>Students in pairs, create a T-chart listing amphibians and reptiles on the left side and the biome that they live within on the right side; what patterns do you see? Share and discuss as a class - 15 min</p> | <p>Teacher to use Google Images to provide photos of different types of birds; discuss the following features for each image: what type of symmetry to they have? What biome does this bird reside in? What adaptations does it have for survival? Where does this bird fit on a food web for its ecosystem? - 10 min</p> | <p>Teacher to review biomes and symmetry; what is the symmetry of all birds? How have birds adapted to living in different biomes? Name biomes and Google birds that live there; review the adaptations of those birds - 15 min</p> | <p>Students will create a food web of at least seven organisms, including birds, that correctly label herbivores, carnivores, omnivores, and scavengers; include producers and energy flow throughout the web - 15 min</p> | |
| Daily Journal or Bell Work: | <p>Students to go to "Gizmos" in the Explore Learning website and work for ten minutes</p> | <p>What do you believe are three characteristics of all birds?</p> | <p>Think of three things that you own that have features; what is the purpose of those features in them? How do features help the bird that they came from?</p> | <p>Students to go to "Gizmos" in the Explore Learning website and work for ten minutes</p> | <p>Students to go to "Gizmos" in the Explore Learning website and work for ten minutes</p> |
| Daily Homework: | <p><i>ML Science, Diversity of Living Things, "Connecting Sciences", Page 172</i> - Read and answer "Explore #'s 1-2"</p> | <p>Students to think of three birds; answer the same four questions discussed in class today (Google Images exercise) for each of those four birds; due tomorrow!</p> | <p>What adaptations do you think humans have made to better survive in our world? Try to think of at least three</p> | <p><i>ML Science, Diversity of LT, 5.3 Review, #'s 1-5, page 179</i> - Complete each question in complete sentences; due tomorrow!</p> | <p>None</p> |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 5 min | Bellwork - 10 min | Bellwork - 10 min |

| Remember to use the specimens of preserved organisms that are in the Science Rooms to help expand student knowledge and show them the organisms directly | | | | | | |
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| 23rd Week | | Teacher to review biomes, food webs, and the levels of classification; Teacher to create a hierarchy list starting with "Kingdom Animalia" and breakout into each "Phylum" discussed so far, then progress into each "Class" discussed so far; discuss the relationship of all organisms to each other; what characteristics place each organism into each level of hierarchy? - 20 min | Teacher to Google images of camouflage and discuss ways that mammals adapt to living in their surroundings; how do many mammals protect themselves? How defense mechanism do humans have ("fight or flight")? Why is hair important for mammals? How does fat protect mammals? - 15 min | <i>ML Science, Diversity of Living Things, Pages 185-187</i> - Read aloud and use a "Word Magnet" graphic organizer to outline the concepts of "Development Before Birth" and "Raising Young"; how do humans relate to both of these concepts? What is gestation? How do humans compare to other mammals with this? Use Google for additional animals if you choose - 20 min | Teacher to review the symmetry of humans and other mammals; teacher to select four biomes and discuss mammals that exist in those biomes; as a class create a food web that includes mammals existing within one of these biomes; include the terms carnivore, herbivore, omnivore, and include producers; include ectotherms and exotherms in the food web - 20 min | Teacher to divide the class into four groups; each group will create a Venn Diagram comparing and contrasting mammals versus either birds, fish, amphibians, or reptiles; teacher to assign to each group what they are comparing, discuss the similarities and differences as a class - 25 min |
| | | <i>ML Science, Diversity of Living Things, Pages 182-184</i> - Read in pairs and take notes as to important features of mammals; students will share their notes with the class when complete and teacher will verify the accuracy and importance of those notations; what characteristic make humans mammals? - 20 min | Lab: Students in groups of 3 or 4; Teacher to place at least twelve specimens of preserved organisms out in three stations (four apiece); students will travel to each station and create a list of how the organisms in that group are similar; think of their classification, are they actually related or does it just appear that way? - 20 min | Students to go to the following website: "www.edumedia-sciences.com/en/media/238-from-egg-to-chick" to simulate and scroll through how a chicken develops; how do you think this process compares to humans? Where do the similarities end? Make a T-chart outlining the similarities - 20 min | | |
| | | | Watch "Primates- What is a Primate?" on YouTube (5:08 min) and discuss; how do humans fit into Order Primate? What does bipedal mean? What makes apes and monkeys different? - 10 min | Teacher to Google "Hominids" to see examples of early human and migratory charts of humans; where did all humans originate from (Ethiopia)? Where does the Bible state that humans came from (Persian Gulf)? What are Neanderthals? How are they different than Homo Sapiens? - 10 min | <i>ML Science, Diversity of Living Things, Page 189</i> - Students in pairs, complete the "Word Wheel" for #'s 1-6 as well as four additional terms from your "Terms to Know from Week Twenty-One"; share with the class when complete - 20 min | <i>ML Science, Diversity of Living Things, Page 190</i> - Teacher to divide the class into six groups, each group will complete one of the following #'s 20, 21, 22, 23, 24, or 26; students will present their responses to the class; teacher to review and correct as needed - 20 min |
| Daily Journal or Bell Work: | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | List four mammals and how you think that they may be related to each other by characteristics | What are examples of Primates? How are humans a Primate? | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | |
| Daily Homework: | Camouflage is an adaptation; name three animals and the camouflage that they use to adapt to their surroundings | Work on your Google Slides Animal Project! | Create a T-chart comparing human growth development versus the chicken embryo development | <i>ML Science, Diversity of LT, 5.4 Review, #'s 1-6, page 187</i> - Complete each question in complete sentences; due tomorrow! | None | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | | |

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| 24th Week | Bellwork - 10 min | Bellwork - 10 min | | |
| | <i>ML Science, Diversity of Living Things, Pages 189-190</i> - Students in pairs, complete #'s 7-19 via Google Docs and review as a class - 20 min | Review Study Guide on Invertebrates, Vertebrates, Classification, their structures, and overall features - 25 min | Test on Invertebrates & Vertebrates; know the Classification names and characteristics of the organisms - 40 min | Field Trip to Aquarium; visit "www.greaterclevelandaquarium.com/" or call 216.862.8803 x7715 for educational programs; They require two weeks advanced notice; 1:10 adult to child ratio, chaperones are free with this ratio; Hours are 10:00-5:00; Schedule either "Smart Sharks", "Ecosystem Expedition", or "Aquatic Trek"; charge \$10.00 per child and they should pack their lunch; wear our gym shirt and khaki pants on trip |
| | (Part I of III) Students to individually create a table with seven columns; each column to have the following headings: Name of organism, Phylum/Class, Biome it lives in, What it eats, Symmetry, Exotherm/Ectotherm, and any major characteristics; list fifteen organisms - 25 min | (Part II of III) Work on the table with seven columns from the previous lesson; complete all requirements in full - 20 min | (Part III of III) Work on the table with seven columns from the previous lesson; complete all requirements in full - 15 min | |
| Daily Journal or Bell Work: | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | Students to go to "Gizmos" in the Explore Learning website and work for ten minutes | None | |
| Daily Homework: | <i>ML Science, Diversity of Living Things, Pages 189-190</i> - Complete #'s 7-19 that were not completed in class today; due tomorrow! | Study for your test tomorrow on Invertebrates and Vertebrates, classification of each, and characteristics! | Work on your Google Slides Animal Project!; it is due tomorrow! | Written Response: How did the field trip today to the Greater Cleveland Aquarium further your understanding of fish and other invertebrates? (one paragraph) |

Unit: Evolution

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| Vocabulary Terms: | <i>Fossil, Unicellular Organizer, Multicellular Organism, Mass Extinction, Evolution, Adaptation, Speciation, Natural Selection, Ancestor, Vestigial Organ, Gene</i> | | | | |
| Project Theme: | <i>Students will watch the movie "Planet of the Apes" (1968 version, Rated G, 1 hour 55 minutes) and will handwrite a one-page essay relating the events of this movie to evolution. Students will need to follow a proper essay format including an introductory, body, and concluding paragraphs. Students are NOT to just jump in and write; proper writing techniques and grammar are required! Since this is a science fiction movie, students will need to creatively and abstractly connect events in this movie, especially the final climatic scene, as to how evolution could have occurred during the film. Students will need to discuss in the Theory of Evolution, how Natural Selection could have occurred in this film, and evidence of isolation occurring and adaptation in the film. These aspects should make up the basis of the body of the essay.</i> | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |

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| | <p><i>ML Science, Life Over Time, Pages 2-5</i> - Read aloud and discuss what mass extinctions are; what do you think caused the Permian Extinction (90-95% of all life died out); what could cause the climate to freeze so greatly that it would kill this much life? - 15 min</p> | <p><i>ML Science, Life Over Time, Page 10</i> - Teacher to review the types of fossils mentioned in the textbook (amber, actual remains, bones, molds & casts, and petrification); teacher to show examples of them from the teacher supply room; what is petrified wood? Use Google Images if needed to display 15 min</p> | <p><i>ML Science, Life Over Time, Page 11</i> - Students in groups of 3 or 4; Using an old puzzle (and only one puzzle for the ENTIRE class is needed), complete the mini-lab as the teacher provides puzzle pieces at random to the groups; use Google Docs to answer the questions; discuss the results as a class - 20 min</p> | <p><i>ML Science, Life Over Time, Pages 17-20</i> - Read aloud using a "Main Ideas and Details" graphic organizer about evolution and outlining the changes in life; review the map on pages 18-19, how may Darwin's observations have been different had he visited North America (which was vastly unknown at the time)? - 15 min</p> | <p><i>ML Science, Life Over Time, Pages 21-25</i> - Read aloud and create an outline of the material using the "Letters & Numbers format" as seen commonly in MS Word; Teacher to assist in the creation of the outline and gathering important facts from the reading; ensure reading comprehension skills by asking about terms and key phrases as students read - 25 min</p> |
| 25th Week | <p>Students in pairs, review the lists that you created for bellwork that discussed the history of the Earth; discuss the formation of the Earth, the early life, what Earth must have looked like, etc.; Do not focus on people, think WAY before that; predict what you think will happen to the Earth in years to come; discuss as a class - 15 min</p> | <p><i>ML Science, Life Over Time, Pages 12-15</i> - Read aloud and discuss unicellular and multicellular organisms; provide examples of each; what did early animals look like? What is extinction? What order do scientists believe life appeared in on Earth? - 20 min</p> | <p>Teacher to Google Images of "Fossils of Extinct Animals" and review what they look like; discuss what some of them resemble, are they all dinosaurs? Do any of them resemble modern-day animals? Compare how some of these organisms are similar yet different to modern-day organisms - 10 min</p> | <p><i>ML Science, Life Over Time, Page 20</i> - Review the images of the finches and specifically note the differences in them that allowed them to adapt to their life conditions; how did each of the four change in order to survive? Assume a fifth finch was pictured with a long beak like a pelican, how may it have adapted to survive here? - 10 min</p> | <p>Watch "Charles Darwin - The Theory Of Natural Selection" on YouTube (3:03 min) and discuss how giraffes display traits that made them more successful than other giraffes, but also passed those traits down to their offspring over time; what may humans be passing along to our children? - 10 min</p> |
| | <p><i>ML Science, Life Over Time, Pages 9-11</i> - Students in pairs, read together and write three important notes about this material; discuss fossils and what they're evidence of; how can fossils give us clues to our past? Teacher to review notes as a class for accuracy and importance - 20 min</p> | <p>Teacher to conduct a mini-simulation of mass extinction; students to name 20 living things (from bacteria to humans and African wildlife); Teacher to write them on the board, then eliminate 90-95% of them as in the Permian Extinction; complete this exercise twice, the first time leave humans as one of the organisms that life through the extinction but the second time eliminate them; how will the loss of life the first time effect humans? What organism will become dominant the second time without humans? - 15 min</p> | <p><i>ML Science, Life Over Time, "Math in Science", Page 16</i> - As a class complete this activity together using a ruler, notebook paper, and imagination; Teacher to assist in Metric System measuring; complete the table to understand and see a diagram of the total span of Earth's existence vs life on Earth vs when animals appeared; what do you notice in total comparison of each? - 20 min</p> | <p>Students in groups of 3 or 4, make a table and conduct research about how "Great Cats" have adapted to live on Africa (lions), Asia (tigers), South America (jaguars), and North America (mountain lions); what adaptations do each of these have to survive? Use Google Images for photos to assist; Discuss as a class when finished, then complete this activity again with Asian and Africa Elephants and the "Great Apes" (gorillas, chimpanzees, and orangutans) - 25 min</p> | <p>Teacher to review how various animals have adapted to live across the Earth but are still similar overall; use Google Images to visually display examples; use rabbits, lizards, canines as examples; note that arctic hares change color in the snow, lizards adapt to live in the desert and tropics, and canines form new species altogether with coyotes, wolfs, and foxes; how did these adaptations ensure survival of the species? - 15 min</p> |
| Daily Journal or Bell Work: | <p>Write a list of everything that you know about the history of the Earth; try to have at least three things</p> | <p>What are fossils? What are three examples from your textbook?</p> | <p>What does extinction mean? Give two examples of extinct organisms that you know of</p> | <p>What is a trilobite? What is amber?</p> | <p>Define evolution. Who is Charles Darwin?</p> |

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| Daily Homework: | <i>ML Science, Life Over Time Page 5</i> - Answer all three "Unanswered Questions" in your opinion; there is no right or wrong answer; due tomorrow! | Written Response: What can you do to help stop animals like lions, tigers, and elephants from becoming extinct? Why are they currently endangered? | <i>ML Science, Life Over Time, 1.1 Review, #'s 1-5, page 15</i> - Complete each question in complete sentences; due tomorrow! | Think of another animal species that has made adaptations across the Earth for survival (ex. birds, insects, canines, rabbits); list three of those types of animals and their adaptations for survival; think of their different colors, size, or body changes | Written Response: How do you think that monkeys (NOT THE "GREAT APES") have adapted to live on different different continents and islands? What changes have they made as a species? |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 26th Week | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | <i>ML Science, Life Over Time, Pages 22-23</i> - Review and discuss the four different ways that Natural Selection is displayed; how does overproduction of a species ensure its survival? How would variations (such as height, shape, or color) assist in survival? What are some adaptations that other animals have made to survive? - 15 min | <i>ML Science, Life Over Time, Page 24</i> - Refer to the diagram "Speciation" regarding cichlids; how do you believe that humans may have conducted speciation over time? What are areas in which humans may be similar in context but different due to natural divisions? Hint - Think of mountain ranges and islands - 15 min | Discussion: Assume that there is a giant mountain chain separating Ohio into a Northern and Southern section; how may animals such as rabbits and wolves develop differently if they're only living in certain regions of our state? How may an animal adapt to living only by a lake in the winter? How may that species of animal adapt to living in the south on a plain? - 15 min | <i>ML Science, Live Over Time, Page 28</i> - Students in pairs, review the mini-lab together and answer the questions; how can statements lead to inaccurate thoughts or beliefs? Why are observations important to creating theories and beliefs in science? Discuss your thoughts as a class - 15 min | <i>ML Science, Live Over Time, Page 33</i> - Students in pairs, review the mini-lab together and answer the questions; review how the sequence of letters helps you to read and detect words the same way that genes work to show an animal's traits; Discuss your thoughts as a class - 25 min |
| | Students in pairs, discuss as a group then discuss as an open class the following topic "How has advanced thought and intelligence been an adaptation for survival for humans?" - 20 min | <i>ML Science, Life Over Time, Pages 26-27</i> - Students in groups of 3 or 4, complete the lab simulating natural selection and answer all questions via Google Sheets; submit to your Teacher when complete and discuss as available - 35 min | <i>ML Science, Life Over Time, Pages 28-31</i> - Read aloud and discuss how fossil records and biological appearance support evolution; what are ancestors? What is a family tree? Teacher to use Google Images of "Animals 10,000 years ago" to review previous animals (ancestors) and their current variety; what similarities do you see? - 20 min | <i>ML Science, Life Over Time, Pages 32-34</i> - Read aloud and discuss five important facts from the reading; why do you feel that these five facts are the most-important? what are genes? How do similar genes appear in different animals? How do animals that look different as adults appear similar as embryos? - 20 min | (Part I of II) Students will illustrate, color, and label the similarities in embryo development in different animals; students may use their textbook as a reference but should incorporate two additional examples of their choice from online referencing (recommendations are humans and fish); labeling should provide clear information as to what is being shown in each stage - 25 min |
| | Students to go to the following website " www.saveourmonarchs.org/blog/monarch-lookalikes-and-how-to-tell-the-difference " and view the monarch butterfly verses the viceroy; what does the monarch and viceroy do to ensure both of their survival? - 15 min | | <i>ML Science, Live Over Time, Page 31</i> - Teacher to review vestigial structures; students in pairs, students will attempt to decipher how the following animals are all related to each other (horses, rhinos, whales, hippos); discuss as a class - 15 min | Watch "SURPRISING Animals Related To Humans" on YouTube (10:10 min) and discuss how humans are related to all sorts of other animals including Great Apes, cats, dogs, and sponges; what are your thoughts on this? How do you feel about being genetically related to these animals? - 15 min | |
| Daily Journal or Bell Work: | What is Natural Selection? Who is the inventor of this phrase? | What adaptation does a viceroy have for its survival? | What is adaptation? Provide one example | What are vestigial structures? Provide an example | What are genes? What is one animal that is genetically closely related to humans? |

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| Daily Homework: | <i>ML Science, Life Over Time, 1.2 Review, #'s 1-4, page 25</i> - Complete each question in complete sentences; due tomorrow! | Define any five of your "Terms to Know from Week Twenty-Five"; due tomorrow! | Humans used to have a tail and still have the bones for one. How would it be if we still did? How would your life be different? (one paragraph) | Written Response: What do you think about being 90% genetically related to cats? Why do you think that? | <i>ML Science, Life Over Time, 1.3 Review, #'s 1-4, page 34</i> - Complete each question in complete sentences; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| 27th Week | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | (Part II of II) Students to complete their illustration, coloring, and labeling of the embryo development stages of three animals - 20 min | Discussion: Teacher to review Natural Selection, Evolution, Darwin, and different parts of these theories overall; students to ask questions as needed - 10 | (Part II of III) Students will watch "Planet of the Apes" (1968 version, Rated "G", 115 min, starring Charlton Heston); no permission slip required; students will take notes while watching the movie to keep an eye out for evidence of evolution, natural selection, and isolation; after watching the movie in full, students will have an essay to complete as part of this unit, see requirements above - 50 min | <i>ML Science, Life Over Time, Page 39</i> - As a class review "Interpreting Diagrams" and answer #'s 1-5; students in pairs, complete "Extended Response #'s 6-7" and submit via Google Docs to your Teacher - 25 min | Work on your essay about "Planet of the Apes" and how it relates to Natural Selection, Evolution, Isolation, and adaptation; students have the entire class to work on the essay privately; this essay serves as the test & project for this unit - 50 min |
| | Watch "Weird Killer of the Deep World's Weirdest" on YouTube (2:56 min) and discuss how the angler fish adapted to its environment; discuss whether these changes are adaptations or evolving - 10 min | (Part I of III) Students will watch "Planet of the Apes" (1968 version, Rated "G", 115 min, starring Charlton Heston); no permission slip required; students will take notes while watching the movie to keep an eye out for evidence of evolution, natural selection, and isolation; after watching the movie in full, students will have an essay to complete as part of this unit, see requirements above - 40 min | | | |
| | <i>ML Science, Life Over Time, Page 35</i> - Students in pairs, read together and complete "Evaluate Each Hypothesis", complete via Google Docs and submit to your Teacher - 20 min | | (Part III of III) Students will watch "Planet of the Apes" (1968 version, Rated "G", 115 min, starring Charlton Heston); no permission slip required; students will take notes while watching the movie to keep an eye out for evidence of evolution, natural selection, and isolation; after watching the movie in full, students will have an essay to complete as part of this unit, see requirements above - 25 min | | |
| Daily Journal or Bell Work: | How are embryo development stages an evidence of evolution? | <i>ML Science, Life Over Time, Page 38</i> - Answer ONLY one of the three questions in #'s 16-18 | What evidence do you think there may be of evolution in the movie so far? | There is evidence of isolation within the apes and Natural Selection within the humans; what is it? | |
| Daily Homework: | <i>ML Science, Life Over Time, Page 37</i> - Complete "Reviewing Vocabulary #'s 1-4"; due tomorrow! | <i>ML Science, Life Over Time, Pages 37-38</i> - Complete "Reviewing Key Concepts #'s 5-15"; due tomorrow! | <i>ML Science, Life Over Time, Page 38</i> - Complete "Thinking Critically #'s 19-21"; due tomorrow! | <i>ML Science, Life Over Time, Page 38</i> - Complete "Thinking Critically #'s 22-24"; due tomorrow! | Work on your essay on "Planet of the Apes" and Darwin's theories; due in one week! |

Unit: Atmosphere and Weather

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| Project Theme: | <i>Students will use Google Slides to complete a minimum of a 10-slide research project on a city of their choice. Students will monitor and track using a data table the requested information about their city. After monitoring the city for three consecutive weeks, students will predict the likely weather outcome for their city over the next seven days. Students will present this information to the class in a 2-3 minute presentation.</i> | | | | |
| Project Breakdown: | <i>Students will conduct research on the city of their choice and monitor its daily weather. Students will write down daily the city's high temperature, low temperature, daily precipitation total, humidity, and maximum wind speed. In their presentation, students will answer the following questions and provided the following information about their city: What country is their city located in? What continent is their city/country found on? What biome does your city exist within? What is the climate like surrounding your city? What is the yearly precipitation average total in your city? What is the average yearly high temperature in your city? What is the average yearly low temperature in your city? Is your city prone to monsoons, hurricanes, typhoons, or other major weather storms? How does the jet stream directly effect your city? Is your city found on the leeward or windward city of mountains (if there are no mountains nearby, students need to state that fact)? What type of clouds are most-likely present during your predicted week of weather? What type of fronts are most-likely present during your predicted week of weather? Provide three fun-facts about your city that are not previously requested in this assignment. Include a photo of your city.</i> | | | | |
| Project Options: | <i>Students may choose any city in the world EXCEPT Cleveland, Ohio, for this project. That includes local cities, suburbs, and major metropolitan areas in the United States, as well as major and minor cities in foreign countries.</i> | | | | |
| Vocabulary Terms: | <i>Altitude, Density, Water Cycle, Carbon Cycle, Nitrogen Cycle, Radiation, Conduction, Convection, Atmosphere, Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere, Fronts, Trade Winds, Doldrums, Weather, Climate, Jet Stream, Precipitation, Condensation, Evaporation, Ozone Layer, Pollution, Particulates, Smog, Fossil Fuels, Greenhouse Gases, Greenhouse Effect, Air Pressure, Barometer, Wind, Coriolis Effect, Monsoon, Water Cycle, Dew Point, Humidity, Cirrus Clouds, Cumulus Clouds, Stratus Clouds,</i> | | | | |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | <i>ML Science, Earth's Atmosphere, Pages 2-5 - Read aloud and discuss how the atmosphere traps dust and micro-organisms from across the world, then helps to scatter them around using wind, storms, and weather; discuss how weather effects us daily; create a hypothesis how weather may be different than climate of a region? - 20 min</i> | <i>ML Science, Earth's Atmosphere, Pages 9-11 - Read aloud and discuss what the atmosphere is; how thick is the atmosphere? Why is it important? What gases make up air? Why are the amounts a bit surprising? - 15 min</i> | <i>ML Science, Earth's Atmosphere, Pages 12-14 - Read aloud and use a "Main Ideas & Supporting Ideas" graphic organizer to outline the information; what are the three major cycles that effect life on Earth? Why is the water cycle important to life? How do you think pollution effects the water cycle? What are three natural events that can quickly change the atmosphere? - 20 min</i> | <i>ML Science, Earth's Atmosphere, Page 15 - Read aloud and discuss how oxygen and carbon dioxide effect life around us; what type of relationship do we have with plants? We inhale oxygen and exhale carbon dioxide, they take in carbon dioxide and let out oxygen; compare and contrast and answer the "Challenge" by drawing a sketch - 15 min</i> | <i>ML Science, Earth's Atmosphere, Page 17 - Students in groups of 3 or 4, discuss the mini-lab and what is expected to occur; make predictions and discuss; begin this lab and then move on with other plans for the lesson; check on this lab at the end of class - 20 min</i> |

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| 28th Week | Students in pairs, create a T-chart about what you know about weather and the atmosphere (left side) and what you THINK you know (right side); share and discuss as a class - 20 min | <i>ML Science, Earth's Atmosphere, Page 10</i> - Students in groups of 3 or 4, complete the mini-lab and answer the questions as a class; how could you test for other gases in the air? - 10 min | Students will illustrate, color, and label the three cycles (Carbon, Nitrogen, and Water) on computer paper; best effort is required! Students will base their drawing upon an animal dying by a riverbed and becoming buried; how do all three cycles occur based upon this situation? Use the captions and reading in your textbook to assist - 30 min | <i>ML Science, Earth's Atmosphere, Pages 16-19 (stop at "The Atmosphere has Temperature Layers")</i> - Read aloud and discuss how the sun warms Earth but the atmosphere protects us from radiation; What two things happen when sunlight reaches Earth? - 20 min | <i>ML Science, Earth's Atmosphere, Pages 19-21</i> - Read aloud about the layers of the atmosphere, Teacher to include the Exosphere as the fifth layer not in the text; what happens in which layer of the atmosphere? - 15 min |
| | Watch "Weather vs. Climate: Crash Course Kids #28.1" on YouTube (4:33 min) and discuss the different elements that make weather and climate different; what are types of precipitation? How does weather relate directly to climate of an area? - 10 min | Students will use Wikipedia to locate the amount of different gases in the atmosphere of Earth; students will use Google Sheets to create a bar graph of this data and share with their Teacher - 20 min | | Students in pairs, discuss the relationship between radiation, conduction, and convection; create a list of as many examples as possible of this relationship sequence; discuss ideas as a class - 15 min | Students to go to the following website "www.brainpop.com/games/timezoneearthsatmosphere/" to test their knowledge in previous events and timelines of them - 15 min |
| Daily Journal or Bell Work: | <i>ML Science, Earth's Atmosphere, Pages XIII-XV</i> - Read the introduction section to learn more about the Earth | <i>ML Science, Earth's Atmosphere, Pages XVI-XIX</i> - Read the introduction section to learn more about the Earth | <i>ML Science, Earth's Atmosphere, Pages XX-XXIII</i> - Read the introduction section to learn more about the Earth | <i>ML Science, Earth's Atmosphere, Pages XXIV-XXVII</i> - Read the introduction section to learn more about the Earth | What is the difference between radiation, conduction, and convection? |
| Daily Homework: | <i>ML Science, Earth's Atmosphere, Page 5</i> - Answer the "Unanswered Questions" in your own opinion; due tomorrow! | Denver, Colorado, is located one mile above sea level so the air is much thinner; how do you think you would need to adapt to living there? | List at least one way that you personally observe the Carbon Cycle, Nitrogen Cycle, and Water Cycle at or around your home; due tomorrow! | <i>ML Science, Earth's Atmosphere, 1.1 Review, #'s 1-5, Page 14</i> - Complete each question in complete sentences; due tomorrow! | Describe how temperature changes as you increase in altitude through the layers of the atmosphere |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | Students to go to the following website " https://niwa.co.nz/education-and-training/schools/students/layers " to read about the layers of the atmosphere but also to learn about the Ionosphere, Magnetosphere, and Van Allen Radiation Belts; these are all IMPORTANT and should be added to student knowledge; what does each of these areas do for the atmosphere? - 15 min | <i>ML Science, Earth's Atmosphere, Page 20</i> - Teacher to remind students of the Latin roots of the words "Tropo" (turning), "Strato" (spreading out), "Meso" (middle), and "Thermo" (heat); review the chart on this page, how do the changes in the atmosphere reflect these names? - 10 min | Watch "Which Greenhouse Gas is Actually the WORST? Hot Mess" on YouTube (5:19 min) and discuss which Greenhouse Gas is the worst for our atmosphere; what is the biggest way that this gas enters the atmosphere? How does the use of fossil fuels directly relate to Earth heating up? How does water vapor create the Greenhouse Effect? How is this different than CO2? - 10 min | Teacher and students to go to the following website " www.energy.gov/eere/electricvehicles/saving-fuel-and-vehicle-costs " to review electric cars; how are they helping to bring down pollution levels? Click the link "Benefit of Electric Vehicles" at the bottom, how do EV's work? In your opinion, are these more practical than cars that use gas? Why or why not? - 15 min | |

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| 29th Week | Illustrate, color, and label a scene of the Himalayas with Mount Everest labeled and the sky extending up into space; illustrate the five layers of the atmosphere including what happens in each layer; students should answer the following questions by illustrating: what layer do air planes fly? What layer is the Ozone layer? Where do most meteors burn up? What layer are the Magnetosphere and Ionosphere part of? What layer do we live in? What layer absorbs most UV rays and X-rays from the sun? Don't just label answers! Draw pictures and images with the labeling of information - 35 min | <i>ML Science, Earth's Atmosphere, Pages 22-25</i> - Students in pairs, read together and write seven notes about the content in this section; as a class, students to share notes and Teacher to review notes to indicate what will be on the test later; Teacher to review what are UV rays, infrared radiation, and the ozone layer; introduce Greenhouse Gases - 30 min | <i>ML Science, Earth's Atmosphere, Page 26</i> - Read aloud as a class and discuss the terms "radiation", "reflected", and "absorbed"; review the quantities in the example of the amount of radiation absorbed; students in pairs, using Google Docs answer #'s 1-2 & "Challenge"; submit to your Teacher, discuss your responses as a class - 20 min | <i>ML Science, Earth's Atmosphere, Pages 30-33</i> - Read aloud and discuss Greenhouse Gases and Global Warming; how does human activity destroy the Ozone Layer? What has happened in the Southern Hemisphere to the Ozone Layer? What are CFCs? Why do you think that they are now mostly-illegal? - 15 min | Teacher to discuss the Weather Project and its requirements; students to have in-class time to begin research on it and their chosen city - 50 min |
| | | Go to the following website " https://phet.colorado.edu/en/simulation/greenhouse " and use the simulator to display greenhouse gases hitting the Earth; watch the thermometer, what happens when you reduce and add Greenhouse Gases? What does this tell you about them? How were levels different in 1750 and the Ice Age? Add clouds and watch the effect; What effect do Greenhouse Gases have on heat on Earth? - 10 min | <i>ML Science, Earth's Atmosphere, Pages 27-29</i> - Read aloud about pollution and the effects of it; what is smog? How do fossil fuels create smog? How do fossil fuels effect people's health? What are the benefits vs drawbacks of using fossil fuels? Students to discuss whether we should even use them? - 20 min | Watch "Climate 101: Ozone Depletion National Geographic" on YouTube (3:26 min) and discuss how the Ozone Layer protects us; what layer of the atmosphere is it found in? Why should we change our pollution ways to help conserve it? What materials, products, or machines contribute to Ozone loss the most? - 10 min | |
| Daily Journal or Bell Work: | What are three ways that energy is transferred from the sun into and around our atmosphere? | What are four layers of the Earth's atmosphere? What does each of these layers do for the Earth? | What are Greenhouse Gases? How are they both good and bad for the Earth? | What are particulates? What are two ways that pollution effects people? | What is the Ozone Layer? How does it protect us from UV rays? |
| Daily Homework: | <i>ML Science, Earth's Atmosphere, 1.2 Review, #'s 1-5, Page 21</i> - Complete each question in complete sentences; due tomorrow! | Based upon the simulation today, describe how Greenhouse Gases are both good and bad for the Earth | <i>ML Science, Earth's Atmosphere, 1.3 Review, #'s 1-5, Page 25</i> - Complete each question in complete sentences; due tomorrow! | Explain how the Ozone Layer protects the Earth and essentially saves us from harmful UV rays; provide an example of what would happen without the Ozone Layer (one paragraph) | <i>ML Science, Earth's Atmosphere, 1.4 Review, #'s 1-5, Page 33</i> - Complete each question in complete sentences; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 10 min | Bellwork - 5 min | Bellwork - 5 min |

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| 30th Week | <p>(Part I of II) <i>ML Science, Earth's Atmosphere, Pages 34-35</i> - Students in pairs, prepare for the lab as indicated in the text; place index cards as directed by the Teacher; read ahead to understand what is being sought after in this lab - 20 min</p> | <p>(Part II of II) <i>ML Science, Earth's Atmosphere, Pages 34-35</i> - Complete the lab; remove the cards from the previous lesson's location; review the cards as described; create a data table in Google Sheets; complete "Observe and Analyze #'s 1-3" and "Conclude #'s 1-6"; answer questions in Google Sheets and share with Teacher - 30 min</p> | <p><i>ML Science, Earth's Atmosphere, Pages 47-51</i> - Read aloud and discuss the Coriolis Effect, Global Winds (trade winds), and weather; what factor determines the strength of wind? How does the curve of the earth effect winds? What are trade winds? What are doldrums? - 20 min</p> | <p><i>ML Science, Earth's Atmosphere, Pages 52-54</i> - Read aloud and discuss the jet stream; Teacher to go to Google Images to show the jet stream and its motion; how does the jet stream effect air planes when flying? What is a sea breeze vs a land breeze? How does this help explain "lake effect snow" in Cleveland? - 20 min</p> | <p><i>ML Science, Earth's Atmosphere, "Math in Science", Page 55</i> - Read about the jet stream and discuss how it relates to air travel; use the map to assist; students in pairs, complete #'s 1-4 and "Challenge" via Google Docs, submit to your Teacher; review when complete - 20 min</p> |
| | <p><i>ML Science, Earth's Atmosphere, Pages 43-46</i> - Students to read in pairs, take six notes about what is perceived as important information; Teacher to travel to each pair and review the notes taken; students to discuss as a class the material while Teacher leads the discussion; How do differences in air pressure affect the movement of air? What do you think wind actually is? what is a barometer? - 25 min</p> | <p><i>ML Science, Earth's Atmosphere, "Reviewing Key Concepts", Page 37</i> - Students in pairs, complete #'s 17-19 via Google Docs and share with Teacher; discuss and review as a class - 15 min</p> | <p>Watch "The Coriolis Effect" on YouTube (4:19 min) and discuss how the movement of the earth combined with the curve of the Earth adjusts motion of weather patterns - 10 min</p> | <p><i>ML Science, Earth's Atmosphere, Page 54</i> - Students to individually use a "Word Wheel" graphic organizer to outline the term "monsoon"; review and share as a class - 15 min</p> | <p><i>ML Science, Earth's Atmosphere, Pages 56-59</i> - Read aloud using a "Main Ideas and Supporting Ideas" graphic organizer to outline the material from this section; what is the water cycle and its main components? How do clouds form? How is humidity similar to clouds yet different? - 20 min</p> |
| | | <p><i>ML Science, Earth's Atmosphere, "Reviewing Key Concepts", Page 37</i> - Students in groups of 3 or 4, complete the mini-lab together and answer the questions via Google Docs; submit to your Teacher when complete - 10 min</p> | <p><i>ML Science, Earth's Atmosphere, Page 49</i> - Students in pairs, complete the mini-lab to see how the rotation and curve of the earth effects wind; answer the questions via Google Docs and submit to Teacher - 15 min</p> | <p>In-class time to work on your Weather Project - 15 min</p> | <p><i>ML Science, Earth's Atmosphere, Page 59</i> - Students in groups of 3 or 4, complete the mini-lab together and answer the questions via Google Docs; submit to your Teacher when complete - 10 min</p> |
| Daily Journal or Bell Work: | <p><i>ML Science, Earth's Atmosphere, "Reviewing Vocabulary", Page 37</i> - Complete any three of the eight problems from #'s 1-8; share with the class as directed</p> | <p><i>ML Science, Earth's Atmosphere, "Reviewing Key Concepts", Page 37</i> - Complete any three of the eight problems from #'s 9-16; share with the class as directed</p> | <p>Define any six terms in your "Terms to Know from Week Twenty-Eight" in your own words</p> | <p>Define any three terms in your "Terms to Know from Week Twenty-Eight" in your own words; they cannot be the same terms as previously used</p> | <p>What are monsoons? Where in the world do these commonly occur?</p> |
| Daily Homework: | <p><i>ML Science, Earth's Atmosphere, "Reviewing Vocabulary", Page 37</i> - Complete the remaining five of the eight problems from #'s 1-8 that were not completed today in class; due tomorrow!</p> | <p><i>ML Science, Earth's Atmosphere, "Reviewing Key Concepts", Page 37</i> - Complete the remaining five of the eight problems from #'s 9-16 that were not completed in class; due tomorrow!</p> | <p><i>ML Science, Earth's Atmosphere, 2.1 Review, #'s 1-5, Page 46</i> - Complete each question in complete sentences; due tomorrow!</p> | <p>Work on your Weather Project!</p> | <p><i>ML Science, Earth's Atmosphere, 2.2 Review, #'s 1-5, Page 54</i> - Complete each question in complete sentences; due tomorrow!</p> |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 0 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 10 min | Bellwork - 5 min |

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| 31st Week | <p>Illustrate, color, and label a nature scene depicting the water cycle; include the terms condensation, evaporation, precipitation, and water vapor; show precipitation as either rain or snow; make scenes pretty and thoughtful (beaches, forests, parks, etc); include arrows to show the progression of water movement - 30 min</p> | <p>Discussion: Teacher to review the different types of clouds and illustrate them; what are nimbus clouds? What do they symbolize? Review Sea Breezes and Land Breezes? How do these relate to students' cities for their Weather Project? How does the jet stream effect clouds? - 15 min</p> | <p><i>ML Science, Earth's Atmosphere, "Extreme Science", Page 71</i> - Read aloud and discuss lightning strikes and storms; Find Ohio on the map and answer "Analyze"; why do you think more strikes occur in the Southeast? What moves in a curving fashion across the USA that somewhat matches the lightning strikes? Which may the Westcoast have the fewest number of strikes? - 15 min</p> | <p><i>ML Science, Earth's Atmosphere, Pages 79-81</i> - Students to read silently to yourself for seven minutes and write down five important features of the material; Teacher to review the material that was to be read and discuss; what are the four types of air masses? How do the air masses effect North America? - 15 min</p> | <p><i>ML Science, Earth's Atmosphere, Page 79</i> - Teacher to conduct the mini-lab and students to observe and make predictions as to what will happen throughout; discuss each question; review what humidity is - 15 min</p> |
| | <p><i>ML Science, Earth's Atmosphere, Pages 60-63</i> - Read aloud and use a "Concept Map" graphic organizer to outline cloud types and heights; what does each term mean in Latin or Greek? How do these terms help describe the clouds? Where and why do each cloud type form? - 25 min</p> | <p><i>ML Science, Earth's Atmosphere, Pages 66-70</i> - Read aloud using an outline (Letters & Numbers) to help gather data; Teacher to lead the outlining process as reading occurs; specify specific information that is important including types of precipitation; what is acid rain? How do clouds form? How does temperature effect precipitation? 25 min</p> | <p>In-class time to work on Weather Project - 35 min</p> | <p><i>ML Science, Earth's Atmosphere, Page 81</i> - Students in groups of 3 or 4, complete the mini-lab together; Teacher to circle to each lab group to assist; students to work through each section slowly as to not spill the food coloring; what inferences were made prior to the experiment? Discuss what happened as a class and review - 25 min</p> | <p><i>ML Science, Earth's Atmosphere, Pages 82-85</i> - Read aloud and use a "Main Idea Web" graphic organizer to outline fronts, weather, and how they interact with each other; Teacher to review Stationary, Cold, and Warm Fronts; what does each do specifically to create weather? - 25 min</p> |
| Daily Journal or Bell Work: | None | <p>What are three types of clouds; how do each appear?</p> | <p>Provide four examples of precipitation; what specifically determines the type of precipitation that will occur?</p> | <p><i>ML Science, Earth's Atmosphere, "Reviewing Key Concepts", Page 73</i> - Complete #'s 9-19 and discuss as a class</p> | <p>What are air masses? How many types are there? Name two types</p> |
| Daily Homework: | <p><i>ML Science, Earth's Atmosphere, 2.3 Review, #'s 1-5, Page 63</i> - Complete each question in complete sentences; due tomorrow!</p> | <p><i>ML Science, Earth's Atmosphere, Pages 68-70</i> - List the six types of precipitation listed on these pages; explain how each forms and the conditions for forming</p> | <p><i>ML Science, Earth's Atmosphere, 2.4 Review, #'s 1-5, Page 70</i> - Complete each question in complete sentences; due tomorrow!</p> | <p><i>ML Science, Earth's Atmosphere, "Reviewing Key Concepts", Page 73</i> - Complete #'s 20-24; due tomorrow!</p> | <p>Work on your Weather Project; it is due in one week!</p> |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 10 min | |

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| 32nd Week | <i>ML Science, Earth's Atmosphere, "Math in Science", Page 86</i> - Read aloud and review how weather fronts move across the United States; use the scale to help answer questions; complete #'s 1-3 and "Challenge" as a class and discuss each step; name various US States along each day in progression - 15 min | <i>ML Science, Earth's Atmosphere, Pages 87-91</i> - Read aloud and use a "Main Idea Web" graphic organizer to outline tropical storms and their information; how do these form? How do they relate to the Coriolis Effect? What is the scale of hurricanes? Which are the most damaging numbers on the scale? What should you do for safety during a hurricane? - 20 min | <i>ML Science, Earth's Atmosphere, Pages 92-96</i> - Read in pairs and discuss; write down six notes about this section; discuss your notes as a class; Teacher to review notes and discuss content; how do thunderstorms form? In what ways are they dangerous? What has to occur for tornadoes to form? What makes a tornado visible to us? - 25 min | (Part II of II) Finish your illustration, coloring, and labeling of a tornado or hurricane and the conditions for them to occur - 15 min | Present Weather Projects; this project takes the place of a test for this unit - 55 min |
| | Teacher to Google Images of "high pressure low pressure map" and review how each air mass creates different front types; students to ask questions as needed for review content - 10 min | Teacher to Google Image "damage hurricane katrina" and view the images of the destruction that Hurricane Katrina caused to New Orleans and the surrounding area; what is a storm surge? How do you think this effected New Orleans during Hurricane Katrina? - 15 min | Go to the following website " www.weatherwizkids.com/weather-tornado.htm " and review what to do if there is a hurricane or tornado; how should you prepare? What do you do during them to stay safe? - 15 min | In-class time to finish your Weather Project; it is due tomorrow! - 30 min | |
| | In-class time to work on your Weather Projects - 20 min | <i>ML Science, Earth's Atmosphere, Page 90</i> - Students in groups of 3 or 4, complete the mini-lab and answer the questions via Google Docs; discuss as a class when complete - 15 min | (Part I of II) Students to illustrate, color, and label the conditions that occur for a tornado or hurricane; include air masses, fronts, and wind direction; color and label your illustrations so they are easy to understand - 10 min | | |
| Daily Journal or Bell Work: | What are the three types of air masses? | Define front, air mass, and low-pressure system | How are hurricanes and blizzards similar? | <i>ML Science, Earth's Atmosphere, "Think Science", Page 97</i> - Read and answer "Evaluate Each Hypothesis"; which seems most likely to have occurred? | None |
| Daily Homework: | <i>ML Science, Earth's Atmosphere, 3.1 Review, #'s 1-6, Page 85</i> - Complete each question in complete sentences; due tomorrow! | Work on your Weather Project; it is due in three days! | <i>ML Science, Earth's Atmosphere, 3.2 Review, #'s 1-6, Page 91</i> - Complete each question in complete sentences; due tomorrow! | Complete the Weather Project; it is due tomorrow! | None |

Unit: Natural Resources and Conservation

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| Vocabulary Terms: | <i>Natural Resource, Renewable Resource, Nonrenewable Resource, Fossil Fuel, Conservation, Recycling, Nuclear Fission, Hydroelectric Energy, Solar Cell, Geothermal Energy, Biomass, Wind Turbine, Hydrogen Fuel Cell, Landfill,</i> |
| In-Class Project Theme: | <i>Students will assume the role of an Urban Planner for their personal neighborhood. Students will reflect on the locations of parks, factories, businesses, schools, power plants, stores, homes & apartments, and other buildings in their neighborhood. Students will evaluate the conservation, resourcefulness, and cleanliness of their personal neighborhood.</i> |

In-Class Project Breakdown: *Students will print out from Google Maps a satellite image and road map image of their neighborhoods. Students will review the location of schools, parks, and recreation areas; they will then determine how they can improve upon these to make them accessible for the community. Students will examine the location of factories and determine if they are polluting too much for homes & apartments around them; if so, they will recommend new living areas for those homes. Students will review the location of power plants and determine if they are negatively affecting people and facilities around them. Students will review stores in the neighborhood and determine if they are adequately serving the community. Students will color on their road map image the following patterns: parks = green, factories = brown, schools = red, stores and general businesses = blue, and power plants = black. Students will handwrite a one-page paper discussing the features in their personal neighborhood in terms of safety, their opinion of the cleanliness, and if its accessibility to parks & recreation. Students will evaluate in their paper how the people in the neighborhood as a whole can recycle more (if needed), how to address pollution in general, and if your neighborhood is doing their part to use renewable resources.*

Teacher to include and discuss a field trip to Cuyahoga Valley National Park as part of this unit. Details in the Scope and Sequence further below.

| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
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| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | <i>ML Science, The Changing Earth, Pages 147-151 (stop at "Coal") - Read aloud and discuss natural resources and how they provide energy for people; use a "Four-Square Diagram" to outline the terms natural resource, renewable resource, and nonrenewable resource; review the table and photos on Page 149 comparing them - 25 min</i> | <i>ML Science, The Changing Earth, Page 150 - Students in groups of 3 or 4, review the image and graph titled "Fossil Fuel Power Station" and review the parts of the station; how does burning the fuels produce electricity? Could something else be burned in this SAME STATION that would also produce energy? Think of examples and discuss - 15 min</i> | <i>ML Science, The Changing Earth, Page 153 - Students in groups of 3 or 4, complete the lab and record observations & answers in Google Sheets; if there is a shortage of pans to use, Teacher may demonstrate around a group of students; answer questions and submit to your Teacher - 20 min</i> | <i>Watch "Air Pollution 101 National Geographic" on YouTube (3:53 min) and discuss what Smog are Greenhouse Gases are; how do Greenhouse Gases lead to Global Warming? What is Global Warming? How is some air pollution natural? What are humans doing to directly lead to additional air pollution and Global Warming? - 10 min</i> | <i>Teacher to Google Image "Smog" and "Evidence of Smog"; discuss photos and images; what does smog do to structures, buildings, statues, etc.? Students in pairs, using a "Cause and Effect" graphic organizer outline how smog (pollution) directly causes damage to buildings; share with the class when complete; predict what this may do to the health of humans - 25 min</i> |
| 33rd Week | <i>Students in pairs, create a T-chart of renewable and nonrenewable resources that you specifically use; on the left side list the renewable resources that you use, on the right side list the nonrenewable resources that you use; what patterns do you notice? Discuss as a class - 15 min</i> | <i>ML Science, The Changing Earth, Pages 151-154 - Read aloud and use a "Main Idea & Supporting Ideas" graphic organizer to outline the types of fossil fuels; review the graph on Page 152, what do we use a "barrel of oil" for? How does coal form? Discuss outlines - 20 min</i> | <i>ML Science, The Changing Earth, Pages 153-154 - Review these pages and create a table of items in your classroom that are created from minerals and natural resources; divide your table into fossil fuels (plastics), minerals (metals), and natural resources (rocks, wood); share tables and discuss as a class - 15 min</i> | <i>Students go to the following website "https://learn.concord.org/resources/646/green-house-gases" and click the "Preview" link; allow the "Pop up" to open the new screen; read through the Introduction and Procedure; simulate Greenhouse Gases by adding clouds and gases to the atmosphere; watch the temperature fluctuate as more gases and clouds are added; how does the Earth adjust over time? How is this VERY SIMILAR to humans polluting and adding to an existing problem? How can we help fix it? - 15 min</i> | <i>Students to go to the following website "www.airnow.gov/index.cfm?action=airnow.showlocal&CityID=48" to review the air quality in the United States; where are the Top-5 worst air qualities? Are there any patterns in their designations? Click on the map to display Ohio; the map will present major cities and their air quality index in the region; how does Cleveland rate? What can you do to lower the rating? Click the tab labeled "AQI Loop", how does the quality change through the day? Why do you think this is? - 15 min</i> |

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| | Watch "Fossil Fuels for Kids Learn all about fossil fuels, what they are, and where they come from" on YouTube (12:13 min) and discuss fossil fuel overall and how they form - 15 min | Students in groups of 3 or 4, create a "Flow Chart" diagramming the benefits and drawbacks of fossil fuels; indicate examples of each including uses versus pollution; share with the class - 20 min | <i>ML Science, The Changing Earth, Page 155</i> - Read aloud as a class, discuss how micro-organisms are helping to rid pollution from the Earth; review their taxonomy from earlier this year; visiting the EPA website and learn how microbes are being used to help clean the Earth - 15 min | <i>ML Science, The Changing Earth, Pages 156-159</i> - Read in pairs and write seven important notes from this section; discuss as a class and compare notes; what can be done to conserve energy and resources? How can our school recycle more? What can you do at home to help? - 20 min | Teacher to display images of the water cycle using "Google Images" to present a diagram; how do you think the water cycle naturally filters out the air and water? What is acid rain? How do you think it forms? - 10 min |
| Daily Journal or Bell Work: | <i>ML Science, The Changing Earth, Page 145</i> - Read "Saving Water as Your Brush" and discuss | Define renewable resources & nonrenewable resources | What are some positives and negatives of using fossil fuels? | What is smog? What is it made of? If you don't know, what do you think it is? | What are Greenhouse Gases? How do they negatively effect the Earth? |
| Daily Homework: | How do you receive power in your home? You may have more than one type and may need to ask an adult | Create a list of benefits and drawbacks to using fossil fuels; have at least five total items on your list; due tomorrow! | <i>ML Science, The Changing Earth, 5.1 Review, #'s 1-5, page 154</i> - Complete each question in complete sentences; due tomorrow! | In your opinion, do you waste resources? Do you waste water, paper, food, or other goods? Why or why not? (one paragraph) | What do you think would happen to your body if you repeatedly drank polluted water and breathed polluted air? Be specific |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | Teacher to review the water cycle and terms affiliated with it (precipitation, condensation, evaporation); students to illustrate, color, and write a caption for the water cycle INCLUDING pollution; students to explain in their caption how the pollution is carried through | <i>ML Science, The Changing Earth, Pages 161-163</i> - Read aloud and discuss how nuclear power works; in your opinion, is this a safe type of power? Why do nuclear power plants need to be near the water? - 20 min | <i>ML Science, The Changing Earth, Pages 163-166</i> - Read in pairs and write at least five notes about this section; Teacher to discuss the section and notes taken by students; Explain that "hydro" relates to water, "geo" relates to "Earth", and "solar" relates to the sun; review the diagrams on Pages 164 & 166 about the factories to make hydroelectric and geothermal power; how are they similar? - 25 min | <i>ML Science, The Changing Earth, Pages 167-169</i> - Read aloud and discuss Wind Energy, Biomass Energy, and Hydrogen Fuel Cells; Hydrogen Fuel Cells are part of hybrid vehicles; in your opinion, is Biomass Energy partical? Review the diagram of a Wind Turbine on Page 167 and how it operates; how is it similar to the other power plants discussed in this unit? - 20 min | Debate Topic: Students to prepare for debate today on Green Energy vs Fossil Fuels; students may conduct any additional quick research to support their opinions but the debate will follow the traditional format used - 10 min |

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| 34th Week | How the pollution is carried through the water cycle and effects each segment throughout it; students should include a factory or high-polluting area as a focal point of their illustration - 40 min | Students in pairs, use a Venn Diagram to compare & contrast a coal burning factory to a nuclear power plant; have three statements for each section (nine total); share with the class when completed - 15 min | Watch "Renewable Energy 101 National Geographic" on YouTube (3:17 min) and discuss the different types of renewable energy resources observed; how can using renewable resources help to save energy on Earth? How can it help to clean our air and water supplies? - 10 min | Students to go to the following website " www.wkyc.com/article/tech/science/environment/lake-erie-wind-turbine-project-moves-closer-to-reality-after-agreement-with-ohio-siting-board-staff/95-3a0a500e-4db2-4b06-ade6-051b4d5ee32c " and read about wind turbines being built on Lake Erie to help produce clean energy in our city; read the article and the diagrams, watch the video if able - 15 min | Debate: Students will form groups as to which side they agree most with - Are Green Energy Products" worth the cost to save the planet with cleaner burning energy? Or are fossil fuels a better choice since they are cheaper and have been used for over 100 years? Which type of energy is better for us to use in the future? - 30 min |
| | <i>ML Science, The Changing Earth, Page 160</i> - Read aloud and discuss gas mileage in the examples of the vehicles provided; what is a hybrid car? How do they save gas miles? As a class complete #'s 1-5 & "Challenge" while incorporating air quality into each regard - 10 min | Teacher to go to the following website " www.nei.org/resources/map-of-us-nuclear-plants " and click on Ohio, then "Explore the Plants"; review the two plants in Ohio; then select the "Resources" tab and "Advantages" tab on the main page to explore more about nuclear power in general and the plants across the USA - 15 min | <i>ML Science, The Changing Earth, Page 145</i> - Students in groups of 3 or 4, read "Sunlight as an Energy Source" and conduct the mini-lab; check the cups at the end of class to review - 15 min | <i>ML Science, The Changing Earth, Page 173</i> - Students in pairs, using Google Docs complete "Reviewing Vocabulary #'s 1-6" and discuss as a class; submit to your Teacher when complete - 15 min | Recap Debate - Which side do you feel like had a better case? Which side is more-likely the way that the USA is headed? What can we do to help our planet and be more "green"? - 10 min |
| Daily Journal or Bell Work: | What is the water cycle? How can pollution effect the water cycle? | Explain how pollution effects the water cycle | What is nuclear fission? What type of power does it help to create? | How would you feel if we had solar panels on our school? Why do you think that? | Is biomass energy impractical? Why or why not? |
| Daily Homework: | <i>ML Science, The Changing Earth, 5.2 Review, #'s 1-5, page 159</i> - Complete each question in complete sentences; due tomorrow! | Written Response: What are your overall thoughts on nuclear power? Is it safe to use? Or too damaging verses the power it supplies? | Written Resources: If you have an option to use a cheaper energy that pollutes more, or a more expensive energy that is cleaner and healthier, which would you choose? Why? (one paragraph) | Written Response: What do you think about the wind turbine project on Lake Erie? Why do you think that? (one paragraph) | <i>ML Science, The Changing Earth, 5.3 Review, #'s 1-5, page 169</i> - Complete each question in complete sentences; due tomorrow! |
| Timeline: | Day "A" | Day "B" | Day "C" | Day "D" | Day "E" |
| | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min | Bellwork - 5 min |
| | Students to go to the following website " www.usda.gov/media/blog/2016/03/22/conservation-versus-preservation " and discuss the difference between conservation (care for it with human impact) and preservation (leave it alone as God made it); which do students think is better? What are benefits to each? - 15 min | Field Trip to the Cuyahoga Valley National Park; visit " www.pnc.com/cuy/index.htm " for | Students to visit the following website " https://cuyahogarecycles.org/cleveland " and review how Cuyahoga County recycles overall; where are areas that we are requested to donate paper, plastic, electronics, and metal? Where does the waste from Cuyahoga County go? - 15 min | | |

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| 35th Week | Read about Yellowstone National Park at " www.nps.gov/yell/index.htm " and discuss the park overall; view the webcam and Things To Do links; go to the "Preserve Yellowstone" section and review how Yellowstone is working to recycle and protect their animals; review charts, data, and discuss - 20 min | www.nps.gov/cuva/index.htm for more information; Call 330-657-2752 for the visitors center to schedule a tour; they are open from 9:30 - 5:00 during Spring hours; visit the following site to help plan the trip " www.nps.gov/cuva/planyourvisit/trip-planner.htm "; field trip is free, students should dress down in clothes that are acceptable to become dirty due to hiking; students need to pack their lunch | Students to visit the following website " www.pbs.org/independentlens/garbage-dreams/recycling.html " and review where different types of garbage goes from the landfill; what happens to paper, glass, and aluminum when it is recycled? - 20 min | In-class time to work on project; due tomorrow! - 50 min | In-class time to work on project; due today at the end of class - 50 min |
| | Discuss the field trip tomorrow to the Cuyahoga Valley National Park and the outline of the trip - 15 min | | On the same PBS.org website, click "The Film" link (first on the left) and review how people earn money recycling; then click "The Game" link at the top (second tab from the left) and play the simulation of how certain people earn money in Egypt processing recyclable goods - 15 min | | |
| Daily Journal or Bell Work: | What are your overall thoughts on "Green Energy" fuels? | None | What is recycling? What is reusing? What is the difference? | None | None |
| Daily Homework: | Written Response: If you were the mayor of our city, what would you do to conserve our natural resources? | How did the trip today help you to appreciate the beauty of nature that surrounds us in Northeast Ohio? | Prepare for your in-class project the next two days; think of applicable ideas in your neighborhood as an Urban Planner | Work on your project, it is due tomorrow! | None |