

Scope and Sequence
Science - 7th Grade STREAM

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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STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!

Timeline:	Recess Duty (Monitor K(A)on Pl	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
1st Week	"Today's Scientist at Work", Dr. Benjamin Carson - 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	"Scientific Thinking Handbook", Predicting and Hypotheizing, Page R3 - 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	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 Science" and students to discuss potential observations and inferences from them; what may be seen that would lead to specific false conclusions? - 20 min	"Scientific Thinking Handbook", Identifying Cause and Effect, Page R5 - 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	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
	"Scientific Thinking Handbook", Making Observations, Page R2 - 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	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		"Scientific Thinking Handbook", Identifying Cause and Effect, Pages R28-29 - 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	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 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
	Watch "Scientific Method explained using Monty Python's "We Found A Witch"" on YouTube (5:14 min) and discuss: how does this video use the Scientific Method to prove something? Where in the video is the science flawed? Why is it important to test things three times? How precisely was the testing in the video flawed? - 10 min	"Scientific Thinking Handbook", Inferring, 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	
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	Bell Work; complete in Google Docs, send to your teacher - 5 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	Teacher to create more conversion examples to review with the class; use the mnemonic to help solve - 10 min
	"Scientific Thinking Handbook", 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 mnemonics 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 discretion - 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 (twenty problems)	Teacher-created worksheet about converting SI Units from one unit to another (twenty problems)	
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		

3rd Week	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 introduce density and how to calculate for it ($D=m/v$); teacher to display density using a graduated cylinder and a gram weight; demonstrate how to calculate - 15 min	Students in pairs, answer and share: students will create a Concept Map linking together the concepts that have been discussed this unit; use all of the terms from the "Terms to Know" from Week One plus five add-on terms; one map per pair, share with the class when requested - 20 min	Test on "Terms to Know" from Week One, Scientific Method, Metric System, and Lab Equipment - 30 min
	Students in pairs, answer and solve: teacher to create several problems converting K' to C', C' to K', F' to C', and F' to K'; 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	Teacher-created lab calculating density and multiple problems using the formula of how to calculate it - 20 min	Using Google Docs, students will define each of the "Terms to Know" from Week One and submit them to their teacher - 20 min	Teacher to explain that all students will conduct a Science Fair experiment this year. Students will participate in a Science Fair, it is required, and that we will push to send everyone to the NEOSF in the Winter; review link to the NEOSF website (www.neosf.org) - 10 min
Daily Journal or Bell Work:	Teacher-created SI Unit conversions (four problems)	Teacher-created SI Unit conversions (three problems)	What is density? Try to define it in your own terms	Teacher-created density problems to solve (three problems)	None
Daily Homework:	Teacher-created worksheet about converting K, F, and C to one another (twenty problems)	Teacher-created worksheet converting Kelvin and other SI Units (twenty-five problems)	Teacher-created worksheet converting density (twenty problems)	Study for your Test on the Scientific Method and the Metric System; Review Vocabulary Terms	None

Unit : Biomes - Includes a research project completed in Google Docs

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:	Desert, Tundra, Deciduous Forest, Coniferous Forest, Tropical Rain Forest, Savanna (Grassland), Taiga
Vocabulary Terms:	Ecology, Ecologist, Biome, Ecosystem, Food Web, Coniferous Forest, Deciduous Forest, Seed, Desert, Savanna, Tundra, Herbivore, Carnivore, Omnivore, Scavenger, Predator, Prey, Biotic, Abiotic
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!	
Timeline:	Day "A" Day "B" Day "C" Day "D" Day "E"

4th 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; 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, phosphorus, and carbon cycle overlap? Students need to know the phosphorus cycle although it is not in their textbooks - 15 min
	<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, the phosphorus cycle (students will need to find on the Internet!); label precipitation, evaporation, condensation, biotic, abiotic, and runoff as applies - 30 min	(Part II of III) Continue work on your poster board of the water, nitrogen, phosphorus, and carbon cycles with labels - 25 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 each other?
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!	<i>ML Science, Ecology, Page 21</i> - Read this section and complete #'s 1-3 and "Challenge"; due tomorrow!
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	Quiz: Food Webs and the terminology 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; add scavenger to list to know - 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	

5th Week	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, scavenger (not in book!), and decomposer - 15 min	Teacher to provide several organisms from our local ecosystem (squirrel, raccoon, mouse, insects, etc.) and students 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	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 the graph how rainfall and temperature effect the quality of life in our area (ecosystem); review data over the last 30 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	<i>ML Science, Ecology, Page 39</i> , 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
	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		Teacher to introduce the project (research essay) and the requirements of the essay - 10 min		
Daily Journal or Bell Work:	Define producer, consumer, scavenger, 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, scavenger, 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 ten organisms; label the producers, consumers, decomposers, scavengers, and primary /secondary/ tertiary 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	Teacher to review the following: species, habitat, population, niche, and community; How do these terms apply within an ecosystem? - 10 min	<i>ML Science, Ecology, Pages 58-61</i> - Read aloud and discuss (skip 54-57): what are the different relationships between animals? Define symbiosis, mutualism, commensalism, and parasitism - 20 min	<i>ML Science, Ecology, Page 57</i> - Students in pairs, complete the Lab on page 57 together; record results in Google Sheets to create a graph; label both axis and give your graph a title; answer all questions and submit to your teacher - 30 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 model-biome or ecosystem (habitat) and determine their interactions with other organisms from that biome - Schedule as a Three-to-Four Hour Trip
	<i>ML Science, Ecology, Pages 45-51</i> - Use a four square diagram for each vocabulary term in this section; In Literacy Circles, read aloud and 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, Pages 52-53</i> - Students in groups of 3 or 4, complete the Lab found on these pages; follow the Scientific Method as indicated; create a data log (table) and track your results as you proceed; submit all work to your teacher when finished - 30 min	Students in pairs, create a food web with twenty organisms; include AND LABEL predator/prey relationships, parasites, scavengers, consumers, the direction of energy, any sybiotic relationships (mutualism, commensalism, or parasitism), and a possible ecosystem or biome that they exist within - 20 min	Watch "Symbiosis: Mutualism, Commensalism, and Parasitism" on YouTube (5:17 min) and discuss the symbiotic relationships - 15 min	

Daily Journal or Bell Work:	<i>ML Science, Ecology, Page 40 - #'s 18-19</i> - Complete and submit to your teacher!	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 41</i> - Review the graph to answer #'s 1-7 in full; due tomorrow!	Review your home; what populations of species live around you? How do they have a community, niche, and habitat? Ex. Squirrels, mice, insects	<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 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	<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	Review Study Guide on Biomes and Food Webs for Test Tomorrow! - 20 min	
	In-class time to work on your Google Docs Biome project - 25 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	Take a walk to the south end of the campus or to the vacant house next to the campus; what pioneer species are already reclaiming this area? The house has been empty since 2015 and the lot on Quincy has been empty since 2006, how quickly does nature reclaim an area? Walk onto the outdoor gym lot and examine the old pavement in these two previously mentioned lots from the gym lot; what are the plants doing to the house, pavement, and metal? - 25 min	In-class time to work on your Google Docs Biome project - 25 min	Final day to check 2-Liter bottles for observations of the fruit slices; 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:	<i>ML Science, Ecology, Page 62</i> - Read and complete "Evaluate Inferences" and "Challenge" for tomorrow!	Work on your Google Docs Biome Project!	<i>ML Science, Ecology, 2.3 Review, #'s 1-6, page 68</i> - Complete each question in complete sentences; due tomorrow!	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 Powtoon presentation about their organism)

Project Theme:	<i>Students will create a presentation in Powtoon (www.powtoon.com) 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 correctly label as applies the terms herbivore, carnivore, omnivore, and producer, as well predator and prey as they apply in your web.</i>
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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, Duckbilled Platypus, Lionfish, Turkey Vulture, Black Widow Spider, Giant Vampire Bat, Doppler Fish</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>				
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!					
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
8th 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
	<i>ML Science, Diversity of Living Things, Pages 9-11 (stop at "Living Things that share...") - Using a Description Wheel graphic organizer, describe how organisms can be different from one another - 15 min</i>	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, othes are NOT; what is the binomial nomenclature of the tiger? - 10 min	Students in pairs, visit " www.classzone.com/science_book/mls_grade6_FL/316_323.pdf " and create a concept map of each of the six Kingdoms and one organism from the Kingdoms of Archaea, Bacteria, and Protist, two from Fungi, and three from Plantae and Animalea; share your results with the class - 20 min	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 then create a Venn Diagram comparing and contrasting an Archaea vs a Bacteria, and a second Venn Diagram comparing and contrasting a Protist vs a Fungi - 30 min	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
	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	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 Linneas 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	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		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

	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	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	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	<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 twenty minutes if one cell made one new cell every thirty seconds - 20 min	<i>ML Science, Diversity of LT, Page 15</i> - Read "Math in Science" as a class and review the graphs; what are the titles of the Y-axis, X-axis, and the graph itself? Students in pairs, answer #'s 1-3 and "Challenge" via Google Docs and submit to your teacher - 15 min
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, robin (bird), and a chimpanzee? Use your Chromebooks to help you.
Daily Homework:	Think of three ways each that humans are similar to the following animals: bear, alligator, and bird	Think about classification in your answer (not color of the animal): how may a polar bear, grizzly bear, and black bear all be the same? How may they be different?	Written Response: Archaea live in harsh conditions. What about them do you think allows them to live in super-hot, super-cold, and unhealthy places?	<i>ML Science, Ecology, 9.3 Review, #'s 1-5, page 323</i> - Complete each question in complete sentences; due tomorrow!	<i>ML Science, Diversity of LT, 1.1 Review, #'s 1-6, page 14</i> - Complete each question in complete sentences; due tomorrow!
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
9th 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	Bell Work; complete in Google Docs, send to your teacher - 5 min
	Teacher to Google images of "flagella and cilia" and discuss what each is with the students; which one do you think works better? Why? Could certain conditions exist for each useage? - 10 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 27</i> - Illustrate, color, and label how a bacteriophage reproduces; include all five steps as illustrated in your textbook; include a few sentences explaining what happens throughout the process and the result of the bacterium - 30 min	<i>ML Science, Diversity of Living Things, Pages 30-32</i> - Students in pairs, read and outline these pages using the "numbers and letters" format that we've used previously; 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 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 - 15 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	<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	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
<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	Students in pairs, use a Venn Diagram to compare & contrast Helpful and Harmful Bacteria; have three statements for each section (nine total statements); share with the class when completed - 15 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?	How does the size of a virus compare to the size of a bacterium?	What is a bacteriophage? How does it reproduce?
Daily Homework:	Written Response: Methanogens exist in the digestive system of animals; they produce methane gas when they eat and produce waste; why do you think you may become "gassy" when you eat certain foods?	<i>ML Science, Diversity of LT, 1.2 Review, #'s 1-6, 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 30 minutes? One hour?	<i>ML Science, Diversity of LT, 1.3 Review, #'s 1-6, page 28</i> - Complete each question in complete sentences; due tomorrow!	<i>ML Science, Diversity of LT, "Extreme Science", Page 29</i> - Read about tulips and answer #'s 1-2; due tomorrow!
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	Journal; complete in Google Docs, send to your teacher - 10 min	Test: Single-celled life - 30 min
	<i>ML Science, Diversity of Living Things, Pages 34-35</i> - Read in Literacy Circles about protozoa and discuss three examples (ciliates, flagellates, pseudopods); what is a parasite? How are some protozoans parasites? What are slime molds? Discuss as a class - 25 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; three statements for each section, nine total statements; share with the class when completed - 20 min	<i>ML Science, Diversity of Living Things, Page 39</i> - As a class analyze the chart; what is the title of the X-axis, Y-axis, and graph? What is the rate interval of each axis? Answer #'s 1-7 together and provide your reasoning for why these answers fit best - 20 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		Students in groups of 3 or 4, create a food web of ten organisms but include protozoans and phytoplankton in your map; include decomposers (slime molds) and parasites; show the arrows indicating energy flow and label the predator and prey as applies - 25 min	<i>ML Science, Diversity of Living Things, Page 39</i> - Students in pairs, complete #8 by devising a scientific experiment that will test the effectiveness of killing bacteria with an antibiotic; write you plan in Google Docs and follow the Scientific Method as used in our first lessons (create you own possible Conclusion); share with the teacher and class when complete - 30 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? Provide at least two examples	What is a protozoa? What is an example of a protozoa?	<i>ML Science, Diversity of LT, Page 37</i> - Complete #'s 1-4, make a triangle for each	<i>ML Science, Diversity of LT, Page 37</i> - Complete #'s 5-8, write a two-sentence statement for each	None
Daily Homework:	<i>ML Science, Diversity of LT, 1.4 Review, #'s 1-5, page 35</i> - Complete each question in complete sentences; due tomorrow!	Written Response: Imagine that humans moved using pseudopods; how would that change our lives? Think of at least three ways	<i>ML Science, Diversity of LT, Pages 37-38</i> - Complete #'s 9-17; due tomorrow!	Study for Test tomorrow on Single-celled life; Review Vocabulary Terms to Know	<i>ML Science, Diversity of LT, Page 38</i> - Complete #'s 18-20 in complete sentences; due tomorrow!
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, Fragmentation, Budding</i>				
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!					
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
	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	Students in pairs, think of an example of a mutual, commensal, and parasitic relationship; Answer: 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 Living Things, "Math in Science", Page 50</i> - Read in pairs; using Google Sheets, answer the questions #'s 1-6 and create the new graph in "Challenge"; share your results with your teacher; teacher to display results on the Clever Board for analysis - 25 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
11th Week	<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 in pairs together and discuss the adaptations made by the organisms on pages 46-47; what adaptations have we made as humans over the last 10,000 years? Use Google to assist if needed - 25 min	Teacher to create T-chart on the board and students complete together: what are three 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	<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 44</i> - Students in groups of 3 or 4, 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, breeds of dogs, breeds of cats; in the middle, think of three adaptations that each species has made to where it lives; on the right, write three 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, jellyfish) and fragmentation (worms); teacher to explain the different between sexual and asexual reproduction - 15 min		Students in pairs, think of three examples of symbiotic relationships that plants and animals share together; discuss as a class when complete - 15 min
Daily Journal or Bell Work:	Define mutualism, commensalism, and parasite symbiotic relationships	How are the organs of a turtle similar yet different to that of a cow?	Define adaptation	What is fragmentation? How does a worm display this?	What is an autotroph. Provide four examples
Daily Homework:	Written Response: How are the functions of organ systems related to the specific needs of the organism? Give an example	Written Response: Humans are the ONLY animal with the adaptation to run long distances without stopping; how has this ability helped us over time? Think of three reasons	<i>ML Science, Diversity of LT, 2.1 Review, #'s 1-6, page 49</i> - Complete each question in complete sentences; due tomorrow!	Written Response: Is a Venus Fly Trap a producer or a consumer? What adaptations has it made to supplement its needs?	<i>ML Science, Diversity of LT, 2.2 Review, #'s 1-5, page 57</i> - Complete each question in complete sentences; due tomorrow!
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	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	Individually, practice classifying animals into different groups by using the Seven Stages of Classification with these animals: tiger, deer, whale, horse, giraffe, rhino, lion, house cat, dolphin, and lynx (bobcat) - 15 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	<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? - 10 min	<i>ML Science, Diversity of Living</i>

12th Week	Teacher to go to "www.bioexplorer.net/types-of-plants.html/" and discuss the four types of plants by classification; what is the oldest type of plant? What is the newest type of plant? Review examples - 15 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	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	Teacher to go to "www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/migration/index.shtml" and review how monarch butterflies migrate across North America in the winter; go to "maps.journeynorth.org/maps" to see the migration of various animals; select monarch adult sighted to view an interactive map of previous years' migration patterns; view other animals as well to see their migration habits over the years - 15 min	<i>Things, Page 75</i> - Students in pairs, use Venn Diagrams to answer #'s 1-6 (have three statements per section, nine total per Venn Diagram); share with the class and discuss - 30 min
	Students in pairs, students will be given a list of ten animals that the teacher creates in advance; students must try to figure out how each of these animals is related to each other by classifying them in six stages (the first one "Kingdom" is already done in that they're all animals); share results with the class; teacher to add additional animals after presentations are completed to see how a new discovery is added - 30 min	Watch "Gas exchange in different animals Biology for All FuseSchool" on YouTube (2:54 min) and discuss gills, lungs, and spiracles; answer the following critical thinking questions: how do unborn babies receive oxygen from their mothers if they have lungs? Why do we yawn? What is the lung fish and what can it do? - 10 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)? What is the defense mechanism of the mole? What does the owl have that allowed it to catch the mole? - 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 symbiotic relationships - 20 min
Daily Journal or Bell Work:	What are the seven stages of classification that were created by Linneaus?	Teacher to discuss animal dissection and the permission slip needed to dissect further animals; one is NOT needed for the next day's lesson	What does it mean to be aerobic? What about anaerobic?	What is a scavenger? How does it fit into a food web?	What is the difference between migration and immigration?
Daily Homework:	How would you classify the following animals by using the Seven Stages of Classification: Sponge, Coral Fish, Robin, Killer Whale, Octopus, Gorilla, Rhino, Zebra, Mouse, and Snake	Have your permission slip signed for animal dissection in class	Create a ten 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 1-6, page 64</i> - Complete each question in complete sentences; due tomorrow!	<i>ML Science, Diversity of Living Things, Page 75</i> - Complete #'s 7-12, 15, & 16; due tomorrow!
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
13th 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
	Quiz: Classification of Life and Biotic Relationships - 20 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		Illustrate, color, and label the parts of a fungi (mushroom) as depicted on page 67; include the hyphae, spores, mycelium, and mushroom caps in	Watch "The story of Alexander Fleming and penicillin for children" on YouTube (7:44 min) and discuss how penicillin was discovered by accident; how has this accident changed our world? What would have happened if Fleming cleaned the dishes correctly? - 10 min	Debate: students will be placed on either side that fits their opinion; students will discuss and debate the

	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	Students in pairs, use a T-chart to compare the parts of a mushroom to the parts of a tree; compare each area in liketems - 15 min	your labeling; research a puffball Fungi online; illustrate, color, and label the same four features of the image that you found of a puffball next to your mushroom - 35 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	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
Daily Journal or Bell Work:	None	What are Fungi? What makes them different than plants and animals?	Define hyphae, spore, and mycelium	What is penicillin and when do you usually take it? How do you believe that it works?	<i>ML Science, Diversity of LT, Page 75</i> - Complete #'s 13 & 14
Daily Homework:	<i>ML Science, Diversity of LT, "Science on the Job", Page 65</i> - Read this page and answer "Observe"; wait for at least 10-minutes before you quit	Play "Code Combat" at home for a minimum of twenty minutes	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 1-6, page 71</i> - Complete each question in complete sentences; due tomorrow!	<i>ML Science, Diversity of LT, Pages 75-76</i> - Complete #'s 17, 18-23; due tomorrow!

Unit: Plants and their Functions

Vocabulary Terms:	<i>Producer, Cell Wall, Chloroplast, Photosynthesis, Autotroph, Xylem, Phloem, Stomata, Cuticle, Vascular System, Pollen, Seed, Embryo</i>					
<i>STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!</i>						
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"	
14th 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	
	<i>ML Science, Diversity of Living Things, Page 77</i> - Read and review the chart as a class; Together, answer #'s 1-5; relate your answers to producers and consumers as shown - 10 min	Watch "PLANT VS ANIMAL CELLS" on YouTube (5:00 min) and discuss the differences between plant and animal cells; make a T-chart listing the differences; focus upon chloroplasts, cell walls, and size of the cells - 15 min	Students in pairs, using a Venn Diagram compare and contrast plant cells and animal cells; have at least three statements per section (nine total statements); share with the class when complete - 20 min	(Part II of II) 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 - 20 min		
	<i>ML Science, Diversity of Living Things, Pages 85-87</i> - Using a Mind Map graphic organizer, 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 - 30 min	<i>ML Science, Diversity of LT, Pages 88-91</i> - Students in pairs, read together and create a concept map to 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	<i>ML Science, Diversity of Living Things, Page 85</i> - Students in pairs, teacher to gather leaves BEFORE CLASS and students will examine them for the various parts that they believe that they recognize from the learned material; try to identify the vascular system and cuticle first! Answer the questions via Google Docs and submit to your teacher - 25 min	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		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

	Teacher to review photosynthesis and the organelles of the plant cell; how do the cell walls provide structure to the plant? What are tissue? What do they compare to in a human body? What is a vascular system? How is that similar to a human body? - 15 min	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	(Part I of II) 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 - 10 min	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	How do these items affect the vascular systems directly? - 45 min
Daily Journal or Bell Work:	Do plants have veins? If yes, how so? If not, how not?	How are plants and animals similar? Think of three ways	Define Xylem, Phloem, Stomata, and Cuticle	How is the top of a leaf different than the bottom of a leaf?	How does pollution effect plants? How does that pollution potentially reach your body?
Daily Homework:	<i>ML Science, Diversity of LT, Page 77</i> - Complete #'s 6-7; due tomorrow!	Research the word "cuticle", where are these found on your body? What do they do for you? How is this similar to a plant?	Define your "Words to Know Week Fourteen"; due tomorrow!	<i>ML Science, Diversity of LT, 3.1 Review, #'s 1-6, page 91</i> - Complete each question in complete sentences; due tomorrow!	None
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
15th 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
	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 Living Things, Pages 92-94</i> - Read aloud, use a "Word Triangle" graphic organizer for mosses; what were the first plants like? - 20 min	Teacher to Google "Dissecting Ferns" and review the images; what type of roots do ferns appear to have? What are they basically made up of and arranged by? - 10 min	Illustrate, color, and label a scene from early-Earth with the appropriate type of plants pictured; dinosaurs may exist within your drawings; label the types of plants that are depicted in your illustration and write a three sentence caption about what is happening in your image, the plants involved, and some general information about them - 30 min	Students in pairs, 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; share with the class when complete - 20 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		<i>ML Science, Diversity of Living Things, Pages 102-103</i> - Read aloud and use a "Mind 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
		<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 - 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 a seed and pollen?

Daily Homework:	What was your stance in the debate today? Why do you feel that way?	Mosses typically are one of the first plants to appear after forest fires; why do you think that this is so?	<i>ML Science, Diversity of LT, 3.2 Review, #'s 1-6, page 97</i> - Complete each question in complete sentences; due tomorrow!	Name three ways that seeds are different than spores.	None
Vocabulary Terms:	<i>Pollination, Flower, Seed, Angiosperm, Gymnosperm, Germination, Conifer, Asexual Reproduction, Sexual Reproduction</i>				
<i>STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!</i>					
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
16th 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
	<i>ML Science, Diversity of Living Things, Page 102</i> - Students in groups of 3 or 4, complete the lab on this page; finish all questions via Google Docs and submit to your teacher - 25 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 - 20 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	(Part II of II) Complete your illustration, coloring, and labeling of sexual reproduction among angiosperms and gymnosperms - 20 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 - 20 min
	Using notebooks cards, students will define each of the "Terms to Know from Week Fourteen"; write the term on one side and the definition on the opposite side; complete for all terms - 15 min	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	(Part I of II) 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, 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 - 15 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? - 15 min
Daily Journal or Bell Work:	What is a gymnosperm? Provide an example	What type of plant is a pine cone? How do you know this?	Define angiosperm. Provide three examples.	What are the purposes of a fruit and flower for an angiosperm?	How do animals help spread pollen and seeds throughout the earth?
Daily Homework:	<i>ML Science, Diversity of LT, 3.3 Review, #'s 1-6, page 103</i> - Complete each question in complete sentences; due tomorrow!	How do the reproductive structures of angiosperms different from that of gymnosperms?	Work on your illustration as needed; a limited amount of time will be provided to complete it tomorrow	Written Response: Explain how bees, butterflies, moths, and bats are responsible for the pollination of flowers (one paragraph)	None
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	Bell Work; complete in Google Docs, send to your teacher - 5 min

17th Week	Using notebooks cards, students will define each of the "Terms to Know from Week Sixteen"; write the term on one side and the definition on the opposite side; complete for all terms - 15 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 - 15 min	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	Students to individually go to the following website on their Chromebooks " https://web.extension.illinois.edu/gpe/case4/c4f-enlarge.html " and play the game regarding a plant pollinating and turning into a seed - 20 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	Students in pairs, teacher to provide examples of monocots and dicots for students to examine; students will separate all leaves (or printed examples) as monocots or dicots based upon the vascular system; explain reasoning for your groupings - 15 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	Teacher to review the formula for photosynthesis and display how the molecules remain the same by count but are remade into different materials through the process; what is the product, reactant, and yield? - 10 min
	Teacher to go to the following website: " www.britannica.com/list/5-awesome-parasitic-plants ; and discuss several examples of plants that are parasitic - 10 min		Watch "Monocots vs Dicots Explained" on YouTube (3:18 min) and discuss the examples that are provided; what are most flowers classified as? - 10 min	Teacher to provide the formula for photosynthesis and break it down at each segment; explain how each reactant and product have the same number of molecules before and after the yield sign; display math to illustrate this; go the following website " www.glencoe.com/sites/common_assets/science/virtual_labs/LS12/LS12.html " and complete the lab as written in the steps - 30 min	Students to individually go to the following website on their Chromebooks " https://web.extension.illinois.edu/gpe/case4/c4brief.html " and complete the case listed online to solve - 15 min
Daily Journal or Bell Work:	Explain how humans and plants have symbiotic relationships	<i>ML Science, Diversity of LT, Page 117</i> - Complete #'s 1-4, be prepared to discuss	What is photosynthesis?	What are monocots? What are dicots? What are fibrous roots? What is a taproot?	Briefly illustrate the difference between a monocot & dicot including the vascular system and roots
Daily Homework:	<i>ML Science, Diversity of LT, 3.4 Review, #'s 1-6, 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!	<i>ML Science, Diversity of LT, Page 117</i> - Complete #'s 16-17; due tomorrow!	Illustrate briefly the difference between a monocot and a dicot including the vascular system and roots	Write the formula for photosynthesis; explain each reactant and product and how they are formed and/or mix
Teacher to ensure that the Explore Learning Gizmos Account is activated prior to this week as students will use Gizmos daily for several weeks.					
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 - 10 min

18th Week	<i>ML Science, Diversity of Living Things, Pages 117-118</i> - Teacher to provide each student a dolob 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	<i>ML Science, Diversity of Living Things, Page 119</i> - Read aloud and discuss what questions are being asked? Identify the Y-axis, the X-axis, and the interval; what are the titles on each axis and the title of the graph? Complete #'s 1-5 as a class; discuss the rationale for each correct response - 20 min	Review your Study Guide on Plants, Plant Processes, and Symbiotic Relationships - 25 min	Test on Plants, Plant Processes, and Symbiotic Relationships - 35 min	Teacher to introduce "Powtoon Animal Project" and the requirements; students to ask questions about requirements at this time - 10 min
	<i>ML Science, Diversity of Living Things, Page 118</i> - Divide the class up into five groups, each group will answer one question from #'s 22, 23, 24, 26, & 27; students will answer their question in their groups and then present their answers to the class; students to discuss responses for accuracy - 20 min	Debate - Should pesticides be used on plants? They will kill harmful insects and provide more food for people to eat (benefit); however, they will also kill pollinators and the pesticide can potentially get into our bodies (negative); Consider this - can pesticides cause cancer? what are the negative consequences of killing pollinators? But also consider - having more food to sell means more money for farmers, if farmers have more money they can hire more people and create jobs; which side are you on, your health or your money? - 35 min	Play "Kahoot!" on the following formats "Angiosperms, 20 questions, 20 second each" and "Angiosperms and Gymnosperms, 12 questions, 30 seconds"; there are other very good ones to complete as well; choose as necessary - 20 min	Students to go to Explore Learning "Gizmos" about the material that the teacher designates to complete - 20 min	In-class time to work on your "Powtoon Animal Project" - 35 min
	<i>ML Science, Diversity of LT, Page 118</i> - As a class with teacher leading the discussion, complete #25 on the Clever Board by making the chart and completing together; discuss responses & rationale - 10 min		Teacher to provide diagrams of the flower; review each part and provide labels as applicable - 10 min		
Daily Journal or Bell Work:	What is the formula for photosynthesis?	Define Stomata, Phloem, Xylem, and Cuticle	What symbiotic relationships to plants share with animals? Provide examples	None	Students to go to "Gizmos" in the Explore Learning website and work for ten minutes
Daily Homework:	Write the formula for photosynthesis and explain how it works in each step	What side were you on for the debate today? Why do you feel that way?	Study for your test tomorrow on plants, plant processes, and symbiotic relationships	None	Work on your project

Unit: Invertebrate Animals

Vocabulary Terms:	<i>Invertebrate, Porifera, Sponge, Larva, Sessile, Cnidarians, Nematocyst, Echinoderms, Arthropods, Mollusks, Annelids, Symmetry, Tentacles, Mobile, Gills, Bivalves, Gastropod, Cephalopod,</i>				
Permission Slip Regarding Animal Dissection MUST go home and be returned signed prior to any work of that nature being completed!					
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!					
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"

	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				
19th 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 and "Challenge", 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 three animals with bilateral symmetry; list three 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 1-6, 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 1-6, 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"
	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				

20th 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 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 organisms 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
		Students in pairs, create a T-chart comparing the organs and innards of the worm to a human and other organisms that you're familiar with; share with the class when completed - 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 eight of the "Terms to Know from Week Nineteen"; due tomorrow!	<i>ML Science, Diversity of LT, 4.3 Review, #'s 1-6, page 140</i> - Complete each question in complete sentences; due tomorrow!	Define in your own words the ten "Terms to Know from Week Nineteen" that you did not define earlier this week; due tomorrow!
Vocabulary Terms:	<i>Binomial Nomenclature, Arthropods, Exoskeleton, Insects, Crustaceans, Arachnids, Molting, Metamorphosis, Vertebrate, Endoskeleton, Scale, Cartilaginous, Jawless, Amphibian, Reptile, Ectotherm, Endotherm, Incubation, Avian, Mammal, Placenta, Gestation, Terrestrial</i>				
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!					
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
	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					
	<i>ML Science, 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	Teacher to review symmetry of different examples of Crustaceans, Insects, and Arachnids; Use Google Images of different organisms to review Radial and Bilateral symmetry; introduce Binomial Nomenclature - 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

21st Week	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	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	Students in pairs using computer paper pasted/taped to construction paper, complete a Triad Venn Diagram comparing and contrasting Phylum Molluska, Phylum Cnidaria, and Phylum Arthropoda; students to have four statements per section (28 total statements); students may write examples of organisms to assist; 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:	What is molting? Provide an example of an animal that molts that is an arthropod	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 #'s 1-8; review as a class	<i>ML Science, Diversity of Living Things, Page 151</i> - Complete #'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 1-6, 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!
Binomial Nomenclature to Know:	<i>Panthera leo = Lion, Panthera tigris = Tiger, Canis lupus = Wolf, Canis familiaris - Common Dog, Gorilla gorilla = Gorilla, Homos sapins = Humans, Felis catus = House Cat, Equus ferus = Domestic Horse, Loxodonta africana = African Elephant, Griffon vulture = Vulture, Orcinus orca = Killer Whale, Crocodylus acutus = Crocodile, Hippopotamus amphibius = Hippopotamus, Equus quagga = Zebra, Macropus giganteus = Kangaroo, Lynx rufus = Bobcat, Vulpes vulpes = Fox, Ursus americanus = Black Bear</i>				
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				
	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? What Binomial Nomenclatures to you know? - 10 min	Students in pairs, using a "Concept Map" compare and contrast the internal organs and characteristics of a typical fish verses a human; write a brief statement indicating their purpose to help compare; students should note that humans and fish have cartilage - 20 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? Do you know any Binomial Nomenclature for fish?- 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

22nd Week	<p><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</p>	<p>Teacher to provide to students the binomial nomenclature list that students are required to know; review them as how some names may be similar to them - 10 min</p>	<p><i>ML Science, Diversity of Living Things, Page 164</i> - Students in pairs, 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</p>	<p>Discussion: As a class, create a Triad Venn Diagram comparing and contrasting Fish, Amphibians, and Reptiles; discuss important features of each; try to have two statements for each section; Teacher to lead the discussion - 10 min</p>	<p>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 inerts of the body is part of the muscle and digestive systems; open the brain and review the muscles of the legs - 45 min</p>
	<p>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</p>	<p><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</p>	<p>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</p>	<p>Watch "Frog Dissection" on YouTube (11:34 min) and discuss how to proceed properly for the next lesson - 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>Watch "Types of Fish-Animal Classification" on YouTube (2:13 min); provide examples of the three types of fish</p>	<p>Students to go to "Gizmos" in the Explore Learning website and work for ten minutes</p>	<p><i>ML Science, Diversity of Living Things, "Lab Handbook", Pages R10-R11</i> - Read and review for tomorrow's frog dissection</p>	<p>Prepare for lab today; obtain your goggles, gloves, and all protective & lab materials</p>
Daily Homework:	<p>Work on "Powtoon Animal Project"</p>	<p><i>ML Science, Diversity of LT, 5.1 Review, #'s 1-6, page 162</i> - Complete each question in complete sentences; due tomorrow!</p>	<p>Complete your food web if you did not finish it in class today; due tomorrow! Work on your "Powtoon Animal Project"!</p>	<p><i>ML Science, Diversity of LT, 5.2 Review, #'s 1-6, page 171</i> - Complete each question in complete sentences; due tomorrow!</p>	<p><i>ML Science, Diversity of Living Things, "Math in Science", Page 163</i> - Read and complete #'s 1-4 and "Challenge"; due tomorrow!</p>
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					
	<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"</p>

23rd Week	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? What is Binomial Nomenclature? Do we have any for these organisms? - 10 min	<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	(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 one paragraph 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	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	and "Conclude" directly into Google Sheets; one spreadsheet per student; submit to your teacher when complete - 30 min
	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	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		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, Review Binomial Nomenclature - 15 min	Students will create a food web of at least ten organisms, including birds, that correctly label herbivores, carnivores, omnivores, and scavengers; include producers and energy flow throughout the web; include Binomial Nomenclatures as they apply - 15 min
Daily Journal or Bell Work:	Students to go to "Gizmos" in the Explore Learning website and work for ten minutes	What do you believe are three characteristics of all birds?	Write the Binomial Nomenclature and common name for five organisms that you need to know for your test	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:	<i>ML Science, Diversity of Living Things, "Connecting Sciences", Page 172</i> - Read and answer "Explore #'s 1-2"	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!	What adaptations do you think humans have made to better survive in our world? Try to think of at least three	<i>ML Science, Diversity of LT, 5.3 Review, #'s 1-6, page 179</i> - Complete each question in complete sentences; due tomorrow!	<i>ML Science, Diversity of Living Things, Page 181</i> - Complete "Investigate Further"; due tomorrow!
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					
	Teacher to review biomes, food webs, the overall levels of classification, and Binomial Nomenclature; 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	Lab: Students to complete a lab on

24th Week	<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 fifteen specimens of preserved organisms out in three stations (five 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	terms carnivore, herbivore, omnivore, and include producers; include ectotherms and exotherms in the food web; provide their Binomial Nomenclature as applies - 20 min	retail pig dissection; note the heart, circulatory system, and digestive areas; there are large lungs that are easy to locate as they resemble ours; there are very few blood vessels in the thoracic cavity; open the brain and review the muscles of the legs - 45 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	Watch "Full Fetal Pig Dissection Start to Finish" on YouTube (25:24 min) and discuss the overall process; teacher to note steps as the video proceeds; make comparisons to the human anatomy - 25 min		
Daily Journal or Bell Work:	Students to go to "Gizmos" in the Explore Learning website and work for ten minutes	List five 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 play charades by choosing the name of an organism from a jar and act it out; teacher to ask the name of the Phylum, Binomial Nomenclature, Class, how it eats, symmetry, and other related questions	Prepare for lab today; obtain your goggles, gloves, and all protective & lab materials	
Daily Homework:	Camouflage is an adaptation; name three animals and the camouflage that they use to adapt to their surroundings	Write the Binomial Nomenclature and common name for any ten animals that you need to know	Create a T-chart comparing human growth development verses 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!	How did the dissection of the fetal pig today better help you to understand the relationships between different organisms, as well as humans?	
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"	Day "F"
25th Week	Bellwork - 10 min	Bellwork - 10 min	Bellwork - 10 min		Bellwork - 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 six 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	Review Study Guide on Invertebrates, Vertebrates, Classification, their structures, Binomial Nomenclature, and overall features - 25 min	Test on Invertebrates & Vertebrates; Binomial Nomenclature, and characteristics of the organisms - 40 min		Lab: Students to complete a lab on shark dissection; note the heart, gills, and digestive areas; the gills and digestive glands are easy to locate as they are large; there are very few blood vessels in the thoracic cavity; open the brain, inspect the teeth, and gently remove the eye (it will pop if you're not careful); locate the lateral line; note how the shark, although much larger than other the other organisms we've dissected, is still fairly simple in anatomic
	Teacher to divide the class into four groups; each group will create a Venn Diagram comparing and contrasting mammals verses either birds, fish, amphibians, or	(Part I of III) Students to individually create a table with eight columns; each column to have the following headings: Name of organism, Phylum/Class, Binomial Nomenclature, Biome it lives in, What	(Part II of III) Work on the table with eight columns from the previous page; complete all requirements in	(Part III of III) Work on the table with eight columns from the previous page; complete all requirements in		

	reptiles; teacher to assign to each group what they are comparing, discuss the similarities and differences as a class - 25 min	Nomenclature, Biome it lives in, what it eats, Symmetry, Exotherm/Ectotherm, and any major characteristics; list fifteen organisms - 25 min	Lesson; complete all requirements in full - 20 min	Lesson; complete all requirements in full - 15 min	structure - 45 min	
Daily Journal or Bell Work:	Students to play charades by choosing the name of an organism from a jar and act it out; teacher to ask the name of the Phylum, Binomial Nomenclature, Class, how it eats, symmetry, and other related questions	Students to play charades by choosing the name of an organism from a jar and act it out; teacher to ask the name of the Phylum, Binomial Nomenclature, Class, how it eats, symmetry, and other related questions	<i>ML Science, Diversity of Living Things, Page 191</i> - Read and complete #'s 1-5; review as a class when complete	None	Prepare for lab today; obtain your goggles, gloves, and all protective & lab materials	None
Daily Homework:	<i>ML Science, Diversity of Living Things, Page 189</i> - Complete #'s 7-15; due tomorrow!	<i>ML Science, Diversity of Living Things, Pages 189-190</i> - Complete #'s 16-19; due tomorrow!	Study for your test tomorrow on Invertebrates and Vertebrates, classification of each, Binomial Nomenclature, and characteristics!	Work on your Powtoons Animal Project!	How did the dissection of the shark today better help you to understand the relationships between different organisms, as well as humans?	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

Vocabulary Terms:	<i>Permian Extinction, Fossil, Amber, Trilobite, Petrified Wood, Unicellular Organizer, Multicellular Organism, Mass Extinction, Evolution, Adaptation, Speciation, Mimicry, Darwinism, Natural Selection, Era, Period, Ancestor, Vestigial Organ, Gene</i>				
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!					
In-Class Project Themes:	<i>Saber-Toothed Tiger, Mastodon, Mammoth, Yesterday's Camel, North American Horse, Dire Wolf, Giant Sloth, Glyptodon, Short-Faced Bear, Quinkana, American Cheetah, Megalania, Wolly Rhinocero, Titanis, Siberian Unicorn, Moa, Dodo, Tasmanian Tiger</i>				
Project Breakdown:	<i>Students will use poster board to present their material; draw a line vertically down the poster board to divide it in half. Students will choose TWO of the extinct animals from the list provided and present the information for each of them on their poster (one in each half). Students will research the following: what type of animal was it? Where did it live? Was it an herbivore, carnivore, or omnivore? What did it eat or what ate it? How long ago did it become extinct? What led to its extinction? How is this animal related to other animals on Earth RIGHT NOW? What adaptations did this animal have to survive when it lived? How may have other animals currently alive evolved from it? Was this animal a victim of Natural Selection or humans? How do you think the world would be different, if at all, if this animal were still alive today? Include a picture or photo of the fossil of the animal</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, 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	<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? What is amber? Use Google Images if needed to display - 15 min	<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	<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	<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

26th Week	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	<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	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	<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	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? Why do you think that Natural Selection is nicknamed "Darwinism"? - 10 min
	<i>ML Science, Life Over Time, Pages 9-11</i> - Students in pairs, read together and write five 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	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	<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	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	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, wolves, and foxes; how did these adaptations ensure survival of the species? - 15 min
Daily Journal or Bell Work:	Write a list of everything that you know about the history of the Earth; try to have at least five things	What are fossils? What are three examples from your textbook?	What does extinction mean? Give three examples of extinct organisms that you know of	What is a trilobite? What is amber?	Define evolution. Who is Charles Darwin?
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 1-6, 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"
	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 deer, 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

27th Week	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 in pairs and write seven notes about the content of this section; as a class discuss the notes, Teacher to review the content and importance of what is discovered; what are genes? How do similar genes appear in different animals? How do animals that look different as adults appear similar as embryos? - 25 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? What is mimicry? What are other animals that may mimic? - 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), as well as the following (squirrels, beavers, mice, and porcupine); 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 is mimicry? Provide an example	What is adaptation? Provide two examples	What are vestigial structures? Provide two examples	What are genes? What are two animals that are genetically closely related to humans?
Daily Homework:	Write about one situation in which you were in trouble or danger and you thought of a response that safely took you out of the situation (ex. Someone wanted to fight you)	<i>ML Science, Life Over Time, 1.2 Review, #'s 1-5, page 25</i> - Complete each question in complete sentences; 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 and 85% genetically related to dogs? Why do you think that?	<i>ML Science, Life Over Time, 1.3 Review, #'s 1-5, page 34</i> - Complete each question in complete sentences; due tomorrow!
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
28th Week	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min
	(Part II of II) Students to complete their coloring, illustrating, and labeling of five animals' embryo development stages - 30 min	Watch "Seven Million Years of Human Evolution" on YouTube (6:23 min) and discuss how there were different types of humans on Earth before us and others alive with us (Homo Sapiens) at the same time; what happened to the other species of humans? - 10 min	In-class time to work on "10,000 B.C. Project" - 50 min	In-class time to work on "10,000 B.C. Project" - 50 min	<i>ML Science, Life Over Time, Page 39</i> - Students in pairs, complete "Extended Response #'s 6-7" and submit via Google Docs to your Teacher - 15 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	Teacher to Google Image photos of "Lucy" as one of the oldest Hominid skeletons (over 3 million years old); students to go to and read the following website article " www.cnn.com/2016/08/29/health/lucy-early-human-ancestor-cause-of-death/index.html "; how did Lucy die? why is she important to the study of ancient humans? - 20 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 - 15 min	Teacher to Google Image photos of "Neanderthals" and discuss their similarities to Homo Sapiens; Teacher to inform students that Neanderthals most likely disappeared by breeding with Homo Sapiens (see "www.thevintagenews.com/2020/02/13/neanderthal-dna/" as a resource); what are some differences between us and Neanderthals based upon images? - 20 min			In-class time to finish your "10,000 B.C. Project" - 35 min
Daily Journal or Bell Work:	How are embryo development stages an evidence of evolution?	What are two examples that support the theory of evolution?	What are Neanderthals? How are they related to current humans?	What is isolation? How can it force a species of animal to adapt?	<i>ML Science, Life Over Time, Page 39</i> - Review "Interpreting Diagrams" and answer #'s 1-5
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 19-24"; due tomorrow!	Work on your project, it is due tomorrow at the end of class!	<i>ML Science, Life Over Time, Page 38</i> - Complete "Thinking Critically #'s 25-27 & 29"; due tomorrow!

Unit: Atmosphere and Weather

Vocabulary Terms:	<i>Altitude, Density, Water Cycle, Carbon Cycle, Nitrogen Cycle, Radiation, Conduction, Convection, Jet Stream, Precipitation, Condensation, Evaporation, Atmosphere, Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere, Ionosphere, Magnetosphere, Ozone Layer, UV Rays, Fronts, Trade Winds, Weather, Climate, Pollution, Smog, Greenhouse Effect, Greenhouse Gases, Particulates, Fossil Fuels, Air Pressure, Barometer, Wind, Coriolis Effect, Monsoon, Water Cycle, Humidity, Saturation, Dew Point, Cirrus Clouds, Cumulus Clouds, Stratus Clouds, Nimbus Clouds</i>				
<i>STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!</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</i> - 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>ML Science, Earth's Atmosphere, Pages 9-11</i> - 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>ML Science, Earth's Atmosphere, Pages 12-14</i> - 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>ML Science, Earth's Atmosphere, Page 15</i> - 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>ML Science, Earth's Atmosphere, Page 17</i> - 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
29th 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	<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	becoming buried; how do all three cycles occur based upon this situation? Use the captions and reading in your textbook to assist - 30 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/timezonexearthsatmosphere/" 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 1-6, 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"
30th Week	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); Include the Exosphere (exit), Van Allen Radiation Belts, the Magnetosphere, and Ionosphere; 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	Debate Preparation: Students to prepare an argument for an in-class debate on the following topic - Do you believe in Global Warming? Or is it a made-up scenario that people state to restrict businesses to be more clean? Should big businesses be restricted to stop pollution and eliminate Global Warming? Or is this all a scam by environmentalists? In-class time to prepare an opinion and argument - 20 min
	Illustrate, color, and labeled a scene of the Himalayas with Mount Everest label 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	<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	Students to be divided based upon their opinions and beliefs on Global Warming; Teacher to create two teams (one stating Global Warming is bad and we need to protect Earth, the other saying that it is a lie created by environmentalists); students to use data that they found online to support their case and argument - 20 min

	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	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	Debate Recap - As per many websites, Global Warming DOES EXIST but the debate continues as to how much mankind is contributing to it; Teacher to display online including the following website "www.ucsusa.org/climate/impacts" that most scientists agree that Global Warming and climate change is occurring - 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 six 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 three ways that pollution effects people?	What is the Ozone Layer? How does it protect us from harmful UV rays?
Daily Homework:	<i>ML Science, Earth's Atmosphere, 1.2 Review, #'s 1-6, 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 1-6, Page 25</i> - Complete each question in complete sentences; due tomorrow!	The Bald Eagle was becoming extinct due to CFCs in the atmosphere and pollution; what effect would this have had on the USA as a country?	<i>ML Science, Earth's Atmosphere, 1.4 Review, #'s 1-6, Page 33</i> - Complete each question in complete sentences; due tomorrow!
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
31st Week	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min
	<i>ML Science, Earth's Atmosphere, Page 39</i> - Review the three graphs and discuss the pollutants in each; review progression each year; Teacher to note the Y-axis and X-axis with labels; complete #'s 1-4 as a class; students in pairs, complete #'s 5-6 via Google Docs and submit to your Teacher - 20 min	<i>ML Science, Earth's Atmosphere, "Thinking Critically", Page 38</i> - Students in groups of 3 or 4, complete #'s 20-28 together via Google Docs and submit to Teacher; review as a class when complete and discuss responses for each - 25 min	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	<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	<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
	<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	<i>ML Science, Earth's Atmosphere, Page 43</i> - Teacher to conduct experiment with fire, egg, and glass bottle OUTSIDE; students to observe and answer questions together to better understand how air pressure works - 15 min	<i>ML Science, Earth's Atmosphere, Pages 50-54</i> - Read aloud and discuss the jet stream and trade winds; how does the jet stream effect airplane flights? What are the doldrums? How do land breezes and sea breezes help to explain "lake effect snow" in Cleveland? - 20 min	<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; as a class, discuss and complete #'s 1-4 and "Challenge" - 15 min	<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

	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	<i>ML Science, Earth's Atmosphere, Pages 47-49</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? - 10 min	Illustrate, color, and label the Earth with either the Western or Eastern Hemisphere; include the jet streams, doldrums, trade winds, westerlies, and easterlies in your labeling; use different colored arrows for each type to make your illustration colorful and appealing; include lines of latitude for 0°, 30°, 60° and 90° - 25 min	<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	(Part I of II) Students will illustrate, color, and label the different types of clouds in a nature scene; students to reference the textbook if needed; label each type of cloud, its Latin/Greek meaning, and how it occurs - 15 min
Daily Journal or Bell Work:	Define Global Warming; what are the effects of it on the Earth?	Define any five terms from the "Terms to Know from Week Twenty-Nine"	What is the Coriolis Effect? What technically is wind?	Define any five terms from the "Terms to Know from Week Twenty-Nine" that you have not already defined	Define any five terms from the "Terms to Know from Week Twenty-Nine" that you have not already defined
Daily Homework:	<i>ML Science, Earth's Atmosphere, Page 37</i> - Complete "Reviewing Vocabulary #'s 1-8"; due tomorrow!	<i>ML Science, Earth's Atmosphere, Page 37</i> - Complete "Reviewing Key Concepts #'s 9-19"; due tomorrow!	<i>ML Science, Earth's Atmosphere, 2.1 Review, #'s 1-6, Page 46</i> - Complete each question in complete sentences; due tomorrow!	Written Response: Thinking of the jet stream, how is air travel different when flying from Africa to North America verses flying from North American to Africa? Why is that?	<i>ML Science, Earth's Atmosphere, 2.2 Review, #'s 1-6, Page 54</i> - Complete each question in complete sentences; due tomorrow!
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	
32nd Week	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Test on the Atmosphere and Weather - 30 min	
	(Part II of II) Finish the illustration, coloring, and labeling of the four cloud types as started in the previous lesson - 15 min	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	<i>ML Science, Earth's Atmosphere, Page 75</i> - As a class review the diagram and discuss each cloud type; what is represented by the arrows? Students in pairs, answer #'s 1-7 via Google Docs and submit to your Teacher; Teacher to circle the room to assist with questions - 15 min		
	<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	<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	Review study guide on the atmosphere and weather for test tomorrow - 25 min	<i>ML Science, Earth's Atmosphere, Page 73</i> - Individually students will complete "Reviewing Vocabulary #'s 1-8" and "Reviewing Key Concepts, #'s 9-19" via Google Docs and submit to your Teacher - 25 min	
	Watch "Severe Weather: Crash Course Kids #28.2" on YouTube (4:26 min) and discuss severe weather; how are hurricanes, droughts, and tornados examples of severe weather? Why is typical rain NOT an example? - 10 min	<i>ML Science, Earth's Atmosphere, "Thinking Critically", Page 74</i> - Students in groups of 3 or 4, complete #'s 25-38 together and submit via Google Docs to Teacher when complete - 20 min	Students to use a 3" x 5" notecard to write notes on it for the test tomorrow that they may utilize as a "cheat sheet"; must be completed in class only and may not include new information on test day - 10 min		

Daily Journal or Bell Work:	Define any five terms from the "Terms to Know from Week Twenty-Nine" that you have not already defined	Define any five terms from the "Terms to Know from Week Twenty-Nine" that you have not already defined	Define any five terms from the "Terms to Know from Week Twenty-Nine" that you have not already defined	None
Daily Homework:	<i>ML Science, Earth's Atmosphere, 2.3 Review, #'s 1-6, Page 63</i> - Complete each question in complete sentences; due tomorrow!	<i>ML Science, Earth's Atmosphere, 2.4 Review, #'s 1-6, Page 70</i> - Complete each question in complete sentences; due tomorrow!	Study for Test tomorrow on Weather and the Atmosphere!	None

Unit: Natural Resources and Conservation

Vocabulary Terms:	<i>Natural Resource, Renewable Resource, Nonrenewable Resource, Fossil Fuel, Smog, Conservation, Preservation, Recycling, "Green Energy", Greenhouse Gases, Global Warming, Nuclear Fission, Hydroelectric Energy, Solar Cell, Geothermal Energy, Biomass, Wind Turbine, Hydrogen Fuel Cell, Landfill, Hybrid, Nanotechnology,</i>				
In-class Project Breakdown:	<i>Students will use paper mache' to build a replica of a power plant of a type of energy that we discussed in this unit. Students should reuse papers from this class or other classes that are being disposed of to help reuse and recycle goods. Students may choose from "Green" or fossil fuel plants to build models of. Models should be the size of a shoe box in replica size. Models should be colored or painted. Models should include generators, turbines, piping, towers, and all other parts of the plant as illustrated in the text. Students will neatly handwrite an accompanying series of 4" x 6" notecards discussing your type of power, how it works, its benefits, and how it is good for the Earth.</i>				
STUDENTS MUST KNOW HOW TO CORRECTLY SPELL AS WELL AS THE DEFINITION OF EACH OF THE "Terms to Know" EVERY WEEK!					
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, The Changing Earth, Pages 147-151 (stop at "Coal")</i> - 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>ML Science, The Changing Earth, Page 150</i> - 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>ML Science, The Changing Earth, Page 153</i> - 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	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	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
33rd Week	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>ML Science, The Changing Earth, Pages 151-154</i> - 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>ML Science, The Changing Earth, Pages 153-154</i> - 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	Students go to the following website " https://learn.concord.org/resources/646/greenhouse-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	Students 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

	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 pairs, create a "Flow Chart" diagramming the benefits and drawbacks of fossil fuels; indicate examples of each including uses verses 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; answer "Explore" in visiting the EPA website and exploring bioremediation's positives and negatives - 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 seven total items on your list; due tomorrow!	<i>ML Science, The Changing Earth, 5.1 Review, #'s 1-6, 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"
34th Week	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 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	Discussion: what is a hybrid car? How do hybrid battery vehicles save energy and gasoline? Watch "Hybrid-Electric Vehicles" on YouTube (3:54 min) and discuss how hybrids don't draw electrical power from the environment; why don't we use these more often? - 15 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	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
		<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 eight 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: 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? Students in pairs, complete #'s 1-5 & "Challenge" while incorporating air quality into each regard - 10 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	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 1-6, page 159</i> - Complete each question in complete sentences; due tomorrow!	Written Response: Why do you think we don't use hybrid vehicles more often if they save on gasoline? (one paragraph)	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 1-6, page 169</i> - Complete each question in complete sentences; due tomorrow!
Timeline:	Day "A"	Day "B"	Day "C"	Day "D"	Day "E"
35th Week	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min	Bellwork - 5 min
	Teacher to go to the following website " www.nbclearn.com/nanotechnology " and discuss how nanotechnology can benefit us; what is a nanometer? Review the examples of how small it is; students to enter this website into their Chromebooks; choose an accompanying video about nanotechnology to view and learn more about - 20 min	In-class time to work on project; it is due in three days - 50 min	In-class time to work on project; due in two days - 50 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
	Students to go to the following website " https://www.explainthatstuff.com/nanotechnologyforkids.html "; read aloud about nanotechnology, its uses, nanomachines, its history, and concerns; students to discuss their thoughts on this technology - 20 min				
Teacher to discuss the upcoming in-class project and theme; answer questions for it and expectations - 10 min					
Daily Journal or Bell Work:	What are your overall thoughts on "Green Energy" fuels?	What are your thoughts on nanotechnology and its uses?	If you were the mayor of our city, what would you do to conserve our natural resources?	<i>ML Science, The Changing Earth, Page 175</i> - Review "Analyzing a Graph", complete #'s 1-6	<i>ML Science, The Changing Earth, Page 175</i> - Review "Extended Response", complete #'s 7-8

Daily Homework:	<i>ML Science, The Changing Earth, Page 173</i> - Complete "Reviewing Vocabulary #'s 1-6"; due tomorrow!	<i>ML Science, The Changing Earth, Page 173</i> - Complete "Reviewing Key Concepts #'s 7-20"; due tomorrow!	<i>ML Science, The Changing Earth, Page 174</i> - Complete "Thinking Critically #'s 21-27"; due tomorrow!	<i>ML Science, The Changing Earth, Page 174</i> - Complete "Charting Information #'s 28-34"; due tomorrow!	None
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