**Class Title: Science**

 **Grade Level: 5th**

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| Nine Weeks: 1stUnit: Scientific Method |
| Concepts/Content | Desired Outcomes |
| * Building upon 4th Grade Vocabulary:

-observation-hypothesis-experiment-variable (number of/why)-control-data (analyzing)-conclusion* Experimenting in plant growth

-works on the reading skill of sequencing* Create a simulated experiment to identify steps of method
* Experiment to grow mold

-emphasis on too many variables introduced in an experiment* Close reading about Walter Alvarez’s Hypothesis on the extinction of dinosaurs-explain steps involved
* Labs= designed to walk through each Scientific Method steps
 | THE STUDENTS WILL BE ABLE TO:* Explain the importance of the scientific method, why do scientists use this method
* Identify the steps of the scientific method, in order and apply them to various situations throughout the year
* Describe the differences between the control and variable, why both groups?
* When given a scientific scenario throughout the school year, identify the steps of the method
* Design an experiment containing all parts of the scientific method
* Identify safety concerns in a lab setting (builds in the following school years
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| Nine Weeks: 1stUnit: Graphing  |
| Concepts/Content | Desired Outcomes |
| * Identify the parts of a graph:

  -titles, axis titles, labels, keys, legends, measurements* Describe and pull out data from a variety of graphing styles
* Classify a wide range of graphing styles:
* Line, Bar, Circle, Picto, Charts, Tables, Timelines,
* Stem and Leaf, Scatterplots
* Given various data, build the graph to represent the information
 | THE STUDENTS WILL BE ABLE TO:* Understand the importance of / and placement of titles and labels on any graph
* Explain the difference between x and y axis (location)
* Design graphs using all of the graphing tools
* Conduct surveys, analyze the data, and build graphs using a variety of graphing tools online
* Discuss graphs with multiple pieces of data (temperature and precipitation/ double bar and line graphs
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| Nine Weeks: 1stUnit: Plants and Their Parts |
| Concepts/Content | Desired Outcomes |
| * Building upon 4th grade plant concepts:
* Plant tissues (xylem, phloem, cambium)
* Photosynthesis
* Chlorophyll/ chloroplasts
* Vascular and nonvascular (plant structures)
* Organization of plant and animal cells-introducing additional pieces and jobs beyond 4th grade curriculum
* Describing the movement of water and food throughout a plant
* Build the photosynthesis formula and explain the process a plant undergoes
* Identify organisms and basic structures that fit into each of the 5 kingdoms (unicellular, multi-cellular, nucleus)
 | THE STUDENTS WILL BE ABLE TO:* Explain and demonstrate the importance of photosynthesis for plant survival (the formula must be used)
* Identify vascular and nonvascular plants and their structures
* Design both plant and animal cells (describing the individual structures and the job they do)
* Build connections between the 5 Kingdoms of Living Things
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| Nine Weeks: 2nd Unit: Plant Diversity |
| Concepts/Content | Desired Outcomes |
| * Comparing and contrasting an additional defined separation in the plant world between seed and seedless plants
* Discussing the relationship between parts of a plant/flower and how the plant reproduces, germinates and disperses its seeds
* Identifying a variety of reasons and situations where plants need to adapt for survival
* Compare and discuss gymnosperms (cone producing plants) with angiosperms (flowering monocots and dicots)

 LABS= plant dissection  | THE STUDENTS WILL BE ABLE TO:* Describe a plant’s need to-

 Pollinate Fertilize Germinate* Label and identify angiosperm and gymnosperm (plants,parts)
* Locate/diagram the flower parts necessary for both self and cross pollination
* Design both monocot and dicot seeds
* Given different scenarios, describe a plant’s ability to survive and adapt

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| Nine Weeks: 2nd Unit: Animal Diversity |
| Concepts/Content | Desired Outcomes |
| * Describe observable characteristics of vertebrates and invertebrates
* Understanding inherited vs. learned behaviors
* Comparing and contrasting various forms of animal adaptations (mimicry, protective coloration, protective resemblance)
* Discuss/Debate the impact of hybridization and cross-breeding on animal diversity

LABS= Animal sorting based on specific characteristics Inherited Lab on tongue rolling and ear lobes | THE STUDENTS WILL BE ABL E TO:* Discuss the meaning of diversity and argue the advantages of creating diversity amongst animal populations
* Contrast the differences between learned and inherited traits (discuss house pet behaviors and animals in their natural habitat)
* Given an animal, identify the way that animal adapts in order to survive in its environment
* Design an animal poster with each animal placed into the correct phyla and class based on specific characteristics
* Label and describe the Levels of Organization in any living organism
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**Class Title: Science**

 **Grade Level: 5th**

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| Nine Weeks: 3rd Unit: Ecosystems |
| Concepts/Content | Desired Outcomes |
| * Identify biotic and abiotic factors in a variety of ecosystems
* Discussions regarding how variables (limiting factors) can affect a populations size and survival
* Understanding the relationship between food webs and food chains, the roles various organisms play in each, and how any changes to these webs and chains deeply impacts the ecosystem that is in place
* Explore how water, nitrogen, and carbon cycle through the environment
 | THE STUDENTS WILL BE ABLE TO:* Identify abiotic and biotic factors
* Explain the difference between a population and a community, contrast each and provide examples
* Argue the choices that animal populations are faced with when their habitat changes
* Design both food chains and food webs-create situations where there are breaks in each and how the environment deals with the change
* Create a recipe for the perfect compost
* Design a water cycle to show all steps involved in the continuous movement of water
* Analyze the need to reduce, reuse, recycle (argue for the reasons behind this)
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| Nine Weeks: 3rd Unit: Populations and Ecosystems  |
| Concepts/Content | Desired Outcomes |
| * Describing the transition that takes place as an ecosystem moves from primary to secondary succession
* Identifying the six major land biomes throughout the world based on specific characteristics
* Discussing the interactions and relationships of symbiosis
* Analyzing how major catastrophic changes and/or human activity can affect an entire ecosystem
* Understanding the different layers in a water ecosystem
 | THE STUDENTS WILL BE ABLE TO:* Explain what it means to adapt-why and how animals and plants do this
* Describe the three types of symbiotic relationships- give examples and describe which organisms play which role
* Argue the positive and negative ways human help and hinder the environment
* Create a travel brochure that focuses on the key features of each of the 6 biomes throughout the world
* Identify/describe the ecological succession from primary to secondary to climax communities
* Analyze an event that might disrupt an ecosystem (what happens? Tie Chapter 4 to Chapter 5…domino effect)
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| Nine Weeks: 3rd and 4th Unit: Weather |
| Concepts/Content | Desired Outcomes |
| * Identify conditions that make up weather/conditions:

-air temperature-air pressure-moisture (humidity/relative humidity)-winds (global and local)-clouds -precipitation* Explore how clouds form and identify causes and types of clouds and precipitation
* Discuss how weather conditions are measured and recorded with the use of weather station models
* Use of technology in the delivery of the weather
 | THE STUDENTS WILL BE ABLE TO:* Describe the relationship between temperature changes regarding colors and textures
* Identify conditions that make up the troposphere
* Contrast evaporation and condensation-their contributions to weather
* Explain the differences between humidity and relative humidity and how moisture gets into the troposphere
* Describe the steps in cloud formation and the types of clouds

(latin names and who named them) and precip they bring* Build and create weather station models (similar to those used by the National Weather Service)
* Identify weather instruments: isobars, isotherms, anemometers, barometers, thermometers, wind vanes, and hygrometers
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| Nine Weeks: 4th Unit: Weather Patterns and Climate |
| Concepts/Content | Desired Outcomes |
| * Identify the four air masses globally and the four types of fronts (cold, warm, occluded and stationary)- use this information to discuss various weather patterns
* Explore the formation of severe weather in our troposphere (thunderstorms, tornadoes, hurricanes)
* Compare and contrast hurricanes and tornadoes
* Discuss safety procedures and methods for predicting storms (where to go to be safe based on storm type)
* Identify specific factors that determine climate and climate change:
* Latitude and bodies of water
* Winds, ocean currents, and altitude
* Greenhouse effect
 | THE STUDENTS WILL BE ABLE TO:* Describe fronts and air masses, locate them on a map, and draw and color each front appropriately
* Sequence the events of a thunderstorm (3 stages)
* Identify the warning signs of severe storms and where to go to be safe
* Build and present Storm Safety posters-what to do in a severe storm
* Argue/Debate the Greenhouse effect and the changes to Earth’s global climate
* Explore/Graph tornado activity in “tornado alley”
* Visit and explore the NOAA website-much to offer

[www.noaa.gov](http://www.noaa.gov) |

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| Nine Weeks: 4th Unit: Newton’s Laws of Motion |
| Concepts/Content | Desired Outcomes |
| * Discuss that all matter has inertia, a tendency to resist a change in motion-objects that contain more matter are harder to set into motion
* Understanding how Newton’s 1st Law of Motion describes that objects in motion stay in motion and those at rest stay at rest, unless acted on by an outside force (unbalanced).
* Identifying Newton’s 2nd and 3rd Laws of Motion-as the net force acting on an object increases, the object accelerates more
* Discuss Newton’s Law of Gravitation-we are pulled to Earth with the same gravitational forces that keep the Earth moving around the sun and the moon moving around Earth
 | THE STUDENTS WILL BE ABLE TO:* Identify Newton’s laws of motion and place everyday situations to which law is being applied (i.e. dirty clothes are laying on your bedroom floor and are still there the next day until a force is applied to them -Newton’s first law ☺ )
* Set up, solve, and label Speed problems Speed= Distance

 Time* Understand and explain the difference between acceleration, speed, and velocity
* Describe the difference between weight and mass-how due to gravity our weight will change if we travel to other planets but NOT our mass.
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