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| **GRADE LEVEL:**  | **Sixth Grade** |  |  |  |  |  |  |  |  |
| **COURSE / SUBJECT:**  | **Science** |  |  |  |  |  |  |  |  |
| **UNIT OF STUDY : Unit 1: Ecosystems** |  |  |  |  |  |  |
| **THEME / ESSENTIAL QUESTION(S):** |  |  |  |  |  |  |  |  |
| * **How do organisms interact in ecosystems?**
* **What would the consequence be if an ecosystem became unbalanced?**
* **How does energy move through the ecosystem in food webs?**
* **What are the three symbiotic relationships?**
* **How and why are living things classified into six kingdoms?**
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| **STANDARDS** | **ENDURING UNDERSTANDINGS *What are the long term, big-ideas of content that I want students to understand?*** | **KNOWLEDGE / SKILLS *What do I want Students to Know & Be Able to Do?*** | **PACING Lesson ## of Days**  |
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| **LS1.A Structure and function -** All living things are made up of cells. An organism can be made of one cell (unicellular) or many cells (multicellular). With in cells, specialized structures are responsible for specific functions. In multicellular organisms, cells work together to form tissues and organs that are specialized for particular body functions.**LS1.B Growth and development of organisms** - An organism’s structures and behaviors affect the probability of successful reproduction. An organism’s growth is affected by both genetic and environmental factors. **LS1.C Organization for matter and energy flow in organisms** Matter cycles between living and nonliving parts of an ecosystem. Plants use the energy from light to make sugars through photosynthesis. Within individual organisms, food is broken down through cellular respiration, which rearranges molecules and releases energy.**LS2.A Interdependent relationships in ecosystems** Organisms and populations are dependent on their environmental interactions both with other living things and with nonliving factors, any of which can limit their growth. Organisms compete for resources within ecosystems; typical interaction patterns include competitive, predatory, parasitic, and symbiotic relationships.**LS2.B Cycles of matter and energy transfer in ecosystems** The matter that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. Food webs model the transfer of energy as well as matter among producers, consumers, and decomposers within an ecosystem. The Sun provides the energy for most ecosystems on Earth.**LS2.C Ecosystem dynamics,** **functioning, and resilience** Ecosystems are dynamic; their characteristics vary over time. Changes to any component of an ecosystem can lead to shifts in all of its populations. The completeness or integrity of an ecosystem’s biodiversity is often used as a measure of its health.**LS3.A Inheritance of traits** Organisms reproduce, either sexually or asexually, and parents transfer their genetic information to offspring. An individual’s traits are largely the result of proteins, which are coded for by genes. Genes are located in the chromosomes of cells.**LS3.B Variation of traits I**n sexual reproduction, each parent randomly contributes half of its offspring’s genetic information, resulting in variation between parent and offspring. Genetic information can be altered because of mutations, which may result in beneficial, negative, or no change to traits of an organism**LS4.A Evidence of common ancestry and diversity** The fossil record documents the existence, diversity, extinction, and change of many life forms and their environments through Earth’s history. Comparisons of anatomical similarities among both living and extinct organisms enables the inference of lines of evolutionary descent.**LS4.B Natural selection** Both natural and artificial selection result from certain traits giving some individuals an advantage in surviving, reproducing, and passing on genes to their offspring, leading to predominance of these advantageous traits in a population.**LS4.C Adaptation** An adaptation is a trait that increases an individual’s chances of surviving and reproducing in their environment. Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations.  | * **Organisms interact in ecosystems.**
* **Energy moves through ecosystems in food webs.**
* **Organisms can compete and help each other survive in ecosystems.**
* **Living things are classified into six kingdoms.**
* **Fungi have unique characteristics that separate them from organisms in other kingdoms.**
 | **Students will be able to demonstrate knowledge of…*** Scientists classify living things because it makes it easier to figure out what an organism is and how it relates to other organisms.
* Scientists classify living things based on the cell structure and how the organism gets food.
* Producers, consumers, and decomposers work together to move energy through an ecosystem.
* Every organism in an ecosystem has their own niche which enables them to survive.
* Organisms can compete with each other for resources.
* Organisms engage in symbiotic relationships where either one or both of the organisms benefit.
* Decomposers, such as fungi, break down dead things and return nutrients to the soil.
* Producers make their own energy in the process of photosynthesis which is stored as chemical energy and later transferred to consumers.
 |  |  | **September-October** |
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| **ASSESSMENT: *HOW WILL I KNOW WHAT MY STUDENTS HAVE LEARNED? WHAT WILL BE THE EVIDENCE?*** |   |   |   |
| * **Food Chain Assessment**
* **Symbiosis Project**
* **Salt Marsh Research Assignment**
* **Fungi Lab/Research**
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| **TECHNOLOGY & RELATED CONTENT INTEGRATION:** |  |  |  |  |  |  |  |
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