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| **Earth Science: Trees and Weather** | | |
| **Content Area: Science** | | |
| **Unit Title:** Earth Science – Trees and Weather | | |
| **Target Course/Grade Level: Kindergarten** | | |
| **Unit Summary**  The giant sequoia is the most massive living organism on Earth. | | |
| **Primary interdisciplinary connections:**  **ELA/Literacy**  RF 2: Demonstrate understanding of spoken words, syllables, and sounds.  RI 1: Ask and answer questions about key details.  RI 2: Identify main topic and retell key details.  RI 3: Describe the connection between two ideas.  RI 4:Ask and answer questions about unknown  words.  RI 7: Describe the relationship between  illustrations and the text.  RI 8: Identify the reasons an author gives to support points.  RI 9: Identify similarities in and differences  between two texts on the same topic.  RI 10: Actively engage in group reading activities  with purpose and understanding.  W 2: Write informative/explanatory text.  W 5: Strengthen writing.  W 8: Gather information to answer a question.  SL 1: Participate in collaborative conversations.  SL 2: Ask and answer questions about key details  and request clarification.  SL 3: Ask and answer questions to seek help,  information, or to clarify.  SL 4: Describe with details  SL 6: Speak audibly, express clearly.  L 1: Use question words; expand complete  sentences in shared language activities.  L 5a: Sort objects into categories.  RL 2: Retell stories, including key details.  **Math**  Reason abstractly and quantitatively. (K-ESS2-1),(K-2-ETS1-1) MP.2  Model with mathematics. (K-ESS2-1),(K-ESS3-2),(K-2-ETS1-1) MP.4  Use appropriate tools strategically. (K-2-ETS1-1) MP.5  Counting and Cardinality (K-ESS3-2) K.CC  Know number names and the count sequence. (K-ESS2-1) K.CC.A  Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1) K.MD.A.1  Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1) K.MD.B.3  Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1) 2.MD.D.10 | | |
| **21st century themes:**  Digital media will be used incorporated in project presentations. This module will develop students’ abilities to do and understand scientific inquiry. Students will identify questions, design and conduct scientific investigations to answer those questions, employ tools to gather, analyze, and interpret data. They will use data to construct reasonable explanations, develop and communicate investigations and evidence and understand that scientists use different kinds of investigations and tools to develop explanations using evidence and knowledge. This module will develop and extend students’ understandings about science and technology. Students will work collaboratively in teams and use tools and scientific techniques to make better observations. | | |
| **Unit Rationale**  It is a tree, magnificent in dimension and awe inspiring in its longevity and durability.  To a primary student, the oak on the corner, the pines at the park, and the mulberry tree at school are all giants. Systematic investigation of trees over the seasons will bring students to a better understanding of the place of trees at school and in the community. Students will observe day-to-day changes in weather over the year, as well as the impact weather has on living things. | | |
| **Learning Targets** | | |
| **Disciplinary Core Ideas:**  **LS1.A: Structure and function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (from Grade 1)  LS1.C: Organization for matter and energy flow in organisms All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.**  **ESS2.E: Biogeology Plants and animals can change their environment.  ESS3.A: Natural resources Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.**  **ESS2.D: Weather and climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.  ESS3.B: Natural hazards Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events.**  **PS3.B: Conservation of energy and energy transfer Sunlight warms Earth’s surface.  ETS1.B: Developing possible solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people.** | | |
| **PE #** | **Performance Expectations** | |
| **K-ESS2-1.** | **Use and share observations of local weather conditions to describe patterns over time.** | |
| **K-ESS3-2.** | **Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.\*** | |
| **K-2-ETS1-1.** | **Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.** | |
| **K-LS1-1** | **Use observations to describe patterns of what plants and animals (including humans) need to survive.** | |
| **K-ESS2-2** | **Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.** | |
| **K-ESS3-1** | **Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.** | |
| **Unit Essential Questions**   * What are the parts of trees? * What do trees need to grow? * How are leaves different? * What is the weather today? * What do trees look like during different seasons? | | **Unit Enduring Understandings**  **Trees**   * Trees are living plants. * Trees have structures: branches, leaves trunk, and roots. * Trees differ in size and shape. * Plants have basic needs: water, light, air, nutrients, and space   **Leaves**   * Different kinds of trees have different leaves. * Leaves have properties: size, shape, tip, edge, texture, and color * Leaves properties vary. * Leaves can be described and compared by their properties   **Observing Weather**   * Weather is the condition in the air outdoors and be described; weather changes. * Temperature is how hot or cold it is; thermometers measure temperature. * Sunlight warms Earth’s surface * Wind is moving air; a wind sock indicated wind direction and speed.   **Trees Through the Seasons**   * Seasons change in predictable annual pattern: fall, winter, spring, and summer * Bark, twigs, leaves, buds, flowers, fruits, and seeds are parts of trees. * The buds on twigs grow into leaves or flowers. * Trees change through the seasons. * Some trees produce seeds that can grow into new trees of the same kind. * Some trees lose their leaves in winter; others do not. |
| **Unit Learning Targets**  *Students will ...*  engage in science and engineering practices by asking questions, participating in collaborative investigations, observing, recording, and interpreting data to build explanations, and obtaining information from photographs. Students gain experiences that will contribute to an understanding of the crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; structure and function; and stability and change. | | |
| **Evidence of Learning** | | |
| **Embedded Assessments:**   * **Response Sheets** * **Performance Assessments** * **Science Notebook Entries**   **Benchmark Assessments:**   * **Investigation I-Checks** * **Surveys** | | |
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