**NGSS Lesson Planning Template**

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| **Grade:**  **First** | **Topic:**  **Parts of Plants** | **Lesson (number/title):**  **2** |
| **Brief Lesson Description: *Introduction/Foundational Lesson***  Using a real plant, students will explore the parts: roots, stems, leaves and flowers. They will learn about the functions of these parts. Students will make a diagram of the plant and label the parts. | | |
| **Performance Expectation(s):**  1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and /or animals use their external parts to help them survive, grow, and meet their needs.  K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. | | |
| **Specific Learning Outcomes:**  **Students will:**   * Recognize that roots, stems, leaves and flowers are parts of plants. * Observe and record the different parts of a plant. * Understand how the parts work together to help the plant. | | |
| **Narrative / Background Information** | | |
| **Prior Student Knowledge:** | | |
| **Science & Engineering Practices:**  Constructing Explanations and Designing  Solutions   * Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.   Use materials to design a device that solves a specific problem or a solution to a specific problem. | **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.  LS1.D: Information Processing  Animals have body parts that capture and convey  different kinds of information needed for growth  and survival. Animals respond to these inputs  with behaviors that help them survive. Plants also  respond to some external inputs. | **Crosscutting Concepts:**  Structure and Function  The shape and stability of structures of natural  and designed objects are related to their  function(s).  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -  Connections to Engineering, Technology, and  Applications of Science  Influence of Science, Engineering and  Technology on Society and the Natural World  Every human-made product is designed by  applying some knowledge of the natural world  and is built using materials derived from the  natural world. |
| **Possible Preconceptions/Misconceptions** | | |
| **LESSON PLAN – 5-E Model** | | |
| **ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions**   * If doing this in the **Fall**, this is a great activity to help clean out the garden area. Make sure you ask teachers or garden coordinator to make sure that you have permission to clean out other garden beds if you do not have plants in your beds. Have students pull up plants and weeds in the garden area and bring inside. If it is dry, you may need to wet down areas around the weeds or plants so that it is easier to pull up the plants. It is important that there is a root system attached to the weed or plant. If you are choosing to do this lesson during the **Spring**, bring in a six pack of flowering plants for the students to observe. | | |
| **EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions**  **Materials**   * Magnifying glasses for each student * A plant pulled up from the garden OR a flowering plant (from a flower pack) for each group of students * Water tray for each pair of students * Paper plate for each pair of students * Chart paper * Markers * Drawing paper for each student * Pencils or pens * Crayons   **Set Up and Prepare**   1. Lay out newsprint on the tables. 2. Fill water trays for partners. 3. Set out magnifying glasses. 4. Set out plants from plastic container, but leave soil around roots.   **Directions**  **Part I**  **Step 1:** Tell the students that they are going to get a chance to look at the roots of a plant with their group of 4. One partner will hold the plant while the other washes the dirt away. Each partner must be gentle so that the plant does not break. When the plant is cleaned, lay it on the plate and examine the roots with the magnifying glasses.  **Step 2:** You may choose to do this part outside because of the mess. Distribute materials. Send the science groups to their seats to wash the roots and observe their plant.  **Part II**  **Step 1:** Ask the groups to gather on the carpet in a circle with their plant and magnifying glasses so they can look at their plant while you discuss the parts. While they are gathering, collect the water and newsprint. Ask what they noticed about the roots. How did they compare to the roots of the seeds they had grown in the cup in [Lesson One](http://www.scholastic.com/teachers/lesson-plan/seed-sensation)? Ask one of the students to draw the plant that they observed on chart paper. Make sure the student includes the roots, stem, leaves and flower.  **Step 2:** Ask students to point to the roots of their plant. Label the roots on the chart. Ask students if they know the other parts of the plant. Some students may know the names, while some will not. Label the other parts: stem, leaves, flower. While you label, ask the students to point to that part on their own plant. Explain the function of the parts. Stems carry water and food from the roots to the leaves. They also hold the leaves up to get the energy from the sun. Leaves are the food factory for the plant. They take the water and minerals from the soil and combine it with the sunlight energy and carbon dioxide from the air to make food for the plant. Explain how animals breathe out carbon dioxide to give to the plants, while the plants give off oxygen for us to breathe in. Lastly explain that although the flowers are beautiful to look at, the real purpose is to make fruit and seeds.  **Step 3:** Tell the students that now they will have an opportunity to draw a diagram of their plant and label the parts. Send the science partners back to their tables to complete their diagram and label the parts. Encourage students to color their pictures.  **Step 4:** Gather the science partners together to share their diagrams.  **Step 5:** If doing the activity in the sprint, the students can replant the flowers in the garden to enjoy outside. | | |
| **EXPLAIN: Concepts Explained and Vocabulary Defined**  **Roots** collect water and nutrients from the soil and stabilize the plant in the soil.  **Leaves** are the food factory for the plant. They take the water and food from the soil and combine it with the sunlight to make food for the plant.  **Stems** carry water and food from the roots to the leaves. They also hold the leaves up to get the energy from the sun  **Flowers** purpose is to make fruit and seeds | | |
| **ELABORATE: Applications and Extensions**  **What if a part of the plant is missing?**  To extend this lesson, BEFORE students replant their plants in the garden, students may choose to omit one of the parts of the plant to see how the plant is affected. For example. One group of students may choose to cut off the roots of the plant before replanting. Another group of student can leave the roots intact but cut off the plants at the stem. Other students may cut off all the leaves of the plant to see how that affects the plants’ growth.  Students should record their observations in their science journal or on Blackboard as they visit the garden area. | | |
| **EVALUATE:**  **Formative Monitoring (Questioning / Discussion):**  **Assignments**   1. Diagram of a plant with labeled parts   **Evaluation**   1. Did the student make an accurate drawing of the plant? 2. Did the student label the parts? 3. What would I do differently? | | |
| **Elaborate Further / Reflect:** | | |

**Materials Required for This Lesson/Activity**

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| **Quantity** | **Description** | **Potential Supplier (item #)** | **Estimated Price** |
| **1 per group** | **Flower pack or pulled up plants from the garden** | **teacher** |  |
| **1 per group** | **Paper plates or newspaper** | **teacher** |  |
| **1 per group** | **Water tray** | **IRC** |  |
|  | **Magnifying glasses (optional)** | **IRC** |  |
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