**NGSS Lesson Planning Template**

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| **Grade:**  **2** | **Topic:**  Structures and Properties of Matter | **Lesson (number/title):**  **2** |
| **Brief Lesson Description: *Introduction/Foundational Lesson***  Students will be expected to gain an understanding of observable properties of materials through analysis and classification of different materials. | | |
| **Performance Expectation(s):**  2-PS1-2: Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. | | |
| **Specific Learning Outcomes:**   * Students will determine which soil is best suited for plant growth. | | |
| **Narrative / Background Information** | | |
| **Prior Student Knowledge:**  N/A | | |
| **Science & Engineering Practices:**  Analyze data from tests of an object or tool to determine if it works as intended. | **Disciplinary Core Ideas:**  Different properties are suited to different purposes. | **Crosscutting Concepts:**  Simple tests can be designed to gather evidence to support or refute student ideas about causes. |
| **Possible Preconceptions/Misconceptions** | | |
| **LESSON PLAN – 5-E Model** | | |
| **ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions (30 minutes)**   1. Pose questions, such as, “Do you think soil is important for helping plants grow?” “I wonder what makes soil good/bad for growing plants?” 2. Take students on a walk around the schoolyard and discuss why plants might be growing in one area, but not another. | | |
| **EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions (45 minutes for each observation)**   1. Tell students that they will be exploring what types of soil would be best for plant growth. 2. Give each group of students a tray of materials for the experiment. (clay-soil mixture, sand-soil mixture, peat moss-soil mixture) 3. Students observe and record the properties of each kind of material. 4. Plant the grass seeds on top of the soil mixtures. 5. Explain that all mixtures need to have the same amount of sunlight and water; and place mixtures appropriately. 6. DAY 2-3: Observe and record changes (plant height). *Note: There may not be an observable change for a few days. The emphasis is on student observations.* 7. Day 4 or 5: Continue to observe and record changes in plant height. | | |
| **EXPLAIN: Concepts Explained and Vocabulary Defined (20 minutes)**   1. After grass has clearly grown, gather students together. 2. Pose the question, “Do you think soil is important for helping plants grow?” 3. Students share/explain what they observed. 4. Discuss their findings and help students conclude which soil is best suited for plant growth. | | |
| **ELABORATE: Applications and Extensions (30 minutes)**   1. Take students back to the garden to observe the soil. 2. Have students evaluate the soil to determine if it is suitable for plant growth. | | |
| **EVALUATE:**  **Formative Monitoring (Questioning / Discussion):**   * Assess through classroom discussions and exploration observations.   **Summative Assessment (Quiz / Project / Report):**   * N/A | | |
| **Elaborate Further / Reflect:** | | |

**Materials Required for This Lesson/Activity**

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| **Quantity** | **Description** | **Potential Supplier (item #)** | **Estimated Price** |
|  | **soil** | **IRC** |  |
|  | **Grass seed** | **IRC** |  |
|  | **Clay** | **IRC** |  |
|  | **Sand** | **IRC** |  |
|  | **Peat moss** | **IRC** |  |
|  | **Water** | **classroom** |  |
| **3 per group** | **trays** | **IRC** |  |
|  | **Observation journals** |  |  |