**NGSS Lesson Planning Template**

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| **Grade:**  Kindergarten | **Topic:**  Parts of a seed | **Lesson (number/title):**  **1** |
| **Brief Lesson Description: *Introduction/Foundational Lesson***  Students will explore seeds by dissection. They will learn to label different parts of the seed and recognize those parts. | | |
| **Performance Expectation(s):**  K-LS1-1 Use Observations to describe patterns of what plants and animals need to grow and survive  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 be able to dissect seeds and identify the parts of the seed. * Students will be able to describe a seed and explain how the parts of the seed help it grow into a plant. | | |
| **Narrative / Background Information** | | |
| **Prior Student Knowledge:**  N/A | | |
| **Science & Engineering Practices:**  Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. | **Disciplinary Core Ideas:**  **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. | **Crosscutting Concepts: Patterns**  Patterns in the natural and human designed world can be observed and used as evidence. |
| **Possible Preconceptions/Misconceptions**  **Probe student to see what they might have already learned about seeds and how animals/plants are involved with them. What do you eat that has seeds in it? What do seeds do?** | | |
| **LESSON PLAN – 5-E Model** | | |
| **ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions**  **Time: 20 minutes**  Read story The Tiny Seed by Eric Carle or watch it <https://www.youtube.com/watch?v=ls6wTeT2cKA>  Discuss what the students know or learned about seeds. | | |
| **EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions**  **Time: 30 minutes**  **Materials needed:**  Class supply of pinto beans or lima beans: One bean soaked overnight in warm water and one dry bean for each child or group of children  **Day 1: What's Inside a Seed?**  **Part I**  **Step 1:** Distribute a dry pinto bean and magnifying glass to each student. Remind them not to put it in their nose, ears or mouth! Ask the students what they think it is. Some will say a bean; others may say it is a seed. Tell them that it is a bean, which is a kind of seed. Ask: What is the job of a seed? Tell them that today we will discover the job of a seed. We will dissect, or open up, the seeds and look inside. Ask the students to open their seeds (without using their teeth) and describe what they see inside.  **Step 2:** After a few minutes, ask if anyone has opened their seed. Probably no one has been able. Ask the students what they wear when it is cold outside (a coat). Tell the students that a seed has a coat covering it until it is ready to grow. Right now it is asleep, waiting to wake up. It may sleep for a week, a month or even a year until it has the right amount of water and warmth. The seed will need water and the soil must be warm enough for it to grow.  **Step 3:** Distribute the soaked pinto beans to each student. Ask them to compare them to the dry one. Inform the students that these pinto beans have been soaked in warm water to imitate the warm soil. Invite the students to try to open these seeds and observe what is inside using their magnifying glasses. Most will see a new plant growing. If they do not find one, give them another bean.  **Part II**  **Step 1:** Gather the students together and ask what they saw inside the seed. Ask one student to draw what they observed on chart paper. Label the parts of the seed for the students with lines extending from the three parts: seed coat (the outer area), food (inside the bean) and the new plant.  **Step 2:** Invite the students to draw a picture of the inside of their seed, or use the attached PDF and have the students fill in the labels.  **Step 3:** Gather the students back together and ask them to tell about the new plant they saw in their seed. Ask the students what they think the new plant will do (grow). Ask: Then what is the job of a seed? (To grow into a plant). | | |
| **EXPLAIN: Concepts Explained and Vocabulary Defined**  **Closing if done for the day:**   * Listen to song The Needs of a Plant <https://www.youtube.com/watch?v=dUBIQ1fTRzI> | | |
| **ELABORATE: Applications and Extensions** | | |
| **EVALUATE:**  **Formative Monitoring (Questioning / Discussion):**   * Teacher observation of students sorting sheet * Teacher observation of discussion during bean exploration   **Summative Assessment (Quiz / Project / Report):**   * Students will record their by drawing a picture and labeling a seed. | | |
| **Elaborate Further / Reflect:** | | |

**Materials Required for This Lesson/Activity**

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| **Quantity** | **Description** | **Potential Supplier (item #)** | **Estimated Price** |
| **40** | **Pinto beans or Lima beans** | **IRC** |  |
|  | **Magnifying glasses (optional)** | **IRC** |  |
| **10** | **Paper towels** | **teacher** |  |
| **25** | **Seed sorting sheet** | **teacher** |  |
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