WEEK 2 Lesson 2

Science and Engineering: Life Sciences

Ecosystems: Looking Inside Seeds

Big Idea	The parts of an organism have specific functions.
Guiding Question	Why are the particular parts of an organism important?
Content Objective	I can use my five senses to gather information about a variety of seeds. (Practice 6, 2-LS2-3 MA)
Language Objective	I can draw, write, and talk about my observations of the parts of a seed. (SL.1.2, SL.1.2.b)
Vocabulary	**cotyledon**: the food supply of the seed, also called the **endosperm** **embryo**: a tiny plant inside the seed **germinate**: to begin to develop into a plant **seed coat**: a cover that protects the seed
Materials and Preparation	Read the background information in Science in Unit 4 (Unit Introduction). ● About Plants chart, from Week 1 Mark those ideas and questions that pertain to the structure of seeds, if any. ● a variety of seeds that have been soaking ● a few of each seed, unsoaked, for comparison ● magnifiers, one for each child ● Science and Engineering packets ● writing and drawing tools ● Inside a Seed slides ● projector and screen ● chart paper Hang the paper next to the space for projection. ● markers of different colors

Opening 4 minutes	*Today we will investigate the parts of a seed. Let's take a look at some of the ideas and questions you already have about this.* Refer to the ideas and questions marked on the About Plants chart. *What do you think might be inside a seed to allow it to **germinate**, or begin growing?* Show the magnifiers and different kinds of soaked and unsoaked seeds. Use a bean seed to demonstrate how to open a seed, narrating each action. *When you open a seed, you must do it very carefully, to keep the seed parts intact, or not damaged. Begin with a bean seed. First, remove the **seed coat**, the outside of the seed. Then use your fingernails to pull the seed in half. Even though the seeds are softer from soaking overnight, this might be tricky.* *What will you find? Remember to be extremely careful as you work so that the seed parts are not damaged and you can see as much as possible.* *For each seed you open, record your observations. What do you see? What does the seed smell like? What does it feel like? Have you ever tasted this kind of seed?* [Note that children should not taste these seeds.] *When you have looked at and recorded observations for each of the different seeds, write some questions you have about what you find.* Refer to the corresponding page in the Science and Engineering packet.
Investigation 14 minutes	Children explore what is inside each kind of seed, looking with magnifiers, talking about what they see, smell, and feel, and whether they have tasted them before. They then record their observations and questions. Circulate as children work, encouraging them to use precise language to describe what they find. Encourage them to open up as many seeds as possible and to compare them. Children might not see the embryo or know what they are looking at. In this case, point out the embryo asking, *What do you notice here?*
Discussion 10 minutes	Bring children back to the whole group with their packets and a pencil. *Let's see if we can draw together what you found. We'll find out if you all noticed the same things.*

	At the top of the chart paper, write the question, What's inside a seed? Then, invite children to contribute to a large, collaborative diagram of the inside of the bean seed, referring to the observational drawings they have just completed in their packets, and each adding or narrating one part and adding to their classmates' efforts. Projecting alongside the class diagram, show the slides. Referring to slide 2, confirm or revise the diagram. Have children refer to their own drawings. *Did you see all of the same parts in all of the seeds you opened and observed?* *What is the same and different?* Show slides 3, 4, and 5 to support this conversation. *Let's learn about the role of each part of the seed.* Label the large diagram as each part is described. *The **seed coat** protects the seed until it is germinated.* *The **embryo** is the tiny plant inside the seed that is ready to sprout once the conditions are right for it to grow.* *The **cotyledon**, sometimes called the **endosperm**, stores the food the embryo needs to grow.* Give children a few minutes to draw a large seed diagram on the next page of their packets (The Parts of a Bean Seed), and add these labels. *Let's think about the seeds you germinated. What do you think has happened to the embryo?* Harvest children's ideas. Address misconceptions that the children will not be able to test themselves, and suggest ways to test those they can. Add lingering questions to the chart. Think, Pair, Share to integrate children's observations, experiences, and discussions so far: *What makes a seed germinate?* *What happens when it germinates?*
Closing 2 minutes	*Today we looked at what is inside a seed. You may have noticed the same parts in all of the seeds. In some seeds you were able to see the different parts more clearly than in others.* Turn children's attention to the self-assessment questions at the bottom of the page in their packets. Read the questions, and invite them to reflect

	quietly or turn and talk with a partner.
Standards and Practices	**SL.1.2** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. **SL.1.2.b** Build on others' talk in conversations by linking their comments to the remarks of others. **2-LS2-1** Plan and conduct an investigation to determine if plants need sunlight and water to grow**.** **2-LS2-2** Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
Ongoing assessment	Reflect on the class discussions. What language do children use to describe what they find inside a seed? Are children integrating the information discussed in class and their observations thus far? How do children demonstrate understanding about the parts of seeds and their functions?

Notes