WEEK 6 Lesson 3

Science and Engineering

Properties of Materials for Designing Hand Pollinators

Big Idea	Pollination is a result of animal behavior.
Guiding Question	How does pollination happen?
Weekly Question	Why is pollination important to people and other animals?
Content Objectives	I can conclude that materials that have properties similar to insects' legs or bodies work the best for picking up and depositing pollen. (2-PS1-2, 2-LS2-3(MA)) I can collect and share data with other scientists to determine how well a material might pick up and deposit pollen. (2-PS1-2, Practices 3 and 4)
Language Objective	I can report information I have gathered and participate in discussions with my peers. (SL.3.2.a)
Materials and Preparation	• investigation materials from Lesson 2, one set for each pair Organize the materials so that children can easily pick up and carry them (on trays, for example), or arrange the materials in workspaces ahead of the lesson. • sticky notes • Science and Engineering packets • writing tools • Evaluating Materials for Hand Pollinators chart, from Lesson 2, with the Properties column filled in Transcribe children's additions from sticky notes onto the chart.
Opening 2 minutes	*Today you will have a few more minutes to finish up the investigation of materials you started yesterday.* Refer to the Evaluating Pollination Materials chart. *Think about what we are trying to find out: What properties of materials are most important for picking up and depositing pollen?*

	Review, as needed, the procedure for testing materials. *As you make new discoveries, you can write them on sticky notes and add them to our chart* [indicate the Observations column]. *Once you have finished testing each of the materials, review the data you gathered about the properties of each one. Use this information and work with your partner to record your findings in your Science and Engineering packets.* [Show the page.]
Investigation 18 minutes	Distribute materials and send children to work. Circulate to support them in continuing their investigation from Lesson 1. Remind children to use the Three Tap Method to deposit the pollen. As children finish the investigation, support them to refer to their data to answer the questions, What materials work best for picking up and depositing pollen? and What are their properties? Encourage children to help each other in recording their findings in their packets.
Discussion 10 minutes	Referring to the Evaluating Materials for Hand Pollinators chart, facilitate a discussion about children's observations and discoveries about each material. Ask the following questions. *Did this material pick up pollen?* *What are the properties of that material that made it work or not?* *Could it deposit, or drop off, the pollen that it picked up?* *What are the properties of that material that made it work or not?* *How much pollen did this material deposit?* Record children's ideas in the Observations column of the chart. Continue the discussion to compare materials. *Which material or materials deposited the most pollen?* *Which material or materials deposited the least pollen?* Note: Responses will vary based on the results of the investigations, but most effective materials are likely to include the pompom and pipe cleaner. These two materials have similar properties (fuzzy, lots of surface area) which allow pollen to both stick to them and to drop off easily. As the discussion ensues, encourage children to add to or modify their ideas. The richer the exchange of ideas, the more children will have to work with as they design hand pollinators for a variety of flowers in the coming weeks. If children recognize varying results, encourage them to ask questions to figure out why the results varied.
Closing	*Testing materials, making observations, discussing data with others, and correcting conclusions based on others' data is what*

	agricultural engineers do all the time. Today we learned that the pipe cleaner and the pompom are made of materials with the best properties to pick up and deposit pollen. *Now that we have this information, we are ready to start designing hand pollinators. We'll do that next week!*
Standards and Practices	**SL.3.2.a** Describe people, places, and things, tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences. **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. Are children analyzing and interpreting the data they collected? Are children using the data collected to support their arguments? Do children reflect on mistakes based on class conversations?

Notes