WEEK 6 Day 5 Lesson

Science and Engineering: Matter and Its Interactions

Conducting an Experiment to Test Absorbency

Big Ideas	Materials have observable properties. The properties of materials impact how they are used for specific purposes.
Guiding Questions	How do different materials respond when exposed to a liquid (when they get wet)?
Content Objective	I can design an experiment to identify materials that are waterproof and that are absorbent. (Practice 3, 2-PS1-1, 2-PS1-2)
Language Objective	With my partner, I can ask and answer questions as we design an experiment to test absorbency. (SL.2.2.b)
Vocabulary	**absorb**: to soak up **absorbency**: the property of soaking up a liquid **repel:** to keep something out or away **waterproof**: resists or repels liquid
Materials and Preparation	● 1-gallon ziplock plastic bags, one for each pair of children ● a variety of absorbent and waterproof fabrics, absorbent and waterproof papers, tongue depressors, pieces of hardwood, rubber, metal, and sponge, enough for each pair of children to have a sample of each In each bag, prepare a kit of the materials. ● shallow trays or containers, one for each pair of children ● eye droppers, one for each pair of children ● small containers of water, one for each pair (Alternately, a container might be shared between each two pairs of children.) ● liquid watercolor or food coloring, a few drops, optional Prepare each tray with a bag of materials, eye dropper, and container of water. Bring one tray to the whole group meeting. ● Science and Engineering packets ● writing and drawing tools ● chart paper and markers Prepare the following chart.

	<table><tr><th colspan="2">A Fair Experiment to Test Absorbency</th></tr><tr><td>Tool:</td><td>eye dropper</td></tr><tr><td>Water:</td><td></td></tr><tr><td>Materials to test:</td><td></td></tr><tr><td colspan="2">What do we notice about how this experiment is working so far?</td></tr></table>
Opening 10 minutes	*Another property of materials we can study is how well a material absorbs or repels water. When it rains, I like to wear my raincoat so I don't get wet; it is made of fabric that is waterproof, so it repels water, or sends it away. But when I clean up the kitchen counter, I want a fabric that soaks up, or absorbs, the water I spilled.* *Today, you will design and test an experiment to find out which materials are absorbent and which are waterproof. Last week we learned a few things that are important when designing experiments. What do you need to keep in mind as you design today's experiment? Turn and talk to your partner.* In the whole group, reinforce the idea that experiments need to be fair, with only one variable. Show a prepared tray. *Here are your materials. The water in this container is all the water you can use today, so use it wisely—don't use it all up at once!* *Like last week, today you will design your experiment, and then test it fully tomorrow. Talk with your partner to think of ideas for how to conduct your experiment. Make sure to explain your ideas carefully and to ask questions to understand what your partner means.* Walk through the chart one section at a time.

	Your tool is an eye dropper. With an eye dropper, you can apply an exact amount of water that you can measure in drops. *Today, once you have agreed on a plan, you will try your experiment with just one or two materials to see how the experiment works. Then tomorrow, once you are sure you have designed a fair experiment, you'll use all your materials and record your findings.* *What ideas do you already have about designing this experiment?* Have a few children share initial thoughts so that all children have ideas to start with.
Investigation 15 minutes	Encourage children to design experiments with their partners, without directing too forcefully. Observe, and ask open-ended questions to help them reflect on what they are doing and make adjustments to their experiments as needed. ● *What variable are you changing in your experiment?* ● *How will you measure water?* ● *How will you keep track of the data you collect?* ● *What do you think will happen? Why do you think so?* ● *Do you think your experiment will change if you use more* ● *drops? Fewer drops?* Remind children to record their ideas in their packets.
Closing 5 minutes	Gather children back in the whole group. Ask them to share successes and difficulties. *What ideas do you have for your experiments? Will that make a fair experiment?* Encourage children to ask each other clarifying questions and to offer feedback. Record children's ideas on the chart for reference as they begin and refine their experiments in the following lesson.
Standards	**2-PS1-1** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. **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. **SL.2.2.b** Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
Assessment	Circulate as children are working. Listen for the questions children ask each other and the explanations they offer in response as they design and test their experiments. This will help facilitate the discussion in Lesson 2.

	After the lesson, review the children's plans as recorded in their packets. Plan to address aspects of any plans that may lead to faulty experiments or reinforce misconceptions, either with pairs of children or with the whole group when opening the next lesson. Collect and prepare any additional materials children have identified in their plans.

Notes