

WEEK 5 Lesson 2

Science and Engineering: Matter and Its Interactions

Conducting an Experiment to Test Hardness

Big Ideas	Materials have observable properties. The properties of materials impact how they are used for specific purposes.
Guiding Questions	How do we design an experiment so that it is fair?
Content Objectives	I can design and conduct an experiment that is fair to test hardness. (2-PS1-2) I can collect data on the hardness of solid materials. (Practice 3, 2-PS1-2)
Language Objectives	I can communicate my observations and findings about a material's hardness in writing and speaking. (SL.2.2.a, W.1.2.b)
Vocabulary	hardness: the property of resisting pressure and scratching resist: to withstand or hold up against
Materials and Preparation	Review the experiment designed by the class in the previous lesson. all materials from Lesson 1. Prepare bags of materials for each pair of children according to the experiment plan. <ul style="list-style-type: none">• A Fair Experiment to Test Hardness chart, from Lesson 1• Science and Engineering packets• writing and drawing tools
Opening 5 minutes	Today you will conduct the experiment we agreed upon yesterday. Review the Fair Experiment to Test Hardness chart, talking through each part of the experiment. Distribute materials and packets, and send children to work with their partners.
Investigation 15 minutes	Children conduct the experiment as agreed in the previous lesson and record their findings in their packets.
Closing 10 minutes	<i>What did you find out?</i> Ask pairs of children to report their findings. Ask other children to

	<p>respond, prompting them to compare similar and different results. Entertain reasons why their experiments may have produced such consistent or variable results.</p> <p><i>What can you think of that is made with a hard material? Why do you think it was designed that way? What ideas do you have now about materials that would be good for building a chair? Why do you think that?</i></p> <p><i>What questions do you still have about the hardness of these materials?</i></p>
Standards	<p>2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p>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.</p>
Assessment	<p>Take notes about how children approach their experiments and collaborate to conduct them. Review their packets to assess how children record their findings. Listen for how children interpret and discuss their own and each other's findings.</p>

Notes
