

WEEK 7 Lesson 2

Science and Engineering
Using the Engineering Design Process

Big Ideas	Vibrating materials make sound. Sound makes materials vibrate. Materials interact with light in different ways. Light and sound travel. Humans and other animals communicate with light and sound. People innovate and invent to solve problems.
S & E Guiding Question	What is the Engineering Design Process?
Content Objective	I can give and receive feedback to improve a design that is a solution to an engineering problem. (Practices 1 and 6, 1-PS4-4, 1.K-2-ETS1-1, 1.K-2-ETS1-2)
Language Objective	I can ask and answer questions about my design to gather additional information or clarify something that is not understood. (SL.2.1.b)
Vocabulary	design: to plan something for a specific purpose improve: to make better
Materials and Preparation	<ul style="list-style-type: none"> ● Engineering Design Process chart, from Lesson 1 ● Engineering Design Process slides ● one child’s work in progress <p>Talk with this child to prepare them for sharing their work and receiving suggestions for improvement.</p>
Opening 10 minutes	<p><i>Last time, we identified the parts of the Engineering Design Process. Review the chart.</i></p> <p><i>Now that you’ve had a little bit more time to work, let’s revisit the process and share ideas about how we can improve our designs, or make them better.</i></p> <p><i>We’ll start by looking at one project. We’ll listen to the engineer talk about their design, ask questions, and share some ideas to help improve it.</i></p> <p>Invite the child forward to present their work. Support them to describe</p>

	the communication tool and to demonstrate how it works. If the child is encountering a challenge in design or creating, invite them to describe that challenge. Then, invite other children to ask clarifying questions and then to offer suggestions for improving the design.
Investigation 15 minutes	Have children work in groups of three to describe their projects, ask questions, and make suggestions, giving each child about five minutes to present. Circulate while they do this, and select one group to share their experience at the close of the lesson.
Closing 5 minute	Return to the whole group. Invite the selected group to share highlights of their conversation. Articulate any shared understandings they have reached or next steps they have identified, especially those that may resonate with many children.
Standards and Practices	1-PS4-4. Use tools and materials to design and build a device that uses light or sound to send a signal over a distance.* 1.K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change that can be solved by developing or improving an object or tool.* 1.K-2-ETS1-2. Generate multiple solutions to a design problem and make a drawing (plan) to represent one or more of the solutions.* Practice 1. Asking questions and defining problems Practice 6. Constructing explanations and designing solutions
Ongoing assessment	Reflect on children’s conversations and the next steps they identify.

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