WEEK 8 Lesson 2

Science and Engineering: Matter and its Interactions

Building Alternative Seating

Option A: Children continue to work with partners on alternative seating prototypes.
Option B: A small group or the whole class begins to build an actual seat for classroom use.

Big Ideas	Materials have observable properties. Materials' properties impact how they are used for specific purposes.
Guiding Questions	What are the properties of a seat that will meet our needs as learners? What materials could the seat be made of to respond to our needs?
Content Objectives	I can build a seat with appropriate materials, based on criteria I have identified. (2.K-2-ETS1-3) I can decide if my alternative seating design works as intended. (Practice 4, 2.K-2-ETS1-3)
Language Objective	I can identify and discuss the materials used in the design of alternative seatings, the properties of those materials, and how they meet specific criteria. (L.6.2.a)
Vocabulary	**alternative seating**: places that allow people to choose how they sit according to their needs

Option A	**Option B**
Materials and Preparation	
• all materials identified in children's plans, as a single collection Display materials so that they are easily accessible to the children. • Science and Engineering packets • writing and drawing tools • Designing a Chair for Our Classroom chart, from Week 7	Review children's designs. Choose one design or a trend that may realistically be built for the classroom with available materials. Make a visual representation of the design to propose the idea to the group, perhaps enlarging a child's design or drawing/writing an amalgamated design on chart paper. Collect and prepare needed materials.

	• chart paper and markers • Designing a Chair for Our Classroom chart, from Week 7
Opening 5 minutes	
Yesterday you analyzed seats created by professional engineers and designers. Today you may want to revise your own design based on something you saw, or you may want to come up with a new design. Distribute Science and Engineering packets and a pencil to each child. *Take a look at your designs so far. Think about whether there are any changes you'd like to make after analyzing other designers' ideas.* Encourage children to make quick marks directly onto this page as they consider their designs. *Why would you want to make that change?* *Now turn and talk with your design partner about what you are thinking now.* Leave open the option of beginning an entirely new design, but only after they have assessed their original thinking.	*We are going to build some actual seating for our classroom! I have been looking carefully at your designs, and I notice that many of the designs address _____* [commonly identified need]. Show a few examples from children's packets. *You have come up with many interesting designs. This is one I think we could actually build with the materials we have available.* Show the proposed design. Review or establish criteria, reflect on the professional designs in the Alternative Seating packet, and suggest a plan for accomplishing the work. Assure children that this project may require additional physical resources (materials and tools), human resources (expertise, including from outside the classroom such as another member of the school community or a family member), and time; children should not expect to finish this project in just a session or two.
Investigation 15 minutes	
Children revise their designs. They build a seating prototype, either of their own designs or of one of the seats in the packet. As children propose and make changes to their designs and/or prototypes, ask them to defend these decisions based on properties	Working in small groups, children agree on a seating design and make a plan, considering materials, tools, and other resources they will need. Once the plan is set, children begin building.

of materials and the criteria they are aiming to meet.	As children propose and make changes to their designs and/or prototypes, ask them to defend these decisions based on properties of materials and the criteria they are aiming to meet.
Discussion/ Closing 10 minutes	
Children share their current designs, including ideas they had previously that have been reinforced or modified by research, exposure to professional designs, review of criteria, and peer feedback.	Review the criteria for the classroom seating. Review the plan and the day's progress, and decide as a class how to proceed with identifying useful resources, gathering materials, building, soliciting help, and setting a timeline. It may be useful to assign specific roles.

Standards and Practices	**L.6.2.a** Use words and phrases acquired through conversations, reading, and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other kids are happy, that makes me happy). **2.K-2-ETS1-3.** Analyze data from tests of two objects designed to solve the same design problem to compare the strengths and weaknesses of how each object performs. **Practice 4.** Analyzing and Interpreting Data
Ongoing assessment	In approaching and refining this work, how do children integrate concepts from Science and Engineering lessons across the unit? Do children make solid connections between materials' properties and their uses in specific designs? Do children use important vocabulary to discuss and describe their work? How do children demonstrate connections between this seating design project and the Big Ideas of Unit 1, as articulated in Talk Time discussions, written work, explorations in Studios, and beyond?