WEEK 7 Lesson 1

Science and Engineering: Quadrant Study 2

This lesson connects to and continues the year-long Quadrat Study, first introduced in Week 3, Lesson 2.

Big Ideas	Materials have observable properties. The properties of materials impact how they are used for specific purposes.
Guiding Questions	What solid matter is in my environment?
Content Objective	I can describe the properties of objects I observe on a small piece of land. (Practice 5, 2-PS1-1)
Language Objective	I can describe a material and its properties in speaking and writing. (L.6.2.a, W.2.2.a)
Vocabulary	**distribution**: the way something is shared in a group or spread over an area **isolate**: to set apart material: what a thing is made of, such as wood, paper, metal, plastic, cloth, or cardboard **quadrat**: a small area of habitat, usually selected to collect data about the distribution of plants or animals **solid**: something that is firm and has a stable shape
Materials and Preparation	Review children's entries in Science and Engineering packets from the first quadrat study. Select a few that show different and informative observations. ● hula hoops or equivalent lengths of rope or twine knotted to enclose a circle, one for each child ● Science and Engineering packets ● writing and drawing tools, in one or more containers to carry outdoors ● hand lens, one for each child ● chart paper and markers

Opening 8 minutes	*Today we're going back out to the schoolyard to continue our quadrat study. Remember, in a quadrat study scientists study the distribution of objects or organisms in an area—or how many of something there are. Let's take a look at a couple of observations from our last quadrat study.* Show the selected examples. Use a simplified Science Circle protocol to guide the conversation, informally introducing this routine. As a group, review the safety precautions. Add any new precautions children suggest. Distribute children's packets and hand lenses. Take the children out to the schoolyard with quadrat markers (hula hoops/ropes). Direct children to return to the same spots they observed for their initial quadrat studies, in Week 3. *What materials do you think you might find that are the same as last time?* *What different materials do you think you might find?*
Investigation 15 minutes	Once outside and in a good spot for this observation, offer reminders as needed for placing the quadrat marker on the ground, observing everything within its frame, and identifying and describing as many solid objects as possible. Emphasize making a precise observational drawing, including information about the properties of the objects with both drawings and labels. As children work, circulate to support children's observation, identification, description, and recording. Identify a few children to share their work with the whole group.
Closing 5 minutes	Bring the children back indoors. Set aside all materials except children's packets. Ask identified children to share and describe their work. Encourage them to use precise vocabulary. Prompt classmates to provide additional words describing the same materials as they might have observed them in their own quadrats. *We will continue to do this investigation throughout the school year. How do you think your quadrat might change throughout the year? What do you think will make those changes?*
Standards	**2-PS1-1** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. **W.2.2.a** With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. **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).
Assessment	As children work to record their observations, take note of their approach to the task, particular interests, and how they might be best supported with ongoing outdoor learning. Review children's packets. What degree of detail do they include? What do they notice? How do they represent various objects? How do they describe those objects in drawing and with words? This is a year-long investigation. As children continue this work, look for greater details in their drawing and writing and increasingly meaningful connections to current unit content.

Notes