

Mathematics:

Finding Mathematics All Around Us

Strands:	<i>Number Sense</i>	<i>Algebra and Functions</i>	<i>Measurement</i>	<i>Geometry</i>	<i>Mathematical Reasoning</i>
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GETTING READY

Instructional Component(s): In-Class Activity; Assessment

Strands: This activity can be used to develop familiarity with and deepen understanding of all math strands or of individual strands.

Focus: Students recognize that the concepts and skills described in the mathematics foundations occur in everyday situations and in natural environments.

AFTER PARTICIPATING IN THIS ACTIVITY

Students will demonstrate **knowledge** and **skills** that are consistent with an increased understanding and application of the concepts addressed in this activity.

Students will demonstrate an understanding of:

- How mathematical concepts can be explored using objects found in our everyday settings (*Standard 5*)*
- Possible ways to use objects to engage children who are English learners with math concepts (*Standards 1 & 4*)*
- The foundations in mathematics, including strands, substrands, foundations, and examples of foundations (introductory understanding) (*Standards 1, 5, & 6*)*

Students will be able to:

- Recognize that the concepts and skills in the math foundations occur in everyday situations (*Standard 4*)*
- Consider how to engage children with mathematics through the use of everyday objects (*Standards 1 & 4*)*
- Support children who are English learners to develop skills and understanding in mathematics (*Standards 1, 4, & 5*)*

*See Appendix A

Mathematics: Finding Mathematics All Around Us

Before you start

It is helpful to demonstrate that mathematical concepts can be richly discussed and described with objects that we frequently encounter.

Ask students to bring to class a collection of natural objects (e.g., nuts, leaves, rocks, feathers, or sticks) for use in this activity.

Getting it started

Assign students in pairs or small groups to a strand or more than one strand. Have students spread their natural objects out on a table or floor area, and let them know that their explorations will demonstrate the mathematics foundations. Remind students that foundations are about children's development rather than curriculum.

Ask that they take 10 to 15 minutes to decide ways they can demonstrate to others in the class how they can address the concepts in the math foundations while exploring these materials.

You could add other props that would allow students to consider single variables, such as shape, or two variables simultaneously, such as size and color or shape and color.

Keeping it going



Slides 2-6

There are many possibilities for this activity, but here are some examples of questions that could be provided to students to facilitate the work:

Number Sense

- What could they count?
- Where could they find groups or separate into groups?
- What operations could they use?

Measurement

- What attributes of the objects could be measured?
- What could these objects be compared to or measured against?

Algebra and Functions

- How can they be grouped (classified)?
- How could patterns be seen or made?

	<p>Geometry</p> <ul style="list-style-type: none"> • What shapes can be recognized? • What shapes can be made? <p>Mathematical Reasoning</p> <ul style="list-style-type: none"> • What can they build with these objects? • How can they make equal groups?
<p>Putting it together</p>	<p>Ask each group to demonstrate their work. Their ideas can be recorded and later put together as a resource.</p>
<p>Taking it further</p>	<p>Ask students to consider how they would engage students who are English learners in an activity like this. How could they connect children who are English learners to the rich vocabulary that is used here?</p>
<p>Another way</p>  <p>Slide 7</p>	<p>Sometimes it is interesting to bring in different sets of objects, such as buttons, and ask how these could be used to demonstrate these ideas, as well.</p> <p>Then ask this question:</p> <ul style="list-style-type: none"> • How might younger preschool children experience this differently from older preschool students?
<p>Assessment</p>	<p>If collections of objects found in nature are used for this activity, other types of objects, such as the buttons, could be used for assessment. The same questions could be used, and students could record their responses. This would require that they not only remember what happened with the natural objects but also think about additional or different possibilities.</p> <p>Students could also complete the activity out of class and submit their written results.</p>