

## ***Mathematics:*** **Supporting English Learners As They Learn the Language of Math**

<b>Strands:</b>	<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):** Information Delivery; In-Class Activity; Out-of-Class Activity

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

**Focus:** Students consider how language development for a child who is an English learner would influence understanding and skills in mathematics.

### **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 language development and learning English can influence how children demonstrate the math foundations (*Standards 1 & 5*)\*
- The stages of learning a second language (*Standard 1*)\*
- The foundations in mathematics, including strands, substrands, foundations, and examples of foundations (introductory understanding) (*Standards 1, 5, & 6*)\*
- Strategies used to support children who are English learners in developing skills and concepts in math (*Standards 1, 4, & 5*)\*

**Students will be able to:**

- Recognize the stages of learning a second language, related to developing skills and concepts in math (*Standard 1*)\*
- Support children who are English learners develop skills and concepts in math (*Standards 1, 4, & 5*)\*
- Identify math words in different languages that would be helpful to use and for children to see in the preschool environment (*Standards 4 & 5*)\*
- Observe and document teaching strategies to support children at each stage of language development to support learning of math concepts (*Standards 1 & 5*)\*

\*See Appendix A

## ***Mathematics:*** **Supporting English Learners As They Learn the Language of Math**

### ***Before you start***

This activity asks students to develop ideas for supporting all children in the process of building knowledge and skills in mathematics as well as specifically focusing on children who are English learners. While this steps into the realm of curriculum development, it is included in this instructional guide because it addresses the crucial issue of math development for English learners.

It will be helpful to be familiar with the English-language development foundations as you guide your students through this activity.

### **Getting it started**



Slide 2

This activity requires that students work with four stages that young children will demonstrate as they go through the process of bilingual language learning. These are available on pages 105 and 106 of the *California Preschool Learning Foundations, Volume 1* (PLF, V1). In addition, CDE has published *Preschool English Learners: A Resource Guide*. Chapter 5 of this publication presents more in-depth information regarding the stages that children pass through as they learn a second language.

It may be helpful for students to have a summary sheet of the foundations so that they can focus on the specific content you are targeting in this activity.

If you have the publication available, you can review the stages in Chapter 5 of CDE's *Preschool English Learners: A Resource Guide*. Be sure to emphasize the following points:

- A major practice emphasized throughout the resource guide is that it is critical to honor the home language as children learn English.
- Much of preschool math is related to learning words and associating those words with objects or processes. This means that any strategies to support children who are English learners as they develop language and literacy in English apply to developing skills and concepts in math as well.

<p><b>Keeping it going</b></p>  <p>Slides 3-4</p>	<p>Introduce students to the table provided as a handout following this activity.</p> <p>Ask students to think about the following question:</p> <ul style="list-style-type: none"> <li>• How can adults support children in each of these stages of learning English in ways that would <i>specifically help them learn the language of math</i> in English?</li> </ul> <p>In pairs or small groups, they can be asked to work through the entire table or they can be assigned to specific stages or strands.</p>
<p><b>Another way</b></p>	<p>If students need some support in initiating this activity, you might mention the following examples:</p> <ul style="list-style-type: none"> <li>• Posting written words in the environment in the home language of the children paired with English</li> <li>• Narrating what an adult or another child is doing</li> <li>• Using songs or finger-plays in the home language and English that relate to the math foundations</li> </ul>
<p><b>Putting it together</b></p>	<p>After they have gone through the table, ask them to share their ideas with the group.</p>
<p><b>Taking it further</b></p>	<p>Consider collecting and combining these ideas to give to students as a resource for their work.</p>
<p><b>Taking it out of class</b></p>	<p>Following class review of the initial information, ask students to work on this as an observation activity. Ask students to do an observation in a preschool classroom, paying attention to environment, interactions, and activities.</p>

	<b>What are some intentional teaching strategies that can be used for children at each of these levels to support learning of math concepts?</b>				
	Number Sense	Algebra and Functions	Geometry	Measurement	Mathematical Reasoning
<p><u>Use Of Home Language</u></p> <p>Children will use their home language when and where it works.</p>					
<p><u>Observational and Listening Period</u></p> <p>Children are quiet but listening and watching and possibly trying out gestures and sounds</p>					
<p><u>Telegraphic And Formulaic Speech</u></p> <p>Children might use important words, such as labels and actions, but omit many other words.</p>					
<p><u>Fluid language speech</u></p> <p>Children can use full sentences in a variety of contexts, but are still learning and expanding their knowledge of the language.</p>					