

## *Mathematics:*

### Understanding the Research and Evidence Base for the Mathematics Domain

<b>Strands:</b>	<i>Number Sense</i>	<i>Algebra and Functions</i>	<i>Measurement</i>	<i>Geometry</i>	<i>Mathematical Reasoning</i>
<b>GETTING READY</b>					
<p><b>Instructional Component(s):</b> Information Delivery; Out-of-Class Activity; Assessment</p> <p><b>Strands:</b> This activity can be used to develop familiarity with and deepen understanding of all math strands or of individual strands.</p> <p><b>Focus:</b> Students explore the research base of the foundations.</p>					
<b>AFTER PARTICIPATING IN THIS ACTIVITY</b>					
<p>Students will demonstrate <b>knowledge</b> and <b>skills</b> that are consistent with an increased understanding and application of the concepts addressed in this activity.</p> <p><b>Students will demonstrate an understanding of:</b></p> <ul style="list-style-type: none"> <li>• The research underlying the PLF, V1 (introductory understanding) (<i>Standards 1 &amp; 6</i>)*</li> <li>• How bibliographic notes can be a useful introduction to core research ideas (<i>Standard 6</i>)*</li> </ul> <p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>• Use bibliographic notes to become introduced to research underlying the PLF, V1 (<i>Standard 6</i>)*</li> <li>• Consider the implications of research findings on practice (<i>Standards 1-6</i>)*</li> </ul>					
*See Appendix A					

## **Mathematics:**

### **Understanding the Research and Evidence Base for the Mathematics Domain**

#### **Before you start**

The *California Preschool Learning Foundations, Volume 1* (PLF, V1), includes a section of bibliographical notes for each domain. These bibliographic notes provide summaries of the research and evidence that underlie the foundations.

Understanding that the foundations are based upon research is a very important concept. Many of the research papers in the bibliographic notes are foundational to the field of early childhood development and education. Additionally, many of the research articles give students an overall appreciation for cross-cultural studies of math education in other cultures or countries.

#### **Getting it started**

Assign students individually, in pairs, or small groups to a strand. Ask students to find and read the bibliographic notes in the PLF, V1 relating to the particular strand that they were assigned. Ask them to find three to five key phrases or ideas from the notes and be ready to report them to the whole class.

It will be helpful to record the phrases or sentences as they are reported to the whole group. This will be most helpful if done by strand and if the questions in the following section are asked for each strand.

#### **Putting it together**



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You might want to ask students to consider these questions for each strand:

- What was new to you?
- Is there one phrase or idea that seems most important?
- How would one's cultural community or language affect how children demonstrate these capacities?
- What are the implications for how you engage young children in early experiences with mathematics?

#### **Another way**

This activity could be done all in one class period or spread out over several classes, using one strand for each class. It also could be implemented by posting the sentences or phrases from each group online. This would give students time to consider the responses to the questions in the preceding section.

**Taking it  
out of class**

Students could be assigned to find one article in the bibliographic notes and respond to the questions listed previously relating to that article. You might want to provide a selected list of these articles, as there is a range of breadth and depth and all might not be appropriate for a particular group of students.

Reviewing the *Deepening Understanding* section in this instructional guide will provide ways to involve students more deeply with relevant research.

Additionally, a review of the literature relating to any one strand would be suitable for advanced students.

**Assessment**

This activity could be done as an individual written assignment completed out of class. In that case, consider having each student review all the strands and perhaps find three key ideas in each strand. Students' responses could still be used for class discussion as described in this activity.