

# Workshop 7

## Children's Ways of Knowing

### DESCRIPTION

Children know a good deal of informal mathematics before they enter school. Clinical interviews help teachers understand what children know. In this session, you will see young children's natural mathematical inclinations and watch as they construct their ideas. You will observe Professor Ginsburg helping teachers of young children rethink the mathematics curriculum based on children's natural mathematics work.

### PROFESSOR HERBERT GINSBURG

Professor Herbert Ginsburg holds the Jacob H. Schiff Chair at Teachers College, Columbia University, where he is professor of psychology and education. For the past 30 years, he has conducted research on cognitive development—particularly the development of children's mathematical thinking—both within the U.S. and in various cultures around the world. He has used the knowledge gained from research to develop several kinds of educational applications and has created video workshops to enhance teachers' understanding of their children's learning of mathematics. He has also contributed to the Silver Burdett & Ginn mathematics textbook series, developed tests of mathematical thinking, and explored how the “clinical interview” method for assessing children's mathematical knowledge can be used by teachers in their classrooms. Currently, he is engaged in research on young children's mathematical competence and is developing a new mathematics curriculum for 4- and 5-year-old children.

# Workshop 7 Timeline

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## Getting Ready

30 minutes

### Understanding a Question

Think of a time when a child asked you a question or said something you just couldn't follow. Describe it to your colleagues. As a group, select one instance and discuss it. Try to find the logic the child was expressing and identify the confusion you had.

### Early Mathematics

Discuss with your colleagues:

- Based on your own experience, what mathematics concepts do 4- and 5-year-old children know?
- What mathematics concepts are 4- and 5-year-old children developing naturally?

# Workshop 7 Timeline

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**Watch the Workshop Video**

**60 minutes**

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**Going Further**

**30 minutes**

## **Children's Thinking**

Were there any surprising aspects of the children's work? Think of some strategies teachers could use to connect these informal mathematical ideas with "school math."

## **Interviewing**

Talk with your colleagues about the opportunities and challenges that clinical interviewing presents to teachers.

# For Next Time

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## Ongoing Activity

### Reflective Journal

In your journal, write about a time you felt mathematically misunderstood. What sort of help from a teacher might have been most beneficial to you?

## Homework

Before the next workshop, ask your students to explain (in writing and drawings) what they understand about *one idea* that you have recently taught in science.

- Take a close look at what your children have written and drawn.
- List any ideas that you see in the children's work that do not seem to fit with the concept you taught.
- What questions could you ask to gain more information about student thinking?
- List any ideas expressed in the children's work that might be turned into simple investigations.
- Bring a few representative samples of children's work (erase names) to Workshop 8 for the Going Further discussion.

**Reminder:** Sign up for a Web Buddy (see Workshop Components, p. 11).

## Reading Assignment

To prepare for Workshop 8, please read the articles by Wynne Harlen, "Handling Children's Questions"—taken from her book *The Teaching of Science in Primary School*—and "Assessment in the Inquiry Classroom," which can be found in the Appendix.