

Practice Finding the Math Training Activity

For use with *Practice Finding the Math* PowerPoint slides

General Introduction

Training Activity	2-hour training for Head Start and Early Head Start teaching staff
Purpose	<ul style="list-style-type: none"> • Strengthen teaching staff's skills in recognizing and building on/"mathematizing" everyday mathematical learning opportunities • Provide teaching staff strategies to share with families that they can use to promote mathematical learning during daily routines
Intended Trainers	Education managers, center directors, mentor coaches, and others who work on staff development
Intended Audience	Teaching staff
Training Outcomes	<p>Participants will</p> <ol style="list-style-type: none"> (1) identify opportunities for mathematics learning experiences in early childhood classrooms and daily routines, (2) identify how they can mathematize their language during those naturally occurring opportunities, and (3) identify ways they can encourage family members to support their children's math learning at home. <p>Trainers and education managers will</p> <ol style="list-style-type: none"> (1) identify teaching staff's strengths and needs in recognizing and planning mathematical learning opportunities, (2) facilitate the development of teacher teams to provide mutual support in strengthening math knowledge and skills, and (3) increase teaching staff's knowledge of early mathematics.
Key Points	<ul style="list-style-type: none"> • Opportunities for mathematics learning occur everywhere—at school, at home, and all around the community. • Adults can intentionally use these opportunities to foster young children's mathematical development by using math vocabulary in their interactions with children.

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	<ul style="list-style-type: none"> • Adults can also foster mathematical development by using comments and questions that encourage exploration and problem solving using mathematical concepts. • Adults can plan and introduce opportunities that are geared to what individual children are ready to learn next as well as mathematize naturally occurring opportunities. • Adults can foster a love of learning by mathematizing what children are interested in—"following the child's lead."
Materials	<ul style="list-style-type: none"> • <i>Practice Finding the Math</i> PowerPoint • Computer, LCD projector, screen • Flip chart or whiteboard and markers • Classroom photographs—ask teaching staff to bring photographs of everyday activities from their classroom for use in the training • Background information for trainer: <ul style="list-style-type: none"> ○ Epstein, Ann S. 2007. Chapter 4: Mathematics and scientific inquiry. In <i>The intentional teacher: Choosing the best strategies for young children's learning</i> (pp. 41-65). Washington, DC: National Association for the Education of Young Children (http://eclkc.ohs.acf.hhs.gov/hslc/ecdh/eecd/Domains of Child Development/Mathematics/RecommendedReadi.htm) • Handouts <ul style="list-style-type: none"> ○ <i>The Head Start Path to Positive Child Outcomes: The Head Start Child Outcomes Framework</i> (http://eclkc.ohs.acf.hhs.gov/hslc/ecdh/Health/Planning%20%26%20Managing/Child%20Health%20Outcomes/health_public_14002_103105.html#math) ○ Printed copies of slides 4, 6, 8, 10, 12, 14, 16, 18, and 20 for the small group activity ○ <i>A Family Note on Finding the Math</i> (downloaded from the ECLKC – list actual link when it's available)

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Steps



Opening Activity (15 minutes)

1. Welcome participants to the training activity, Practice Finding the Math. Show Slide 1 (Practice Finding the Math) and discuss the following points:
 - Opportunities for mathematics learning occur everywhere—at school and at home.
 - Adults can intentionally use these opportunities to foster young children's mathematical development by mathematizing the language they use with children.
 - Mathematizing language includes using vocabulary such as number words (for example, counting one, two, and three) and comparison words (for example, “more,” “less,” and “same”).
 - Adults can foster mathematical development by using comments and questions that use mathematical concepts to encourage exploration and problem solving.
 - An example of mathematizing a comment with children: “I see a pattern in your building—short block, tall block, short block, tall block. Do you see it?”
 - An example using a question that encourages problem solving using mathematical concepts: “We have four children and three chairs. How many more chairs do we need for each child to have a chair?”
2. Show Slide 2 (children and adult holding hands dancing in a circle).
 - “Let's look at everyday experiences to practice finding the math.”
 - Ask the following questions:
 - “What math learning can happen when children and adults dance together?”
 - Encourage several responses.
 - Record ideas on the flip chart or whiteboard.
 - “What language (vocabulary, comments, questions) can an adult use to encourage math learning?”
 - Encourage several responses.



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- Record the ideas on the flip chart or whiteboard.



3. Show Slide 3 (titled "Dancing").

- Discuss the points made on the slide and review the examples of how the teacher mathematized the language she used:
 - Point out the musical beat.
 - "Listen to the beat: 1-2-3. 1-2-3. Clap to the beat: clap-clap-clap. Clap-clap-clap."
 - Use words that describe the speed of movement.
 - "You are moving **fast** like a hummingbird."
 - Ask questions to foster children's exploration of spatial sense.
 - "How high can you raise your arms?"



Review the Head Start Child Outcomes Framework (15 minutes)

4. Pass out page 6 of *The Head Start Path to Positive Child Outcomes: The Head Start Child Outcomes Framework*.

- Point out the three mathematics domain elements.
- Ask participants to read and discuss the indicators.
- While the Head Start Child Outcomes Framework applies to children from 3-5 years, it is important that Early Head Start staff are aware of the outcomes since children build their mathematical foundations from their earliest days.

Small Group Activity (20 minutes)



5. Show Slide 4 (boy building with blocks) and ask the following questions:

- "What math learning can happen during this activity?"
- "What domain elements can be addressed through this activity?"
- "How can an adult mathematize his or her language to encourage math learning?"
- "Which Head Start child outcome(s) do you see being addressed in this photograph?"

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6. Discuss the participants' answers. Then show Slide 5 (titled "Block Building").
 - Emphasize that there are many possible answers to these questions.
 - Focus on vocabulary words, comments, and questions that foster mathematical development.



7. Divide the participants into small groups with 4-5 people per group.
 - Divide the remaining photographs evenly among the groups. If teaching staff brought photographs of their own classrooms, suggest that they use those photographs for this activity.
 - Write the questions (listed below) on a flip chart.
 - Ask participants to answer the following questions about each of their pictures:
 - What math learning can happen during this activity?
 - What domain elements can be addressed through this activity?
 - How can an adult mathematize his or her language to encourage math learning?
 - Which Head Start child outcome(s) do you see being addressed in this photograph?
 - Ask each group to record their answers to each question so they can share back with the group.

Large Group Discussion (45 minutes)

8. Ask each group to share their photograph(s) and responses to the questions.
 - Refer to suggestions on the PowerPoint slides if needed.

Family Involvement Discussion (15 minutes)

9. Introduce the discussion by making the point that families play an important role in math development.
 - Discuss ways to share learning opportunities and mathematizing language with family members.

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- Record ideas on a flip chart.
- 10. Pass out *A Family Note on Finding the Math* to share with family members.
 - Discuss ways to use *A Family Note on Finding the Math*. Examples include the following:
 - Pass out the handout during a parent meeting event.
 - Post the handout on the family bulletin board.
 - Review the handout during a home visit.



Conclusion (10 minutes)

- 11. Ask participants to plan what they will do next to extend the ideas from this session.
 - Discuss ways that teaching staff can create communities of learners to provide mutual support in strengthening their math knowledge and skills.
- 12. Review the key points.
 - Opportunities for mathematics learning occur everywhere—at school, at home, and all around the community.
 - Adults can intentionally use these opportunities to foster young children's mathematical development by using math vocabulary in their interactions with children.
 - Mathematizing language includes using vocabulary such as number words (for example, counting one, two, three) and comparison words (for example, "more," "less," and "same").
 - Adults can also foster mathematical development by using comments and questions that encourage exploration and problem solving using mathematical concepts.
 - An example of mathematizing a comment: "I see a pattern in your building—short block, tall block, short block, tall block. Do you see it too?"
 - An example of using a question that encourages problem solving using mathematical concepts: "We

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have four children and three chairs. How many more chairs do we need so that each person has a chair to sit on?"

- Adults can plan and introduce opportunities that are geared to what individual children are ready to learn next as well as mathematize naturally occurring opportunities.
- Adults can foster a love of learning by mathematizing what children are interested in—"following the child's lead."

Icon Key



PowerPoint slide



Handout



Follow-up activity

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Follow-up Activities for the Classroom

- Invite teaching staff to take photographs in their own classrooms or collect family photographs of everyday experiences with children at home and in the community. Create a *Finding the Math* bulletin board.
 1. Use pictures of children's everyday experiences at school, at home, and in the community.
 2. Post the photographs on the bulletin board.
 3. Write some examples of math learning that occur in the photograph. For example, a photograph of children playing on playground equipment could include the following examples of math concepts and math language:
 - Spatial sense—recognizing position and direction
 - Jerrod is crawling through the tunnel. Elise is climbing to the top of the slide.
 - Sammy and Joon are walking backwards.
 4. Attach the examples next to each photograph as reminders of the math concepts and math language that adults can share with the children.
 5. Discuss the math with the children as they look at the photographs.

- Plan for math learning before field trips.
 1. Take photographs of what the children will see on a field trip or community walk (e.g., library, grocery store, museum, walks around the neighborhood).
 2. Plan some math learning opportunities during the outing.

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Follow-up Activities for Use with Families

- Hold a math scavenger hunt at a parent meeting.
 1. Before the meeting, post photographs of the children's everyday school experiences all around the classroom.
 2. Give parents a list of different math concepts and examples of math talk. The following are a few examples:
 - Counting – “How many children are in this picture? Let's count them together.”
 - Comparing sizes – “Daddy's sock is big, and baby brother's sock is little.”
 - Recognizing shapes – “The little windows in that building look like squares. What other shapes do you see in the building?”
 - Recognizing positions of objects – “The children are all putting their clay sculptures on the shelf by the window.”
 3. Provide paper and pencils so that parents can take notes.
 4. Have parents find as many examples of math learning in the classroom photographs as they can.
 5. Ask parents to share what they found and what they will do with their children when they go home.

- Home visitors can show parents how to find the math in family activities.
 1. Take photos of the children at home or use photos of family events or routines if they are available.
 2. Discuss the math learning that is in each photograph.
 3. Plan ways to include math in other ways at home.