

## SESSION EIGHT

### CONNECTING FRACTIONS, DECIMALS, AND PERCENTS

#### Outcomes

- To celebrate the accomplishments and learning of the participants in this class.
- To use number strips and Cuisenaire® Rods as manipulatives for illustrating percent concepts.
- To reinforce the relationship between fractions, decimals, and percents.
- To introduce participants to **NCTM Connections Standard**.

#### Overview

In the final session of Thinking About Fractions, Decimals and Percents, parents will once again utilize number strips and Cuisenaire® Rods to further deepen their understanding of percent and consider the relationship between fractions, decimals, and percents. The lesson portion of this session is shorter than in the other sessions so that the final part of the class time can be used for celebrating and recognizing parents' accomplishments. The celebration might include handing out certificates to participants, honoring individual parents for particular accomplishments, and/or cake or other goodies! In addition, the structure of this session allows time for parents to complete course evaluations and/or interviews.

#### Time

- 25-30 minutes** During the first part of the session, participants share their experience of implementing one of the **Top Ten Tips for Parents** listed in **Bringing Mathematics Home 7**. They also share their solutions to the homework problems
- 3-5 minutes** **NCTM Connections Standard** is introduced before the Relating Fractions and Decimals to Percents activity. By introducing this first, the participants will have a chance to think about the standard throughout the session and how it ties to the main activity.
- 30-40 minutes** Next, participants make a percent number strip and place it with the previously made fraction and decimal strip in order to compare the three representations of rational numbers. They use Cuisenaire® Rods to apply their understanding of fractions and decimals to percent concepts
- 20-25 minutes** In the closing activity parents reflect on ways in which this class met the three goals set out in Session 1.
- 15-20 minutes** The remaining class time can be used for celebration, recognition, and evaluation.

#### Materials

Facilitator	Transparencies (English & Spanish)
<ul style="list-style-type: none"> <li>• One set of Cuisenaire® Rods for the overhead projector</li> <li>• The <b>Fraction-Decimal-Percent Chart</b> created in Session 1</li> <li>• A six-foot length of butcher paper or three chart paper sheets for the closure activity</li> <li>• Clear tape for each table</li> <li>• Large size Post-It® notes</li> </ul>	<p><i>BLM 47: NCTM Connections Standard</i></p>

**Activities**

Participants	Handouts (English & Spanish)
<ul style="list-style-type: none"> <li>• A set of Cuisenaire® Rods for each participant</li> <li>• A pair of scissors for each participant</li> </ul>	<p><b>One per participant for class</b>  <i>BLM 48: Percent Strip</i>  <i>BLM 49: Cuisenaire® Rod Puzzles</i></p> <p><b>One per participant for home</b>  <i>BLM 50: Bringing Mathematics Home 8</i>  <i>BLM 51: How Will Math Look in Your Child's Classroom?</i></p>
Preparation of Classroom	
<ol style="list-style-type: none"> <li>1. Divide the six-foot length of butcher paper into three columns labeled: <ul style="list-style-type: none"> <li>• I learned mathematics</li> <li>• I interacted with my children</li> <li>• I had fun</li> </ul> </li> <li>2. Post the Fraction-Decimal-Percent Charts.</li> <li>3. Place the name cards from last class near the front of the room where participants can easily find them.</li> </ol>	
Discussion of Homework (25-30 minutes)	
<p><b>Percents: 0 to 100</b></p> <ol style="list-style-type: none"> <li>1. Ask parents to review the items on the <b>Top Ten Tips for Parents</b> that was handed out last time with <b>Bringing Mathematics Home 7</b>.</li> <li>2. Ask parents to identify by number one of the tips they focused on during the week with their children. If any participant was unable to implement a Tip, ask them to choose one they think they would like to do.</li> <li>3. Now ask parents to regroup by tip number. That is, everyone who focused on Tip #1 (or plans to) sits at one table. Everyone who chose Tip #2 sits at another table. <ul style="list-style-type: none"> <li>• Give each group a sheet of chart paper.</li> <li>• Instruct parents to share what they did (or what they plan to do) to implement this Tip.</li> <li>• Have one person record all the ideas on chart paper.</li> </ul> </li> <li>4. When groups have completed this task have them post their sheet in the room. Ask each group to present to the whole class. Encourage other groups to add ideas to the list that is posted.</li> <li>5. Next, ask them to share their solutions to <b>Percent Problems</b> with the people in their group. Ask volunteers to present their solutions to the class.</li> </ol>	<p>Make sure that no one is sitting alone. If necessary, combine two or three Tips in a single group.</p> <p>Make sure that no group has more than five people. If necessary, form two groups for one Tip.</p> <p>It is not necessary for all Tips to be represented.</p> <p>Encourage presentations by parents who used various models (grids, number lines, color tiles) to solve the problems.</p>

**Activities**

Connections to National Standards (3-5 minutes)	Notes
<p>1. Display the <b>NCTM Connections Standard</b> transparency.</p> <p>2. <b>Say:</b>  <i>The standard for this session is one of NCTM’s process standards. It is called the Connections Standard and states:</i></p> <p><i>Instructional programs from pre-kindergarten through grade 12 should enable students to:</i></p> <p style="padding-left: 40px;"><i>Recognize and use connections among mathematical ideas and understand how mathematical ideas interconnect and build on one another to produce a coherent whole.</i></p> <p>3. Tell them to keep this in mind as they participate in the activities of this session and reflect on the course as a whole.</p>	
Relating Fractions and Decimals to Percents (30-40 minutes)	
<p>1. Tell participants that during this session they are going to conclude the class by relating fractions and decimals to percents.</p> <p>2. Hand out <b>Percent Strip</b> sheets and scissors to each parent. Instruct them to cut out the percent strip and label it using percents in the same manner that the fraction and decimal strips were labeled.</p> <p>3. Ask them to take out the sheet on which they taped their fraction and decimal strips (from Session 6). Have them tape the percent strip in line with the others.</p> <p>4. Remind them that the NCTM Standard for this class is the Connections Standard. Ask them to consider how this display of number strips shows connections between mathematical ideas.</p> <p>5. Have parents discuss with their groups some or all of these questions:</p> <ul style="list-style-type: none"> <li>• <i>Which strips are most closely related? Why?</i></li> <li>• <i>How could these strips help you change a decimal into percent or a percent into a decimal?</i></li> <li>• <i>How could these strips be used to help you change a fraction into a percent or a percent into a fraction?</i></li> </ul>	<p>It may be useful for parents to use a rubber band that has been cut as a tool to line up equivalent values as they did in Session 6.</p> <p>Parents should notice that the decimal and percent strips are divided and labeled very similarly. They might suggest that the strips can be used to find fraction-percent approximations in the same way that the strips approximated fraction- decimal values.</p>

## Activities

### Relating Fractions and Decimals to Percents (continued)

6. Encourage additional discussion about any other connections or relationships they see illustrated with this collection of fraction-decimal-percent strips.

#### Percent Relationships

1. Tell participants that the final manipulative activity for the class will allow them to use Cuisenaire® Rods again, but this time to represent percent relationships.

2. Hand out **Cuisenaire® Rod Puzzles**.

3. Point out to the participants that to solve the problems on this handout they will likely draw upon their understanding of fractions and decimals, even though the problems relate to percents. In addition, the last four problems involve fractions and decimals with percents.

4. It is not necessary for each parent to complete each problem. Parents may skip more difficult problems, if desired.

5. As parents complete this handout, pass around a transparency of the same sheet and ask different participants to fill in their answers.

6. Display this and ask some participants to share their thinking and methods for solving them. Ask participants to demonstrate their solutions and their reasoning by using the overhead Cuisenaire® Rods.

You can also return to the **Fraction-Decimal-Percent Chart** that was made in Session 1 and point out the connection between uses of the three.

To solve many of these problems, parents will need to use smaller rods as measuring tools as was the case in Session 4 activities.

As parents present, point out the ways they use the connections between fractions, decimals, and percent in their solutions.

### Closure (15-20 minutes)

1. Post the six-foot sheet of butcher paper that has been labeled with three columns:

- I learned mathematics
- I interacted with my children
- I had fun

2. Hand out large Post-It notes and markers.

3. Say:

- *The three goals for the class that were presented in Session 1 were:*
- *To help them learn or re-learn mathematics.*
- *To help them interact with their children about the mathematics children learn in school.*
- *To be enjoyable and fun!*

**Activities**

Closure (continued)	Notes
<p>5. Allow about 15 minutes for this task.</p> <ul style="list-style-type: none"> <li>• Ask participants to take a few minutes to read what others have written.</li> <li>• Close by asking what parents feel are the most significant learning's they will take with them from this Math For Parents course experience.</li> </ul>	
Take Home Activities (5 minutes)	
<p>1. The following are two hand outs for participants to take home:</p> <ul style="list-style-type: none"> <li>• <b>Bringing Mathematics Home 8</b></li> <li>• <b>How Will Math Look in Your Child's Classroom?</b></li> </ul> <p>2. Remind the participants that one aim of this class has been to model the look and feel of what we hope for mathematics classrooms today.</p> <p>3. Ask them to read over this list and see which of the listed items could be seen in this class. Encourage them to visit their child's class, and to keep this list in mind.</p> <p>4. Discuss participants' ideas for being a positive force for improving mathematics instruction in their children's schools.</p>	
Celebration (15-20 minutes)	
<p>1. Use the remaining time to hand out certificates or celebrate in any other way the class might desire.</p> <p>2. This time can also be used for course evaluations and/or interviews of participants.</p>	

