

Core Content

Cluster Title: Work with addition and subtraction problems.

Standard 8: Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand that equations involving addition and subtraction relates three whole numbers in fact families (e.g., $3 + \square = 11$, $11 - \square = 3$, $11 - 3 = \square$).

Procedural:

Students can solve addition and subtraction equations with the unknown whole number in all positions, relating 3 whole numbers.

Students can determine the unknown whole number in an addition equation relating 3 whole numbers.

Students can determine the unknown whole number in a subtraction equation relating 3 whole numbers.

Representational:

Students can represent an unknown whole number in an addition and subtraction equation, using 3 whole numbers.

Supports for Teachers

Critical Background Knowledge

Conceptual:

Students will know basic addition and subtraction equation strategies.

Students will know numbers and symbols.

Students will know various math strategies to solve the equations (e.g., counting on, making ten, doubles, decomposing numbers, etc.).

Procedural:

Students can solve addition and subtraction equations of all types.

Representational:

Students can model addition and subtraction equations using various math strategies.

Academic Vocabulary and Notation

addition, subtraction, equation, number sentence, unknown number, whole number, equals to

Instructional Strategies Used	Resources Used
<p>Teacher may begin instruction with teacher modeling a guided practice for equations. Continue the guided practice by using students to solve the equation. Next, allow the students to practice and solve the equation independently.</p> <p><u>Instructional Procedures:</u></p> <p>Out of Sight</p> <ol style="list-style-type: none"> 1. Give each student a sheet of paper. 2. Pair students and provide each pair with a paper cup and a bag of 12 dried beans. 3. Teacher chooses the sum. Students place that number of beans on their desk. 4. The first student closes his/her eyes. The second student places a random number of beans under the cup. The student announces the total number of beans not covered underneath the cup, signaling his/her partner to open her eyes. 5. The partner writes a corresponding addition sentence, using a box for the missing addend (the number of covered beans). The student then completes the addition sentence and lifts the cup to check the answer. 6. Both students record their problem in their math journals. 7. The partners switch roles and repeat the activity as time allows. 	<p>Pattern Block Addition: http://www.learnnc.org/lp/pages/3851</p> <p>Math Madness: http://www.fuelthebrain.com/Game/play.php?ID=69</p> <p>Math Fact Café: http://www.mathfactcafe.com</p> <p>Sierra, Judy and Hillenbrand, Will. <i>Counting Crocodiles</i>. Sandpiper, 2001.</p> <p>Grossman, Bill. <i>My Little Sister Ate One Hare</i>. Dragonfly Books, 1998.</p> <p>Sturges, Philemon. <i>Ten Flashing Fireflies</i>. North-South/Night Sky Books, 1997.</p> <p>Young, Ed. <i>Seven Blind Mice</i>. Puffin, 2002.</p>

<p>Sunny Solutions</p> <ol style="list-style-type: none"> 1. Prepare several 8" yellow construction paper circles to represent the sun. 2. Along the edge of each circle, write six basic facts, each with a missing addend. 3. Have each pair of students select a prepared circle. 4. One student reads a problem, the other student writes it on his/her paper. 5. Students use the manipulatives to determine the solution, arranging the final quantity of manipulatives beside the problem to resemble a ray of sunshine. 6. After each student writes the answer on his/her paper, the pair solves the remaining problems in a similar manner 	
Assessment Tasks Used	
<p>Skill-Based Task:</p> <p><i>Addition:</i></p> <p>Example 1: $7 + 3 = \square$</p> <p>Example 2: $7 + \square = 10$</p> <p>Example 3: $\square + 3 = 10$</p> <p><i>Subtraction:</i></p> <p>Example 1: $10 - 3 = \square$</p> <p>Example 2: $10 - \square = 7$</p> <p>Example 3: $\square - 7 = 3$</p>	<p>Problem Task:</p> <p>This is a skill-based task. There is no problem task associated with it.</p>