

CHILDREN'S DIRECT MODELING STRATEGIES FOR ADDITION AND
SUBTRACTION WORD PROBLEMS SITUATIONS

Strategy	Description
<u>Addition</u>	
<p><u>Counting All</u></p> <p>Ellen had 3 tomatoes. She picked 5 more tomatoes. How many tomatoes does Ellen have now?</p>	<p>Using objects or fingers, a set of 3 objects and a set of 5 objects are constructed. The sets are joined and the union of the two sets is counted.</p>
<u>Subtraction</u>	
<p><u>Separating From</u></p> <p>There were 8 seals playing. Three seals swam away. How many seals were still playing?</p>	<p>Using objects or fingers, a set of 8 objects is constructed. 3 objects are removed. The answer is the number of remaining objects.</p>
<p><u>Separating To</u></p> <p>There were 8 people on the bus. Some people got off. Now there are 3 people on the bus. How many people got off the bus?</p>	<p>A set of 8 objects is counted out. Objects are removed from it until the number of objects remaining is equal to 3. The answer is the number of objects removed.</p>
<p><u>Adding On</u></p> <p>Chuck had 3 peanuts. Clara gave him some more peanuts. Now Chuck has 8 peanuts. How many peanuts did Clara give him?</p>	<p>A set of 3 objects is constructed. Objects are added to this set until there is a total of 8 objects. The answer is found by counting the number of objects added.</p>
<p><u>Matching</u></p> <p>Megan has 3 robots. Randy has 8 robots. How many more robots does Randy have than Megan?</p>	<p>A set of 3 objects, and a set of 8 objects are matched one-to-one until one set is used up. The answer is the number of objects remaining in the unmatched set.</p>
<u>Other</u>	
<p><u>Trial and Error</u></p> <p>Deborah had some books. She went to the library and got 3 books. Now she has 8 books altogether. How many books did she have to start with?</p>	<p>A set of objects is constructed. A set of 3 objects is added to or removed, and the resulting set is counted. If the final count is 8, the initial set is the answer. If it is not 8, a different initial set is tried.</p>

Adapted from Cognitively Guided Instruction, University of Wisconsin-Madison, 1992.

CHILDREN'S COUNTING STRATEGIES FOR ADDITION AND SUBTRACTION
WORD PROBLEMS SITUATIONS

Strategy	Description
<u>Addition</u>	
<u>Counting On From First</u>	
Ellen had 3 tomatoes. She picked 5 more tomatoes. How many tomatoes does she have now?	The counting sequence begins with 3 and continues on 5 counts. The answer is the last term in the counting sequence.
<u>Counting On From Larger</u>	
Ellen had 3 tomatoes. She picked 5 more tomatoes. How many tomatoes does she have now?	The counting sequence begins with 5 and continues on 3 counts. The answer is the last term in counting sequence.
<u>Subtraction</u>	
<u>Counting Down</u>	
There were 8 seals playing. Three seals swam away. How many seals were still playing?	A backward counting sequence is initiated from 8. The sequence continues for 3 counts. The last number in the counting sequence is the answer.
<u>Counting Down To</u>	
There were 8 people on the bus. Some people got off. Now there are 3 people on the bus. How many people got off the bus?	A backward counting sequence starts from 8 and continues until 3 is reached. The answer is the number or words in the counting sequence.
<u>Counting Up</u>	
Chuck had 3 peanuts. Clara gave him some peanuts. Now Chuck has 8 peanuts. How many peanuts did Clara give to him?	A forward counting sequence starts from 3 and continues until 8 is reached. The answer is the number of counting words in the sequence.