



Word Problem Taxonomy: Addition and Subtraction

Use the following taxonomy to construct word problems for your students. The problems' complexity is based on the major action required to solve it (e.g. join, separate, part-part-whole, compare). Interesting word problems based on topics and situations related to your students' worlds are particularly helpful in encouraging thoughtful problem solving. In the example below, Cammie lives near the beach so working with shells is fun and relevant to her world. Provide a supportive learning environment while allowing students to use materials of their choice (such as manipulatives, counters, stickers, paper/pencil) to solve word problems.

Problem Types (Major Action) Numbered from least (1) to most complex (11).			
Join	<i>(Result Unknown)</i> 1. Cammie had 5 shells. Natalie gave her 8 more shells. How many does Cammie have altogether?	<i>(Change Unknown)</i> 2. Cammie has 5 shells. How many more shells does she need to have 13 shells altogether?	<i>(Start Unknown)</i> 3. Cammie had some shells. Natalie gave her 5 more shells. Now she has 13 shells. How many did Cammie have to start with?
Separate	<i>(Result Unknown)</i> 4. Cammie had 13 shells. She gave 5 shells to Natalie. How many shells does she have left?	<i>(Change Unknown)</i> 5. Cammie had 13 shells. She gave some to Natalie. Now she has 5 shells left. How many shells did Cammie give to Natalie?	<i>(Start Unknown)</i> 6. Cammie had some shells. She gave 5 to Natalie. Now she has 8 shells left. How many shells did Cammie have to start with?
Part-Part-Whole	<i>(Whole Unknown)</i> 7. Cammie has 5 whelk shells and 8 clam shells. How many shells does she have?		<i>(Part Unknown)</i> 8. Cammie has 13 shells. Five are whelks and the rest are clams. How many clam shells does she have?
Compare	<i>(Difference Unknown)</i> 9. Cammie has 13 shells. Natalie has 5 shells. How many more shells does Cammie have than Natalie?	<i>(Quantity Unknown)</i> 10. Natalie has 5 shells. Cammie has 8 more than Natalie. How many shells does Cammie have?	<i>(Referent Unknown)</i> 11. Cammie has some shells. She has 5 more shells than Natalie. How many shells does Natalie have?

Adapted from: <http://www.math.niu.edu/courses/math402/packet/packet-2.pdf>