

Table 2: Addition and subtraction situations by grade level.

|                                 | Result Unknown  | Change Unknown  | Start Unknown   |
|---------------------------------|---|---|---|
| <b>Add To</b>                   | <p><i>A</i> bunnies sat on the grass. <i>B</i> more bunnies hopped there. How many bunnies are on the grass now?</p> $A + B = \square$  | <p><i>A</i> bunnies were sitting on the grass. Some more bunnies hopped there. Then there were <i>C</i> bunnies. How many bunnies hopped over to the first <i>A</i> bunnies?</p> $A + \square = C$  | <p>Some bunnies were sitting on the grass. <i>B</i> more bunnies hopped there. Then there were <i>C</i> bunnies. How many bunnies were on the grass before?</p> $\square + B = C$   |
| <b>Take From</b>                | <p><i>C</i> apples were on the table. I ate <i>B</i> apples. How many apples are on the table now?</p> $C - B = \square$  | <p><i>C</i> apples were on the table. I ate some apples. Then there were <i>A</i> apples. How many apples did I eat?</p> $C - \square = A$  | <p>Some apples were on the table. I ate <i>B</i> apples. Then there were <i>A</i> apples. How many apples were on the table before?</p> $\square - B = A$   |
|                                 | Total Unknown   | Both Addends Unknown <sup>1</sup>   | Addend Unknown <sup>2</sup>   |
| <b>Put Together /Take Apart</b> | <p><i>A</i> red apples and <i>B</i> green apples are on the table. How many apples are on the table?</p> $A + B = \square$  | <p>Grandma has <i>C</i> flowers. How many can she put in her red vase and how many in her blue vase?</p> $C = \square + \square$  | <p><i>C</i> apples are on the table. <i>A</i> are red and the rest are green. How many apples are green?</p> $A + \square = C$ $C - A = \square$  |
|                                 | Difference Unknown  | Bigger Unknown  | Smaller Unknown   |
| <b>Compare</b>                  | <p><i>"How many more?"</i> version. Lucy has <i>A</i> apples. Julie has <i>C</i> apples. How many more apples does Julie have than Lucy?</p> <p><i>"How many fewer?"</i> version. Lucy has <i>A</i> apples. Julie has <i>C</i> apples. How many fewer apples does Lucy have than Julie?</p> $A + \square = C$ $C - A = \square$ | <p><i>"More"</i> version suggests operation. Julie has <i>B</i> more apples than Lucy. Lucy has <i>A</i> apples. How many apples does Julie have?</p> <p><i>"Fewer"</i> version suggests wrong operation. Lucy has <i>B</i> fewer apples than Julie. Lucy has <i>A</i> apples. How many apples does Julie have?</p> $A + B = \square$ | <p><i>"Fewer"</i> version suggests operation. Lucy has <i>B</i> fewer apples than Julie. Julie has <i>C</i> apples. How many apples does Lucy have?</p> <p><i>"More"</i> version suggests wrong operation. Julie has <i>B</i> more apples than Lucy. Julie has <i>C</i> apples. How many apples does Lucy have?</p> $C - B = \square$ $\square + B = C$ |

Darker shading indicates the four Kindergarten problem subtypes. Grade 1 and 2 students work with all subtypes and variants. Unshaded (white) problems are the four difficult subtypes or variants that students should work with in Grade 1 but need not master until Grade 2. Adapted from CCSS, p. 88, which is based on *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity*, National Research Council, 2009, pp. 32–33.

<sup>1</sup> This can be used to show all decompositions of a given number, especially important for numbers within 10. Equations with totals on the left help children understand that = does not always mean "makes" or "results in" but always means "is the same number as." Such problems are not a problem subtype with one unknown, as is the Addend Unknown subtype to the right. These problems are a productive variation with two unknowns that give experience with finding all of the decompositions of a number and reflecting on the patterns involved.

<sup>2</sup> Either addend can be unknown; both variations should be included.