

NWEA Assessment Item Illustrating 1.OA.A.1

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Domain: Operations and Algebraic Thinking

1.OA.A: Represent and solve problems involving addition and subtraction.

Calculator Availability: No



Annie had 7 books. Her friend gave her some more books. Now she has 12 books.

How many books did Annie's friend give her? Move a number to each line and a symbol to the box to make an equation to show this problem.

=

+	−	0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19	20	

Alignment: 1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Representing and solving addition and subtraction word problems are key areas of focus for grade 1. This item has students represent and solve an add-to, change-unknown type problem. In order to represent and solve the problem, students must understand that one of the addends is unknown and that they can either count up from 7 to 12 or count down 7 from 12 to find the number of books that Annie's friend gave her. Solving this type of problem and discussing how they got their solutions give students the opportunity to examine the relationship between addition and subtraction more deeply. After determining their approach, students need to move the correct numbers and symbol to represent the problem as an equation. A full list of the addition and subtraction problem situations that students need to learn in grades K–2 can be found in Table 1 of the CCSS Mathematics Glossary.

Coherence: In grades K–2, students build their problem-solving skills with addition and subtraction by learning about different problem-solving situations and how to represent them. In kindergarten, students solved add-to and take-from addition and subtraction problems where the result was unknown.^{K.OA.A.2} In grade 1, students add and subtract to solve problem with numbers within 20, and they expand the problem-solving situations that they work with to include start- and change-unknown situations.^{1.OA.A.1} In grade 2, students will expand their problem-solving skills to solve both one- and two-step addition and subtraction word problems within 100.^{2.OA.A.1} The various problem-solving situations may be used when they will solve multiplication, division,^{3.OA.A.3, 4.OA.A.2} and fraction^{4.NF.B, 5.NF.A, 5.NF.B} word problems. Students use algebraic thinking to solve and represent start-unknown and change unknown problems. Reasoning about mathematical relationships and representing word problems as equations is an essential skill in developing algebraic understandings.

Rigor: This item attends to conceptual understanding, procedural skill, and application. Translating a problem-solving situation from words to an equation is a key concept for grade 1 students. This item requires an application in a real-world scenario and students apply their knowledge of addition and subtraction to interpret the problem and determine how to solve it. Students perform a grade-level calculation to find the solution to the problem.

Answer Key: There are multiple equivalent correct responses. One sample correct response is shown.

Annie had 7 books. Her friend gave her some more books. Now she has 12 books.

How many books did Annie's friend give her? Move a number to each line and a symbol to the box to make an equation to show this problem.

$$\underline{7} \quad \boxed{+} \quad \underline{5} = \underline{12}$$

	–	0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19	20	

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