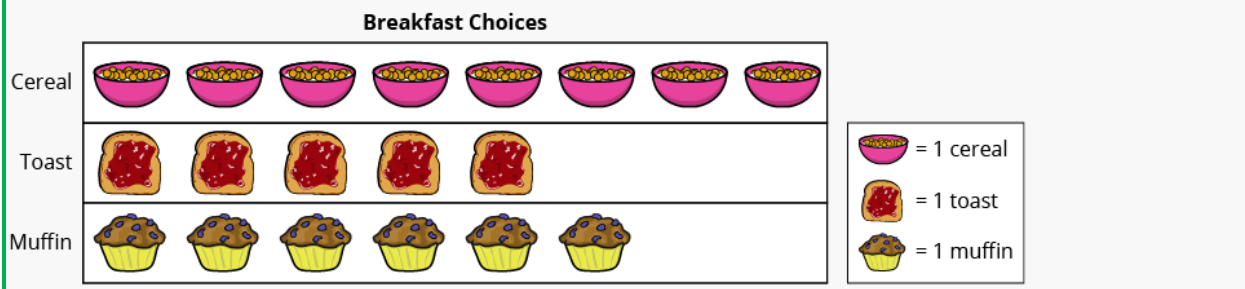# NWEA Assessment Item Illustrating 1.MD.C.4

Domain: Measurement and Data

1.MD.C: Represent and interpret data.

Calculator Availability: No

The graph shows what each student ate for breakfast. Each student made one choice.

Breakfast Choices

Cereal	🥣	🥣	🥣	🥣	🥣	🥣	🥣	🥣
Toast	🍞	🍞	🍞	🍞	🍞			
Muffin	🧁	🧁	🧁	🧁	🧁	🧁		

🥣 = 1 cereal
🍞 = 1 toast
🧁 = 1 muffin

How many more students ate cereal than muffins? Move a number to the line to show the answer.

___ students

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Alignment: 1.MD.C.4: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

This item assesses the part of the standard that involves determining how many more or how many less there are in one category than in another. Students interpret the picture graph data and select a strategy to compare the categories. They may use matching strategies and then count the unmatched cereal bowls, or they may count the number in each category and then subtract the number of students who ate muffins from the number of students who ate cereal. Either way, students must understand that *more* does not always indicate addition, an understanding that is also developed in the Operations and Algebraic Thinking domain.
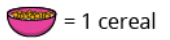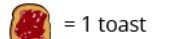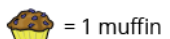
Coherence: In kindergarten, students classified and sorted objects into given categories,[K.MD.B.3] which was a precursor to working with categorical data. When students interpret data in graphs, they are engaging in problem-solving involving adding and subtracting. In grade 1, solving problems based on data from a graph provides opportunities to support the work that students do in the Operations and Algebraic Thinking domain.[1.OA.A] In grade 2, students will extend their work with graphs to include solving simple problems using information presented in a bar graph,[2.MD.D.10] which again supports the problem-solving work of the Operations and Algebraic Thinking domain.[2.OA.A] In grade 3, solving problems with scaled bar graphs[3.MD.B.3] will support understanding and application of multiplication.[3.OA.A]

Rigor: This item attends to conceptual understanding, procedural skill, and application. Students need to understand how to interpret the picture graph to solve the problem. They apply their knowledge of mathematics to a real-world context and interpret that they must subtract to compare the number of students who ate cereal from the number of students who had muffins. They use grade-level computation to find the answer.

Answer Key:

The graph shows what each student ate for breakfast. Each student made one choice.

Breakfast Choices

Cereal	🥣🥣🥣🥣🥣🥣🥣🥣
Toast	🍞🍞🍞🍞🍞
Muffin	🧁🧁🧁🧁🧁🧁

🥣 = 1 cereal
🍞 = 1 toast
🧁 = 1 muffin

How many more students ate cereal than muffins? Move a number to the line to show the answer.

__2__ students

1		3	4	5	6	7	8	9	10

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