

# NWEA Assessment Item Illustrating 4.NF.B.3.d

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**Domain:** Numbers and Operations—Fractions

**4.NF.B:** Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

**Calculator Availability:** No

Use the information to answer the question.

Lucas ate a fraction of a pizza. Hugo ate  $\frac{5}{8}$  of the same pizza. Now there is  $\frac{1}{8}$  of the pizza left.

What fraction of the pizza did Lucas eat? Move numbers to the boxes to show the answer.

<input type="text"/>	<input type="text"/>
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1      2      3      4      5      6      7      8      9

**Alignment: 4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

It is important that students understand that although fraction addition and subtraction might be performed with a different algorithm than whole-number addition and subtraction, the meaning of the operations is the same. Students need to understand fractions as numbers on a number line and should be able to represent fraction addition and subtraction on a number line just as they can represent whole-number addition and subtraction on a number line. Students should already be familiar with this type of problem from their work with whole numbers, and they must be able to apply it to a fraction context.

**Coherence:** This item assesses students' ability to solve a two-step, start-unknown addition and subtraction problem involving fractions with like denominators. Students learned about start-unknown situations in grade 1 and grade 2.<sup>1.OA.A.1, 2.OA.A.1</sup> This item also extends the work that students did in addition and subtraction, starting in kindergarten.<sup>K.OA.A.2, 1.OA.B.3, 2.OA.A.1</sup> Students apply their understanding of whole-number addition and subtraction to fraction addition and subtraction. Students will extend this work in grade 5 when they perform addition and subtraction with unlike denominators and when they perform computation with decimals.<sup>4.NF.C.5, 5.NF.A, 5.NBT.B.7</sup>

**Rigor:** This item attends to conceptual understanding, procedural skill, and application. Students apply their understanding of whole-number addition and subtraction to fraction addition and subtraction and demonstrate understanding of fractions and the whole. Students need to interpret the context to make sense of the problem because the mathematics is not directly indicated. Students then use grade-level procedural skill to solve the problem.

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

Use the information to answer the question.

Lucas ate a fraction of a pizza. Hugo ate  $\frac{5}{8}$  of the same pizza. Now there is  $\frac{1}{8}$  of the pizza left.

What fraction of the pizza did Lucas eat? Move numbers to the boxes to show the answer.

2

8

1

2

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