

Vertical Progression:

<p>2nd Grade</p>	<p>2.G.A Reason with shapes and their attributes.</p> <ul style="list-style-type: none"> ○ 2.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
<p>3rd Grade</p>	<p>3.NF.A Develop understanding of fractions as numbers.</p> <ul style="list-style-type: none"> ○ 3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. ○ 3.NF.A.3.a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. ○ 3.NF.A.3.b Recognize and generate simple equivalent fractions (e.g., $1/2=2/4$, $4/6=2/3$). Explain why the fractions are equivalent, e.g. by using visual fraction models. ○ 3.NF.A.3.c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. ○ 3.NF.A.3.d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
<p>4th Grade</p>	<p>4.NF.A Extend understanding of fraction equivalence and ordering.</p> <ul style="list-style-type: none"> ○ 4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. ○ 4.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
<p>5th Grade</p>	<p>5.NF.A Use equivalent fractions as a strategy to add and subtract fractions.</p> <ul style="list-style-type: none"> ○ 5.NF.A.1: Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. ○ 5.NF.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.

Students will demonstrate command of the ELG by:

- Creating equivalent fractions and using visual fraction models to explain why fractions are equivalent.
- Using the correct symbol to compare fractions (<, >, =).
- Comparing two fractions with different numerators and denominators by creating common denominators or numerators or comparing to benchmark fractions.
- Manipulating fraction tools to find equivalent fractions.
- Explaining how two fractions are equal.
- Drawing pictures to represent equivalent fractions.
- Creating a number sentence using equivalent fractions.
- Constructing a visual model of 2 fractions being compared.
- Applying multiplication and division to create equivalent fractions in order to compare fractions.

Vocabulary:

- | | |
|----------------------|-------------|
| • benchmark fraction | • fraction |
| • common denominator | • multiple |
| • denominator | • numerator |
| • equivalent | • partition |

Sample Instructional/Assessment Tasks:

1) Standard: 4.NF.A.2

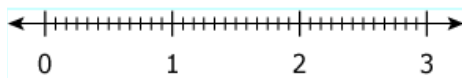
Source: PARCC Practice Item

Item Prompt:

Ava and Mia are comparing the fractions $\frac{3}{2}$ and $\frac{5}{6}$.

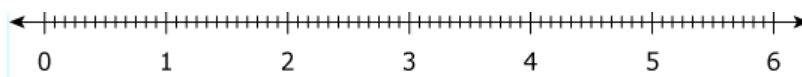
Part A. Ava created this number line to graph $\frac{3}{2}$.

Select the correct point on the number line to represent $\frac{3}{2}$.



Mia created this number line to graph $\frac{5}{6}$.

Select the correct point on the number line to represent $\frac{5}{6}$.



ELG 4.NF.A Extend understanding of fraction equivalence and ordering

Part B. Is $\frac{3}{2} > \frac{5}{6}$ or is $\frac{3}{2} < \frac{5}{6}$? Explain how you know.

Part C. Write a fraction that is between $\frac{3}{2}$ and $\frac{5}{6}$.

Explain how you know your fraction is between $\frac{3}{2}$ and $\frac{5}{6}$.

Scoring Rubric

Task is worth 4 points. Task can be scored as 0, 1, 2, 3, or 4.

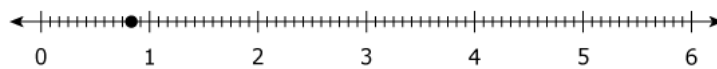
Scoring consists of 2 points for calculation and 2 points for reasoning.

Part A

- 1 calculation point is earned for a number line that correctly shows $\frac{3}{2}$.



- 1 calculation point is earned for a number line that correctly shows $\frac{5}{6}$.



Note: The number lines do not align on the 0; however, students should understand that $\frac{3}{2}$ is further to the right from 0 than $\frac{5}{6}$.

Part B

1 reasoning point is earned for explaining that $\frac{3}{2}$ is greater than $\frac{5}{6}$. Possible examples include but are not limited to the following:

I can see that $\frac{3}{2}$ is to the right of 1, but $\frac{5}{6}$ is to the left of 1, so $\frac{5}{6}$ is less than $\frac{3}{2}$ OR $\frac{3}{2} = \frac{9}{6}$ so $\frac{3}{2}$ is nine $\frac{1}{6}$ units long and $\frac{5}{6}$ is five $\frac{1}{6}$ units long. So, $\frac{9}{6}$ has more $\frac{1}{6}$ units, and is greater than $\frac{5}{6}$ is greater than $\frac{5}{6}$.

Part C

1 reasoning point is earned for identifying a fraction between $\frac{5}{6}$ and $\frac{3}{2}$ and explaining why that fraction is between $\frac{5}{6}$ and $\frac{3}{2}$.

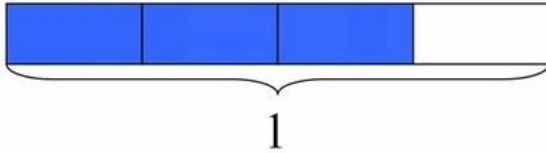
2) Standard: 4.NF.A.1

Source: Illustrative Mathematics

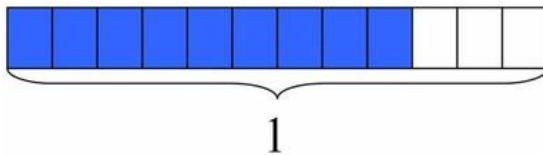
<https://www.illustrativemathematics.org/content-standards/4/NF/A/1/tasks/743>

Item Prompt:

1. The rectangle below has length 1. What fraction does the shaded part represent?



2. The rectangle below has the same length as the rectangle above. What fraction does the shaded part represent?

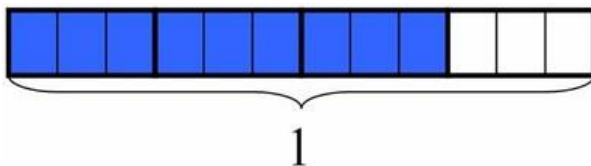


3. Use the pictures to explain why the two fractions represented above are equivalent.

Correct Answer:

1. $\frac{3}{4}$
2. $\frac{9}{12}$

3. Three pieces in the bottom rectangle have the same size as 1 piece in the top rectangle. We can even show this by darkening the lines around groups of three small pieces in the rectangle that represents $\frac{9}{12}$



When we make groups of three in the bottom rectangle, there are 3 groups of 3 shaded pieces and 4 groups of 3 in the whole rectangle. Using these groups, we see that

$$\frac{9}{12} = \frac{(3 \times 3)}{(4 \times 3)}$$

of the bottom rectangle is shaded. Since the shaded portion is the same in each case but we just look at it in a different way and describe it with a different fraction, the fractions are equal. So

$$\frac{9}{12} = \frac{3}{4}$$

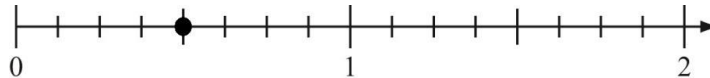
3) Standard: 4.NF.A.1

Source: Achieve the Core

<http://achievethecore.org/page/1056/fraction-concepts-mini-assessment-detail-pg>

Item Prompt:

A point is shown on the number line diagram below.



Write three equivalent fractions that name this point.

Correct Answer:

$$\frac{1}{2}, \frac{2}{4}, \frac{3}{6}$$

**Students should receive full credit for any three fractions equivalent to $\frac{4}{8}$.*