Dear Teachers,

During the listening tour, the Eureka Math Team enjoyed the opportunity to witness our curriculum being implemented in St. Charles classrooms. We listened carefully to the feedback you provided about additional resources that could support implementation and are excited to deliver a pilot version of a new resource, Eureka Math Homework Guides, intended to help bridge the gap between the classroom and home.

Our writers have begun creating Homework Guides to provide families with insight of the understandings and skills gained during each math lesson. The guides are designed to deliver guidance for the problems on the homework pages (K-5)/problem sets (6-12). The problems and their worked out solutions included in each Homework Guide were chosen intentionally and closely align with at least one problem on the homework/problem set.

After examining your curriculum maps, we created ten Homework Guides for each grade level, K-10, and have done our best to create these documents for immediate use. In order for these to support student learning, please make them available for families at home. Students and their families can use the Homework Guides to receive helpful hints when homework becomes challenging.

In order for you to help us continue to improve our curriculum and accompanying resources, we welcome any and all feedback you and/or your students' families can provide. After receiving feedback, our goal is to create a Homework Guide for every lesson in the curriculum and make them available to the public.

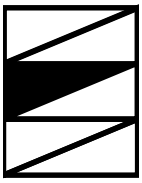
We are excited to provide you with this pilot set of Homework Guides and even more excited to improve this resource through your valued feedback.

Many Thanks,
The Eureka Math Team

G3-M5-Lesson 5: Partition a whole into equal parts and define the equal parts to identify the unit fraction numerically.

Fill in the chart. Then, whisper the fractional unit.

The fractional unit refers to the number of equal parts in the whole. In this case it's sixths because the whole is partitioned (divided) into 6 equal parts.

	Total Number of Equal Parts	Total Number of Equal Parts Shaded	Unit Form	Fraction
	**6**	**1**	**1 sixth**	$\frac{1}{6}$

The unit is what is being counted. In this case, sixths. To write a fraction in unit form, we write the unit as a word. The answer is '1 sixth' because we're counting the number of sixths that are shaded.

$\frac{1}{6}$ is the unit fraction. Unit fractions name 1 equal part. In each problem the unit fraction is shaded, and should be recorded numerically in this column.

If 1 fifth is shaded, then that rectangle must be partitioned into 5 equal parts (fifths). The other rectangle must be partitioned into 8 equal parts (eighths).

Draw two identical rectangles. Shade 1 fifth of one rectangle and 1 eighth of the other. Label the unit fractions. Use your rectangles to explain why $\frac{1}{5}$ is greater than $\frac{1}{8}$.

Sample student response:

$\frac{1}{5}$

$\frac{1}{8}$

$\frac{1}{5}$ is greater than $\frac{1}{8}$ because both rectangles have 1 equal part shaded, but when the rectangle is cut into 5 equal parts, the parts are bigger than when the rectangle is cut into 8 equal parts.

The explanation should include the idea that when the same rectangle (whole) is partitioned into more equal parts, the parts get smaller.

G3-M5-Lesson 6: Build non-unit fractions less than one whole from unit fractions.

Complete the number sentence. Estimate to partition each strip equally, write the unit fraction inside each unit, and shade the answer.

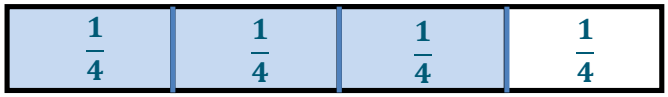
When talking about the diagram (strip), *unit* is another word for part.

3 fourths is written in unit form. I can complete the number sentence by writing it using numbers: $\frac{3}{4}$.

Fourths are the *unit*, so I'll do my best to draw lines that partition the strip into 4 equal parts.

The *unit fraction* names 1 equal part: $\frac{1}{4}$.

3 fourths = $\frac{3}{4}$

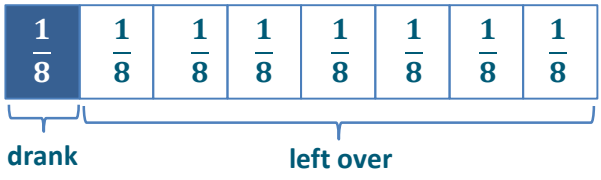


$\frac{3}{4}$ is a non-unit fraction (a fraction with a numerator greater than 1). I shade 3 copies of my unit fraction, $\frac{1}{4}$, to build $\frac{3}{4}$.

Mr. Stevens bought 8 liters of soda for a party. His guests drank 1 liter.

a. What fraction of the soda did his guests drink?

Sample student response:



His guests drank $\frac{1}{8}$ of the soda.

I'll draw a whole with 8 equal parts because Mr. Stephens bought a total of 8 liters of soda. I'll label each part $\frac{1}{8}$ to show that it represents 1 of the 8 liters. Then I'll shade 1 part because the guests drank 1 liter. I'll remember to label my picture and write a sentence to answer the question.

b. What fraction of the soda was left?

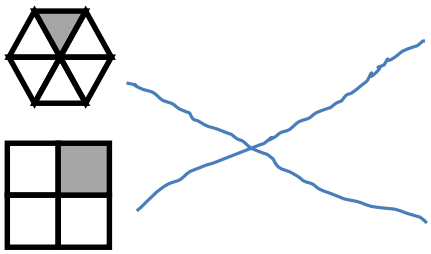
Sample student response:

$\frac{7}{8}$ of the soda was left.

I just need to count the units on my diagram that were left over and write a sentence to answer the question.

G3-M5-Lesson 7: Identify and represent shaded and non-shaded parts of one whole as fractions.

Whisper the fraction of the shape that is shaded. Then, match the shape to the amount that is not shaded.

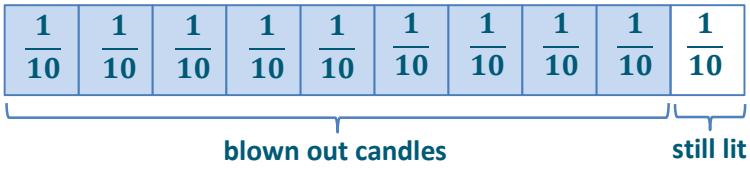


- 3 fourths
- 5 sixths

I'll count the total number of parts to find the unit (in these examples fourths and sixths). Then I'll whisper what part is shaded. For example, "1 sixth." Finally, I'll count how many parts aren't shaded and draw lines to match.

Mom lights 10 birthday candles on the cake. Alexis blows out 9 candles. What fraction of the birthday candles are still lit? Draw and explain.

Sample student response:



There are a total of 10 candles and 9 are blown out. That leaves $\frac{1}{10}$ of the candles that are still lit.

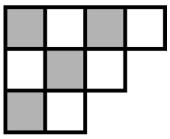
I'll draw a whole with 10 parts because there are a total of 10 candles on the cake. Then I'll shade the 9 candles that Alexis blows out and count how many are left. I'll be sure to label all the parts of my diagram.

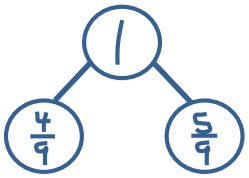
Explanations should include a brief description of how the student thought about the problem to arrive at the answer.

G3-M5-Lesson 8: Represent parts of one whole as fractions with number bonds.

Show a number bond representing what is shaded and unshaded in each of the figures. Draw a different visual model that would be represented by the same number bond.

Sample student response:





This shape also shows 1 whole with $\frac{4}{9}$ shaded and $\frac{5}{9}$ unshaded. It can be represented using the same number bond. Lots of other models could work too. Like this one:

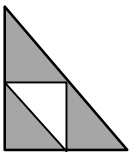
Number bonds are diagrams that show part/whole relationships. This number bond shows 1 whole (represented by the number 1) broken into 2 parts (represented by the 2 circles coming from 1 whole). One part shows how much of the whole is shaded ($\frac{4}{9}$). The other part shows how much of the whole is unshaded ($\frac{5}{9}$). Together, $\frac{4}{9}$ and $\frac{5}{9}$ make 1 whole.

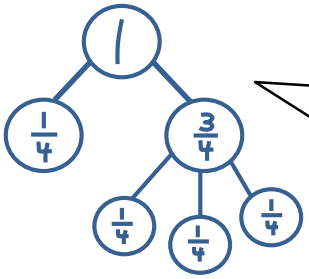
How would I label the number bond if no parts of the whole were shaded? I would still use 1 to label the whole. I could label the shaded parts $\frac{0}{9}$ and the unshaded parts $\frac{9}{9}$. Together, $\frac{0}{9}$ and $\frac{9}{9}$ make 1 whole.

This first part is just like the example above.

Draw a number bond with 2 parts showing the shaded and unshaded fractions of each figure. Decompose both parts of the number bond into unit fractions.

Sample student response:



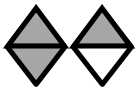


The 2 parts of my number bond are $\frac{1}{4}$ and $\frac{3}{4}$. Decomposing is taking apart. $\frac{1}{4}$ is already a unit fraction, but $\frac{3}{4}$ is a non-unit fraction. I can decompose $\frac{3}{4}$ into 3 copies of $\frac{1}{4}$. Now both parts of my number bond are written as unit fractions.

G3-M5-Lesson 9: Build and write fractions greater than one whole using unit fractions.

Each shape represents 1 whole. Fill in the chart.

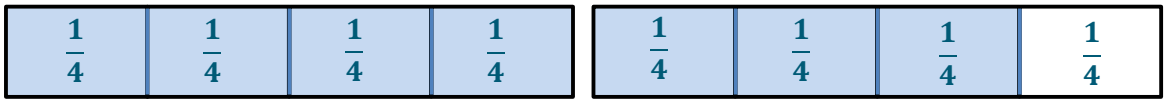
Each of these wholes is partitioned into halves. So, the unit fraction must be $\frac{1}{2}$. Three halves are shaded. I can show that by writing $\frac{3}{2}$.

	Unit Fraction	Total Number of Units Shaded	Fraction Shaded
	$\frac{1}{2}$	3	$\frac{3}{2}$

Estimate to draw and shade units on the fraction strips. Solve.

7 fourths = $\frac{7}{4}$

7 fourths is the unit form. I can also write it as $\frac{7}{4}$.



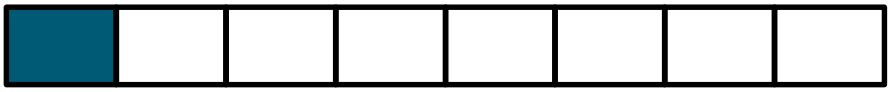
Fourths is the unit. I need to partition each whole (fraction strip) into fourths, and then label each unit to show that it represents $\frac{1}{4}$. Seven tells me how many units to shade.

G3-M5-Lesson 10: Compare unit fractions by reasoning about their size using fraction strips.

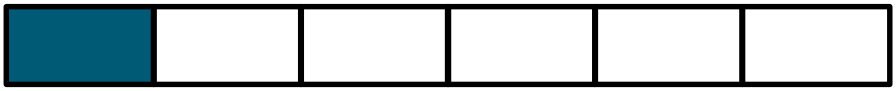
Each fraction strip is 1 whole. All the fraction strips are equal in length. Color 1 fractional unit in each strip. Then, answer the questions below.

I'll color one part of each whole below.

$\frac{1}{8}$



$\frac{1}{6}$



Circle *less than* or *greater than*. Whisper the complete sentence.

$\frac{1}{8}$ is less than $\frac{1}{6}$

$\frac{1}{8}$ is greater than $\frac{1}{6}$

The fraction strips are equal in length and they're lined up. I can compare by noticing which of the fractional units I colored in is bigger. $\frac{1}{8}$ is less than $\frac{1}{6}$. I could also write that as $\frac{1}{8} < \frac{1}{6}$, or as 1 eighth < 1 sixth.

I can draw fraction strips like the ones in the problem before to check which fraction is bigger.

Jerry feeds his dog $\frac{1}{5}$ cup of wet food and $\frac{1}{6}$ cup of dry food for dinner. Does he use more wet food or dry food? Explain your answer using pictures, numbers, and words.

Sample student response:

$\frac{1}{6}$  dry food

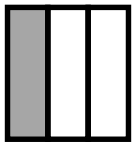
$\frac{1}{5}$  wet food

Jerry uses more wet food because $\frac{1}{5}$ is greater than $\frac{1}{6}$. When you cut a whole into more pieces, the pieces get smaller.

Response should include a sentence that directly answers the question. The best explanations will include information about how the student knows that $\frac{1}{5}$ is greater than $\frac{1}{6}$.

G3-M5-Lesson 11: Compare unit fractions with different-sized models representing the whole.

Label the unit fraction. In each blank, draw and label the same whole with a shaded unit fraction that makes the sentence true. There is more than 1 correct way to make the sentence true.

$\frac{1}{3}$ 	is less than	$\frac{1}{2}$ 

Halves are greater than thirds, so I drew the rectangle and partitioned it into halves. Then I shaded 1 part and labeled the shaded part as $\frac{1}{2}$. Now my sentence says $\frac{1}{3}$ is less than $\frac{1}{2}$. That's true!

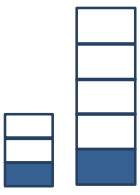
This shape is partitioned into thirds. So $\frac{1}{3}$ is the unit fraction.

I need to draw the same rectangle and partition it into parts that are greater than $\frac{1}{3}$, because the sentence reads "$\frac{1}{3}$ is less than ___."

Luna drinks $\frac{1}{5}$ of a large water bottle. Gabriel drinks $\frac{1}{3}$ of a small water bottle. Gabriel says, "I drank more than you because $\frac{1}{3} > \frac{1}{5}$."

a. Use pictures and words to explain Gabriel's mistake.

Sample student response:



Gabriel can't compare how much water he and Luna drank. If the wholes are different then $1/5$ might be bigger than 1/3 like in the picture I drew.

The important thing to notice is that the water bottles are different sizes. That means the wholes are different, so you can't compare the fractions!

b. How could you change the problem so that Gabriel is correct? Use pictures and words to explain.

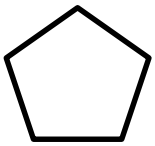
Sample student response:

I could change the problem to make the wholes the same size. Then 1/3 would be greater than 1/5. When the whole is the same the parts have to be smaller to make fifths than do to make thirds.

G3-M5-Lesson 12: Specify the corresponding whole when presented with one equal part.

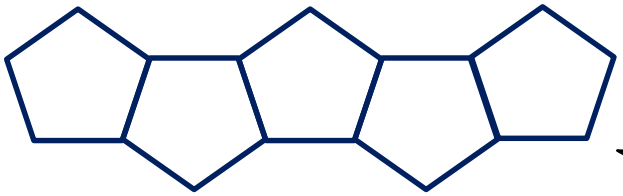
Each shape represents the given unit fraction. Estimate to draw a possible whole. Draw a number bond that matches.

$\frac{1}{5}$

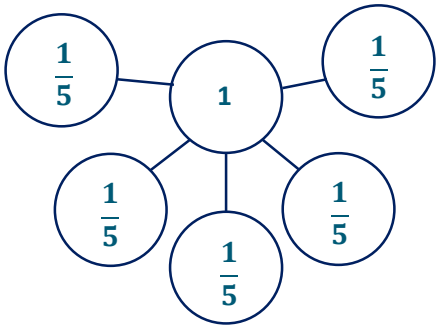


The 5 in the fraction tells me that the unit is fifths, so there are 5 equal parts in the whole. Since this shape is a unit fraction, I'll use 5 copies of it to build my whole. There are lots of different shapes I could draw!

Sample student response:

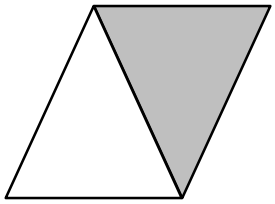
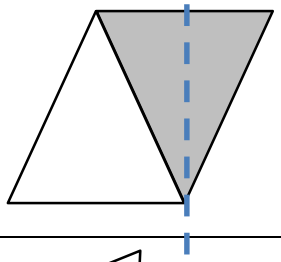


I made 5 copies of the unit fraction to make 1 whole. It's important that there are no gaps or overlaps. Overlaps would mean the parts aren't equal. If there were gaps, the whole might not be clear.



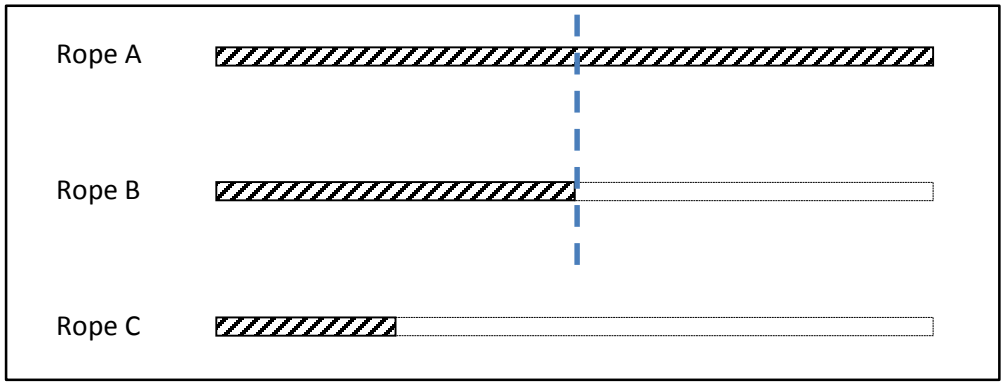
Number bonds show part/whole relationships. This matches the drawing because it shows that 5 copies of $\frac{1}{5}$ make 1 whole.

G3-M5-Lesson 13: Identify a shaded fractional part in different ways depending on the designation of the whole.

The shape represents 1 whole. Write a unit fraction to describe the shaded part.	The shaded part represents 1 whole. Divide 1 whole to show the same unit fraction you wrote in Part (a).
a.  $\frac{1}{2}$	b. 

The whole shape represents 1 whole, and it's partitioned into 2 parts. 2 equal parts means halves, so the unit fraction is $\frac{1}{2}$. I can write $\frac{1}{2}$ to represent the shaded part.

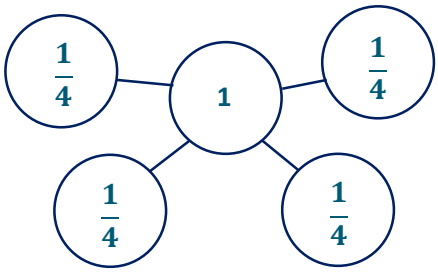
This time just the shaded part represents 1 whole. I have to think about how I can partition just the shaded part into halves, since the unit fraction in Part (a) is $\frac{1}{2}$. Since halves means 2 equal parts, I drew a dotted line to partition the shaded whole into 2 equal parts.



If Rope A measures 10 feet long, then Rope B is about 5 feet long.

I drew a dotted line to help me compare the lengths of Ropes A and B. It looks like B is about $\frac{1}{2}$ the length of Rope A. Half of 10 feet is 5 feet. Rope B is about 5 feet long.

About how many copies of Rope C equal the length of Rope A? Draw number bonds to help you.



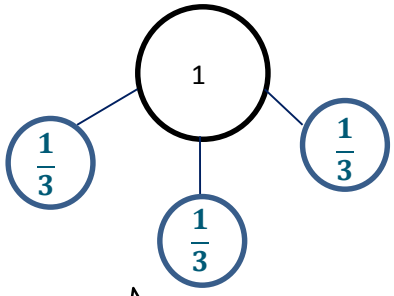
About 4 copies of Rope C equal the length of Rope A.

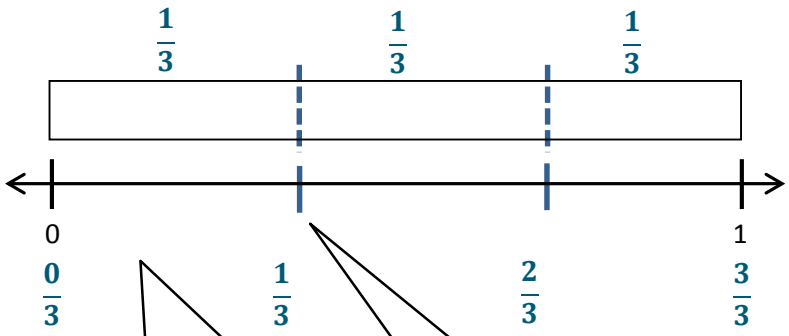
I can draw another dotted line to help me compare the lengths of Ropes C and A. That will show me that Rope C is about $\frac{1}{4}$ the length of Rope A.

G3-M5-Lesson 14: Place fractions on a number line with endpoints 0 and 1.

Draw a number bond for each fractional unit. Partition the fraction strip to show the unit fractions of the number bond. Use the fraction strip to help you label the fractions on the number line. Be sure to label the fractions at 0 and 1.

Thirds





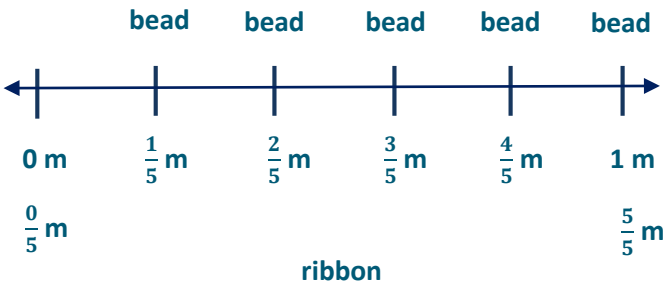
The fractional unit is thirds. The number bond shows that three copies of $\frac{1}{3}$ make 1 whole.

I partitioned the fraction strip (the rectangle above the number line) into 3 equal parts and labeled each part $\frac{1}{3}$. The 3 copies of $\frac{1}{3}$ on my fraction strip match the 3 copies of $\frac{1}{3}$ shown by my number bond.

My number line and fraction strip are the same length. So I used the partitions on my fraction strip to help me know where to make tick marks on my number line. Then I counted thirds from left to right, and labeled how many thirds I counted at each tick mark: $\frac{0}{3}, \frac{1}{3}, \frac{2}{3}, \frac{3}{3}$.

A ribbon is 1 meter long. Mrs. Lee sews a bead every $\frac{1}{5}$ meter. The first bead is at $\frac{1}{5}$ meter. The last bead is at 1 meter. Draw and label a number line from 0 meters to 1 meter to show where Mrs. Lee sews beads. Label all the fractions, including 0 fifths and 5 fifths. Label 0 meters and 1 meter, too.

Sample student response:



Mrs. Lee sews beads every $\frac{1}{5}$ meter, so her ribbon must be partitioned into 5 parts. I drew a number line to represent her ribbon, and then partitioned it into 5 parts. I made labels showing where she sews beads. Then I counted the fifths from left to right starting at 0, and labeled them at each tick mark. Mrs. Lee sewed 5 beads on the ribbon.