Eureka Math

3rd Grade
Module 6
Lesson 5

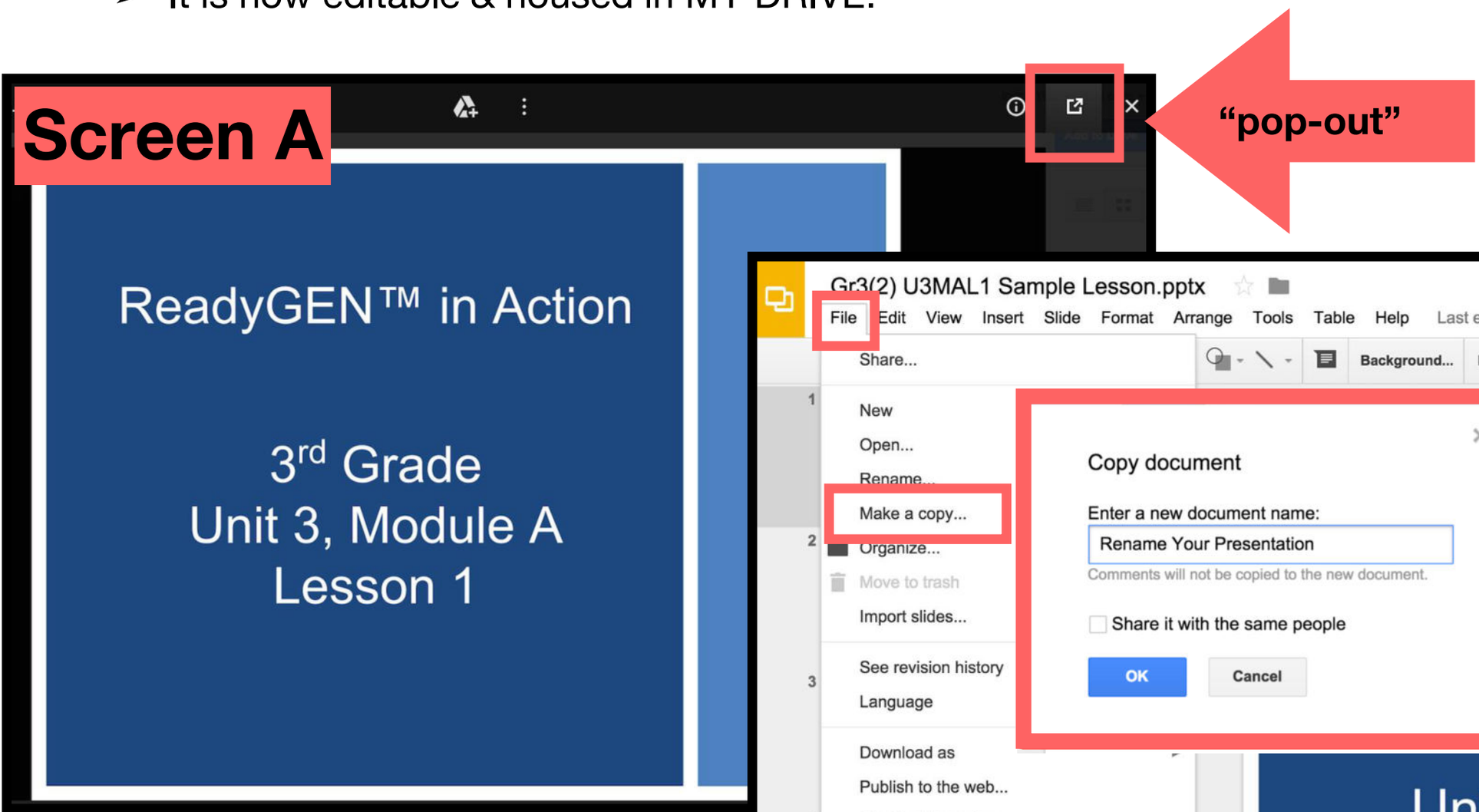
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

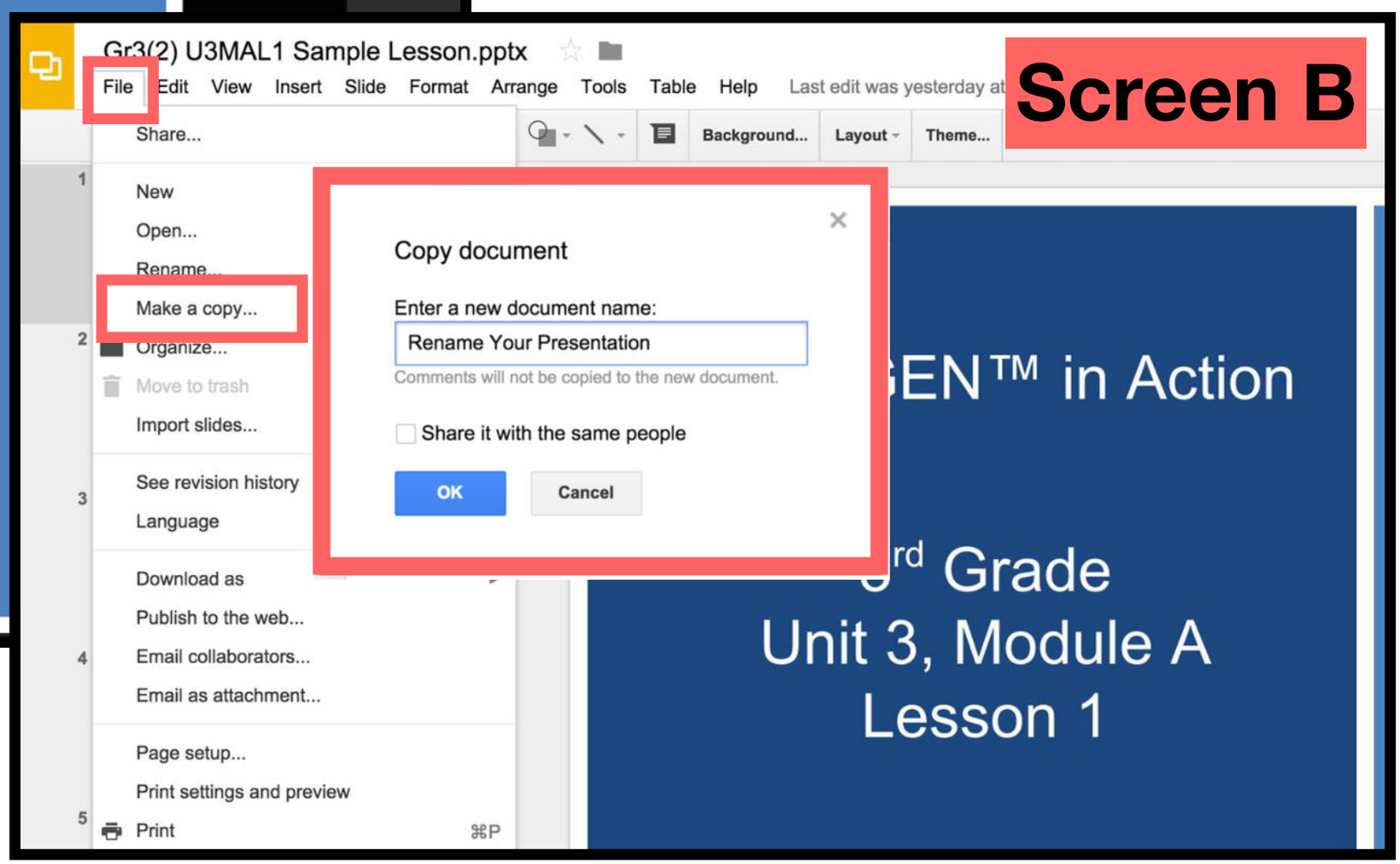
Directions for customizing presentations are available on the next slide.

Customize this Slideshow

Reflecting your Teaching Style and Learning Needs of Your Students

- When the Google Slides presentation is opened, it will look like Screen A.
- Click on the “pop-out” button in the upper right hand corner to change the view.
- The view now looks like Screen B.
- Within Google Slides (not Chrome), choose FILE.
- Choose MAKE A COPY and rename your presentation.
- Google Slides will open your renamed presentation.
- It is now editable & housed in MY DRIVE.





Icons

Read, Draw, Write

Learning Target

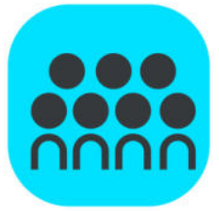
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

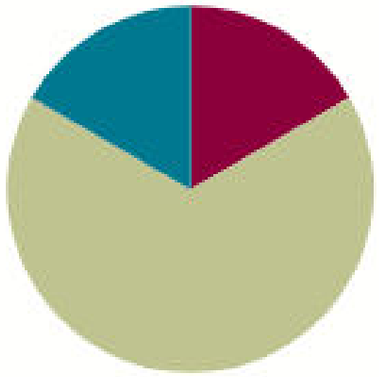
Small Group Time

Lesson 5

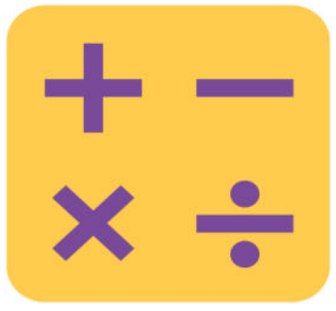
Objective: Create ruler with 1-inch, $\frac{1}{2}$-inch, and $\frac{1}{4}$-inch intervals, and generate measurement data.

Suggested Lesson Structure

Fluency Practice	(10 minutes)
Concept Development	(40 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



I can create a ruler and generate measurement data.



Fluency Practice

Group Counting (6 min.)

Count by sixes to 60.

12 is the same as how many sixes?

18 is the same as how many sixes?

Let’s count units of 6.

Fluency Practice

Group Counting (6 min.)

What is 60 ÷ 6?

On your personal white board, write the number sentence.

6	12	18	24	30	36	42	48	54	60
1 six	2 sixes	3 sixes	4 sixes	5 sixes	6 sixes	7 sixes	8 sixes	9 sixes	10 sixes

Fluency Practice

Factors of 12 (4 minutes)

$12 \times \quad = 12$

Say the number sentence, completing the unknown factor.

Fluency Practice

Factors of 12 (4 minutes)

Say the number sentence, completing the unknown factor.

$1 \times \quad = 12$

$6 \times \quad = 12$

$4 \times \quad = 12$

$2 \times \quad = 12$

Fluency Practice

Factors of 12 (4 minutes)

After I say a factor, you say the factor you need to multiply it by to get 12.

The first factor is 1.

12

6?

2

4 ?

3

12?

1

3?

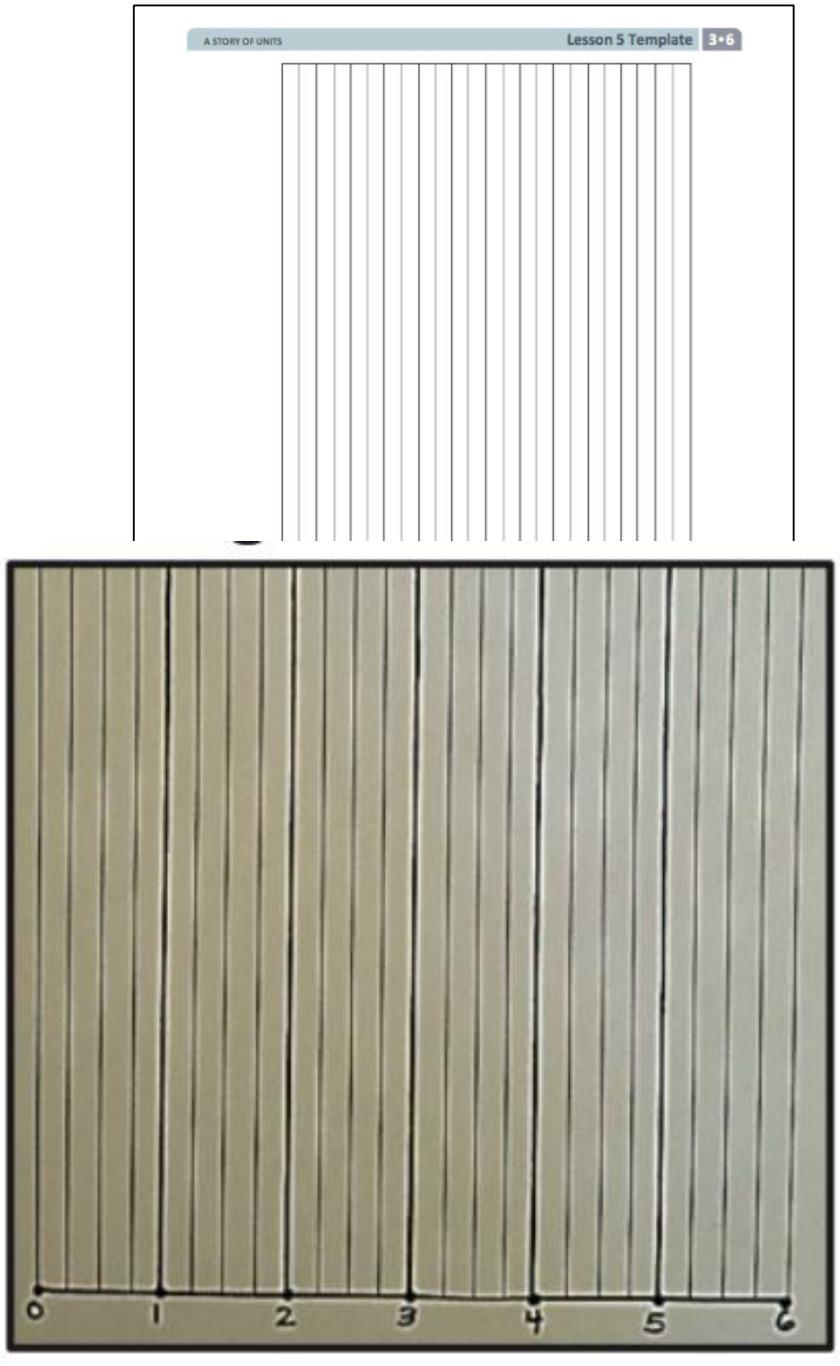
4

Concept Development

Turn your paper so the margin is horizontal.

Draw a number line on top of the margin.

Mark 0 on the point where I did.



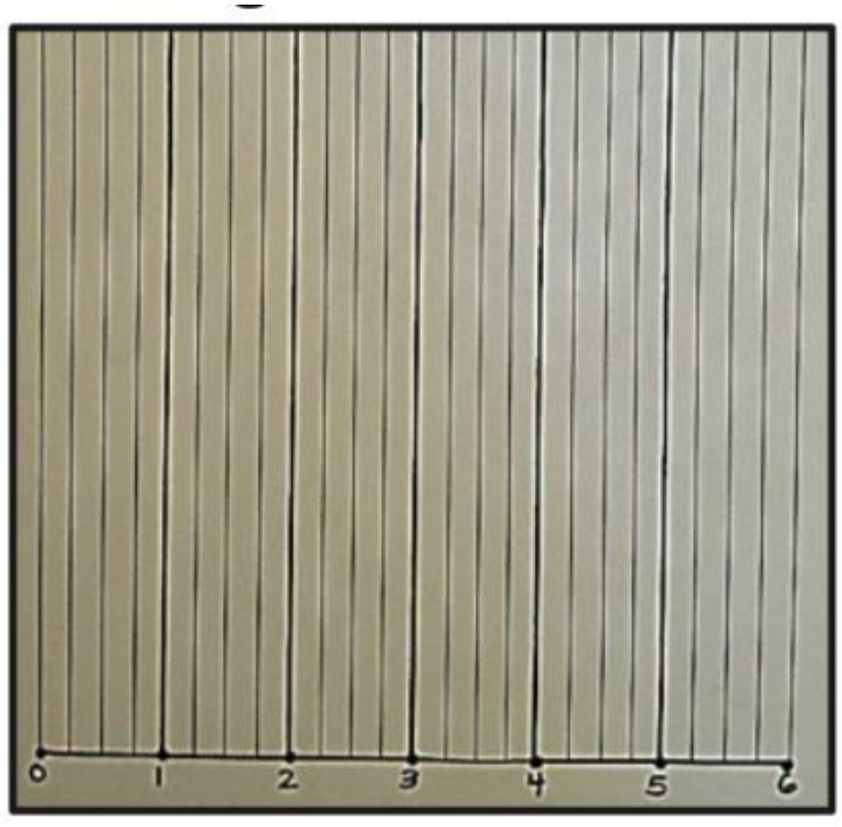
Concept Development

Use your black marker to plot a point at every 4 spaces.

Use the paper's vertical lines to measure the 4 spaces.

Then, label the number line from 0 to 6, making sure there are 4 spaces for each part.

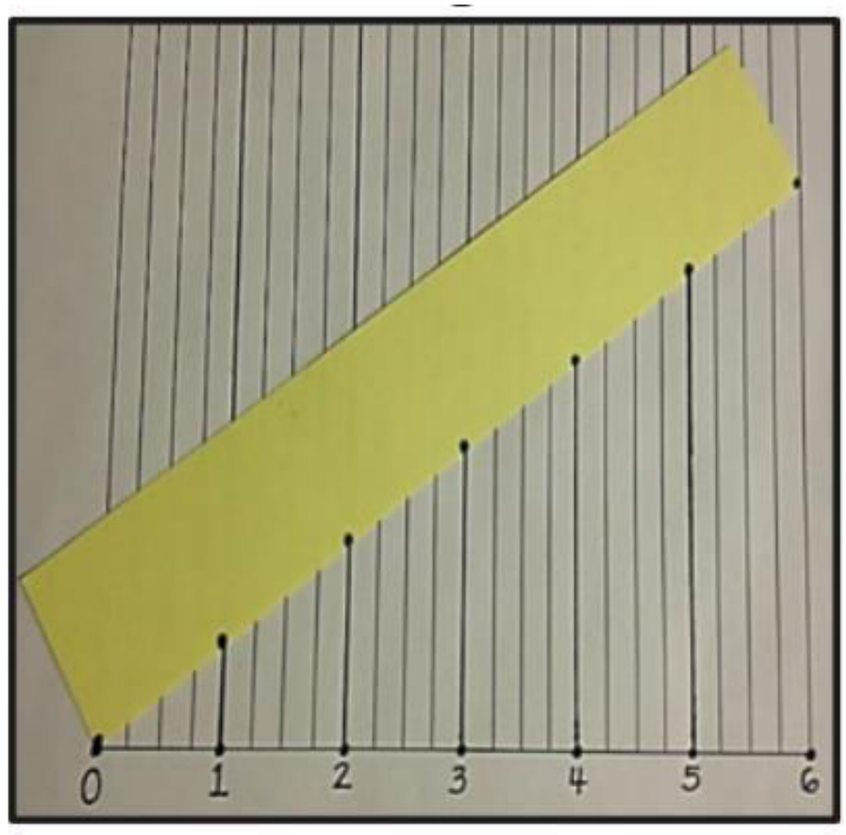
Tell your partner how you know each part is equal.



Concept Development

Use a ruler to trace the vertical lines up from your number line to the top of the paper at each point.

Lay the yellow strip so that the left end touches the 0 endpoint on the original number line and the right end touches the vertical line that you traced at the number 6.

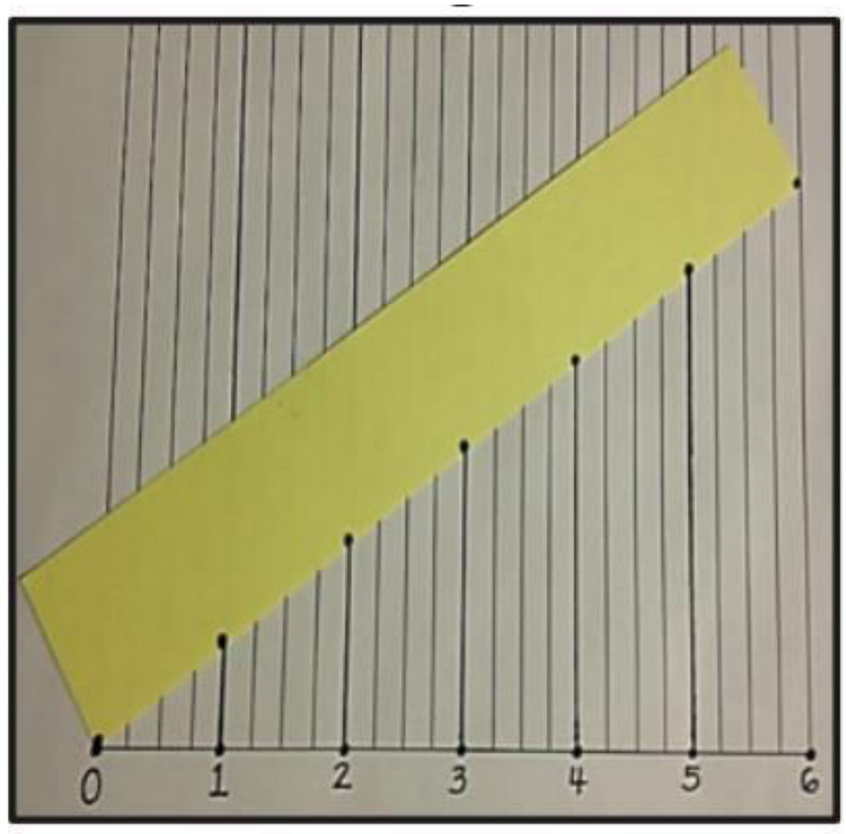


Concept Development

Where the lines touch your strip, plot points on your strip.

Extend the points to make them tick marks.

Then, turn your strip, and number below each tick mark from 0–6.



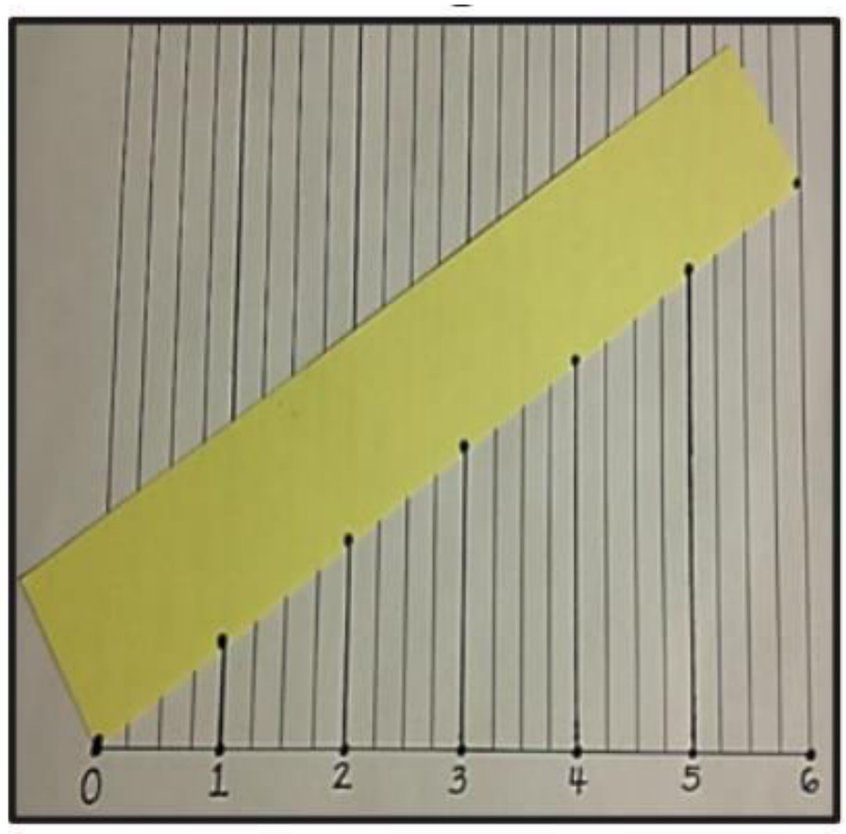
Concept Development

Use your ruler to verify that the intervals on your strip are equal.

Measure the full length of the yellow strip in inches. Measure the equal parts.

What measurement does each mark represent?

1 inch.

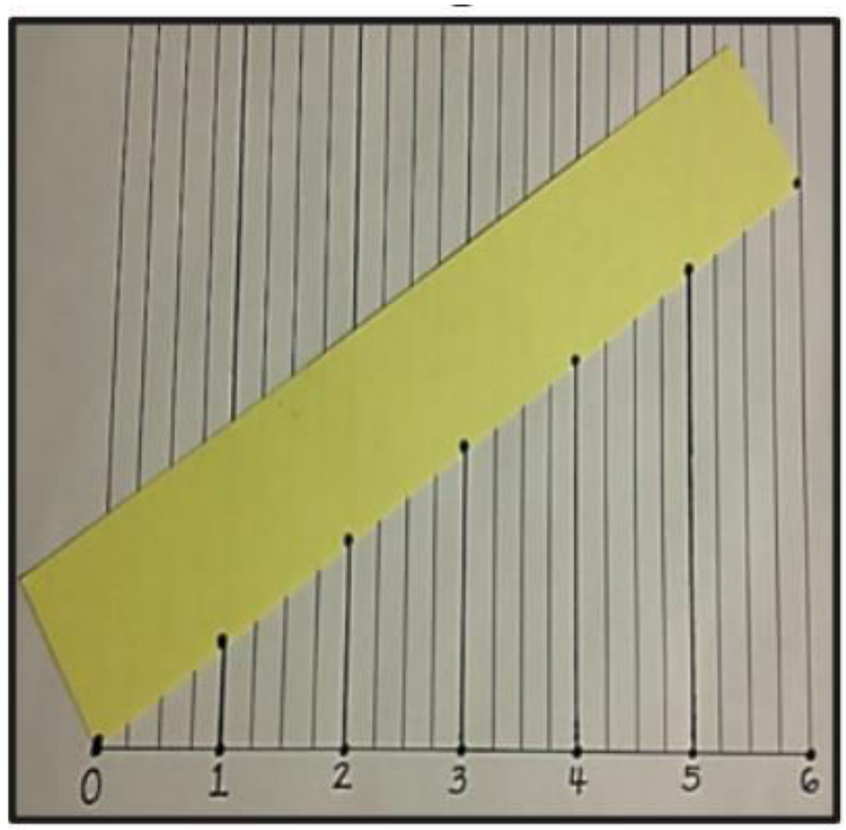


Concept Development

We now know every 4 spaces marks 1 inch on our strip.

Let's repeat the process, but this time we will mark a point on our number line (lined paper) at every 2 spaces.

What measurement will each mark represent? Talk to a partner.



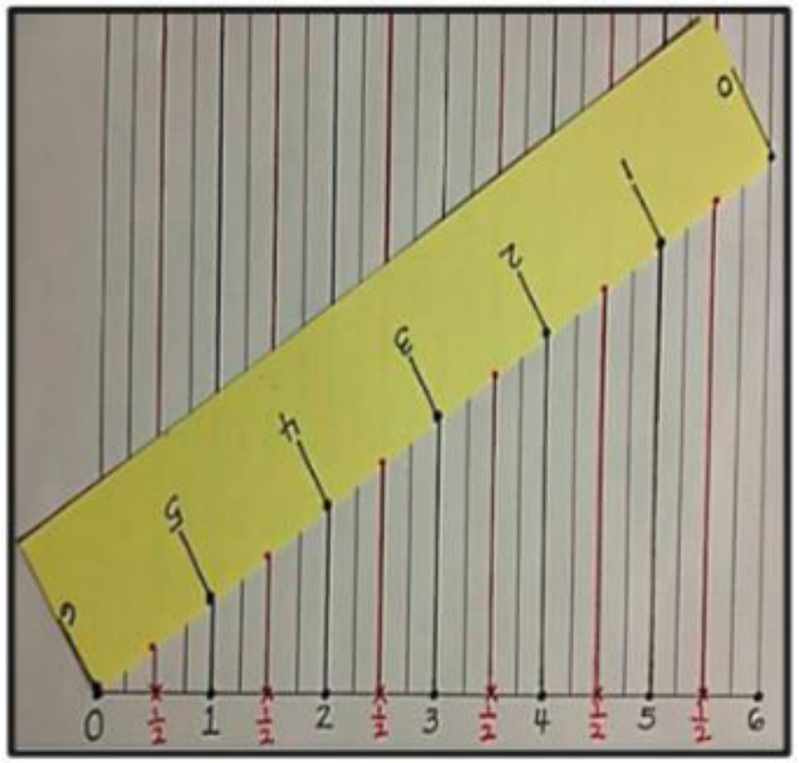
Concept Development

Two spaces is half. So, that must mean we will mark half inches!

Plot points at every 2 spaces with a red marker to mark half inches.

If a point is already marked with a whole inch, plot the new, red point above the black point.

Then, plot and label every half inch between the whole inches on the strip.

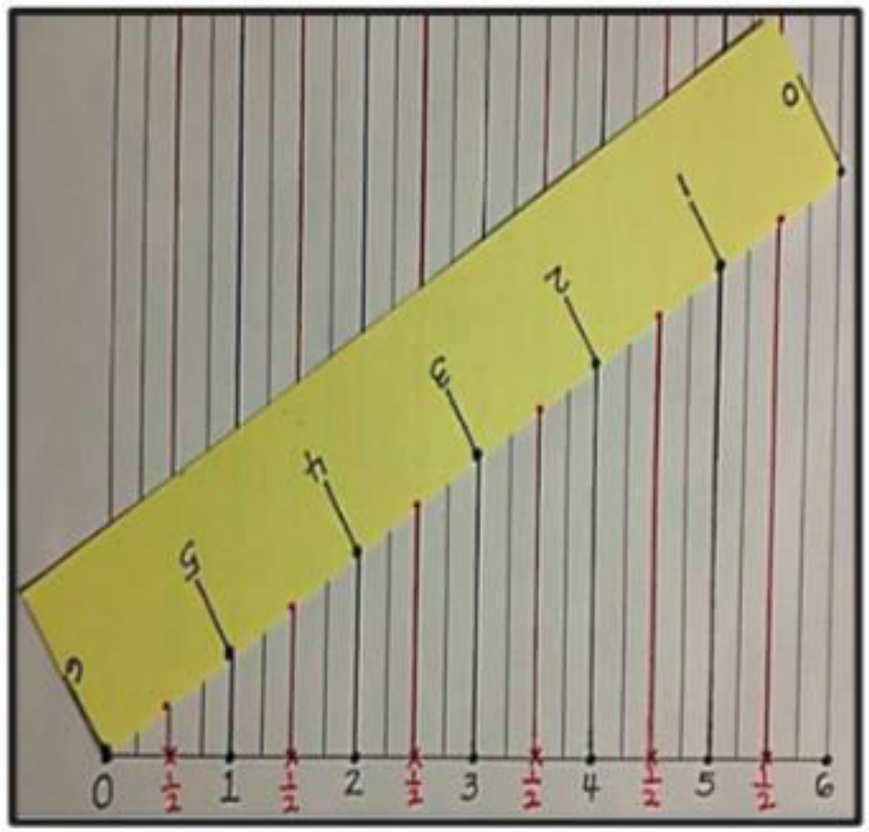


Concept Development

Then, plot and label every half inch between the whole inches on the strip.

Plot points at every single interval with a blue marker to mark the quarter inches.

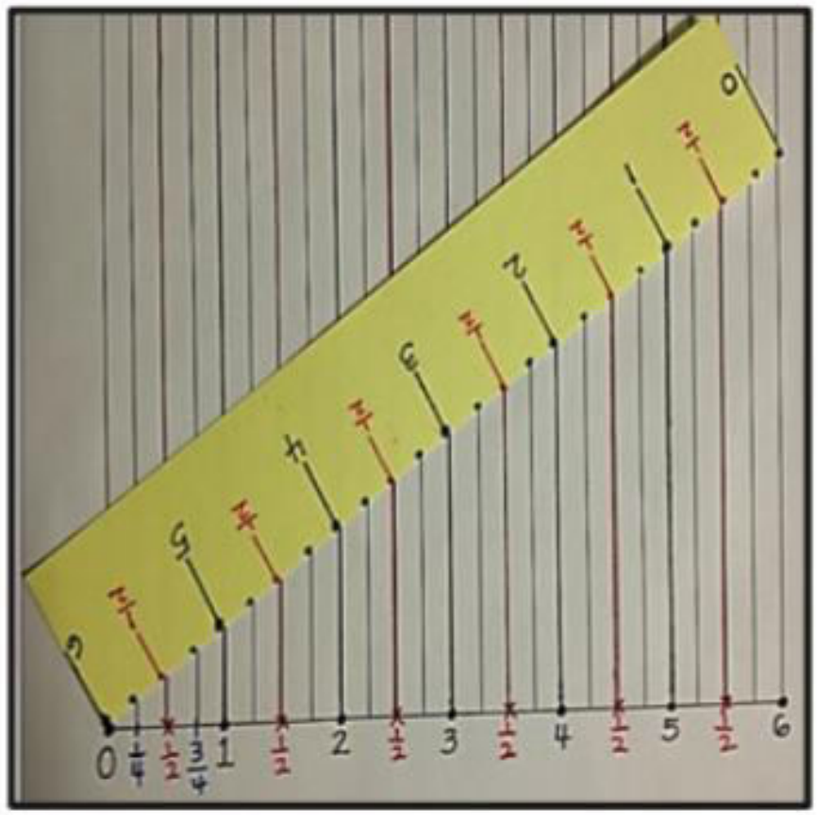
If a point is already marked with a whole or half inch, plot the new, blue point above the black or red point.



Concept Development

Then, plot every quarter inch between the half inches on the strip.

Do not label every quarter inch on the strip since the spaces are too small.



Concept Development

Place the paper strip under a ruler to verify the accuracy of the paper strip's measurements.

Into what three units of measurement did we partition our paper strips, or rulers?

Whole inches, half inches, and quarter inches.

Concept Development

Point to 2 inches on your paper ruler.

Show your partner 1 half inch less than 2 inches on your paper ruler.

What is 1 half inch less than 2 inches?

1 ½ inches.

Concept Development

Show 3 ¼ inches.

Show your partner 1 and a quarter inch more than 3 ¼ inches.

What is 1 and a quarter inch more than 3 ¼ inches.

4 ½ inches.

Concept Development

Continue the process as needed with…

½ inch less than 4 inches
¼ inch more than 1 ¼ inches
¼ inch less than 2 inches
¾ inch more than 3 inches
¾ inch less than 3 inches

Concept Development

How many half inches are in 1 inch?

2 half inches.

How many quarter inches are in 1 inch?

4 quarter inches.

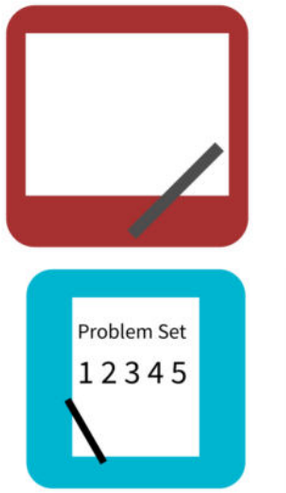
Concept Development

How many quarter inches are in 1 half inch?

2 quarter inches.

How many quarter inches are in 3 inches?

12 quarter inches.

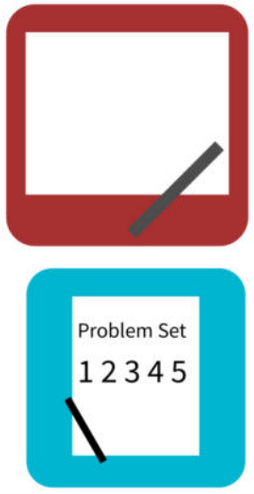


Concept Development

On Problem 1 of your Problem Set, use your paper ruler to measure your straw to the nearest inch, half inch, and quarter inch.

What do you do if your measurement is not exact?

We have to estimate.



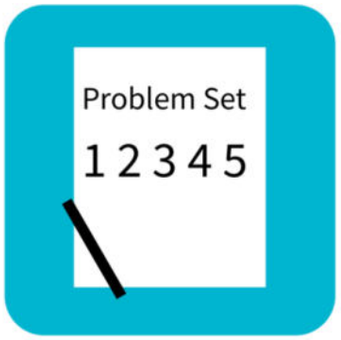
Concept Development

When you estimate, ask yourself, “Is it more than halfway or less than halfway?”

After measuring the straw you have, measure six of your classmates’ straws, and record their measurements in the chart on your Problem Set.

1. Use the ruler you made to measure different classmates’ straws to the nearest inch, $\frac{1}{2}$ inch, and $\frac{1}{4}$ inch. Record the measurements in the chart below. Draw a star next to measurements that are exact.

Straw Owner	Measured to the nearest inch	Measured to the nearest $\frac{1}{2}$ inch	Measured to the nearest $\frac{1}{4}$ inch
My straw			



Problem Set

Name _____ Date _____

1. Use the ruler you made to measure different classmates' straws to the nearest inch, $\frac{1}{2}$ inch, and $\frac{1}{4}$ inch. Record the measurements in the chart below. Draw a star next to measurements that are exact.

Straw Owner	Measured to the nearest inch	Measured to the nearest $\frac{1}{2}$ inch	Measured to the nearest $\frac{1}{4}$ inch
My straw			

a. _____ 's straw is the shortest straw I measured. It measures _____ inch(es).

b. _____ 's straw is the longest straw I measured. It measures _____ inches.

c. Choose the straw from your chart that was most accurately measured with the $\frac{1}{4}$-inch intervals on your ruler. How do you know the $\frac{1}{4}$-inch intervals are the most accurate for measuring this straw?

Debrief

Look at your data for Problem 1. Did you notice a pattern?

Share your answer for Problem 1(c).

Have students share their thinking for Problem 2(c). If time permits, have a few students measure an object larger than 6 inches with their paper ruler using the method they describe.

Share your answer to Problem 3. What number sentence could you use to find the answer?

Debrief

How did using the lined paper help you partition your paper strip accurately?

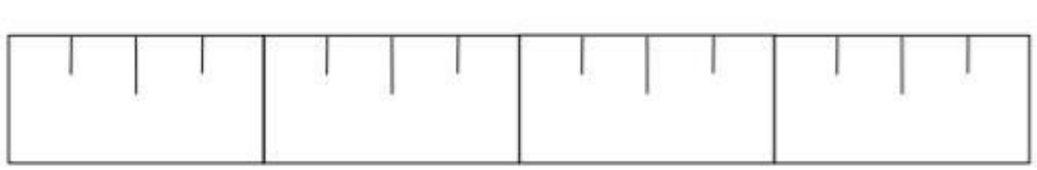
Each paper strip measured 6 inches, so our measurements were easy to mark. What if the strips were 8 inches instead? How would you partition the number line?

Exit Ticket (3 minutes)

A STORY OF UNITS | **Lesson 5 Exit Ticket** | **3•6**

Name _____ Date _____

Davon marks a 4-inch paper strip into equal parts as shown below.



a. Label the whole and quarter inches on the paper strip.

b. Davon tells his teacher that his paper strip measures 4 inches. Sandra says it measures 16 quarter inches. Explain how the two measurements are the same. Use words, pictures, or numbers.