Eureka Math

3rd Grade
Module 6
Lesson 2

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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.
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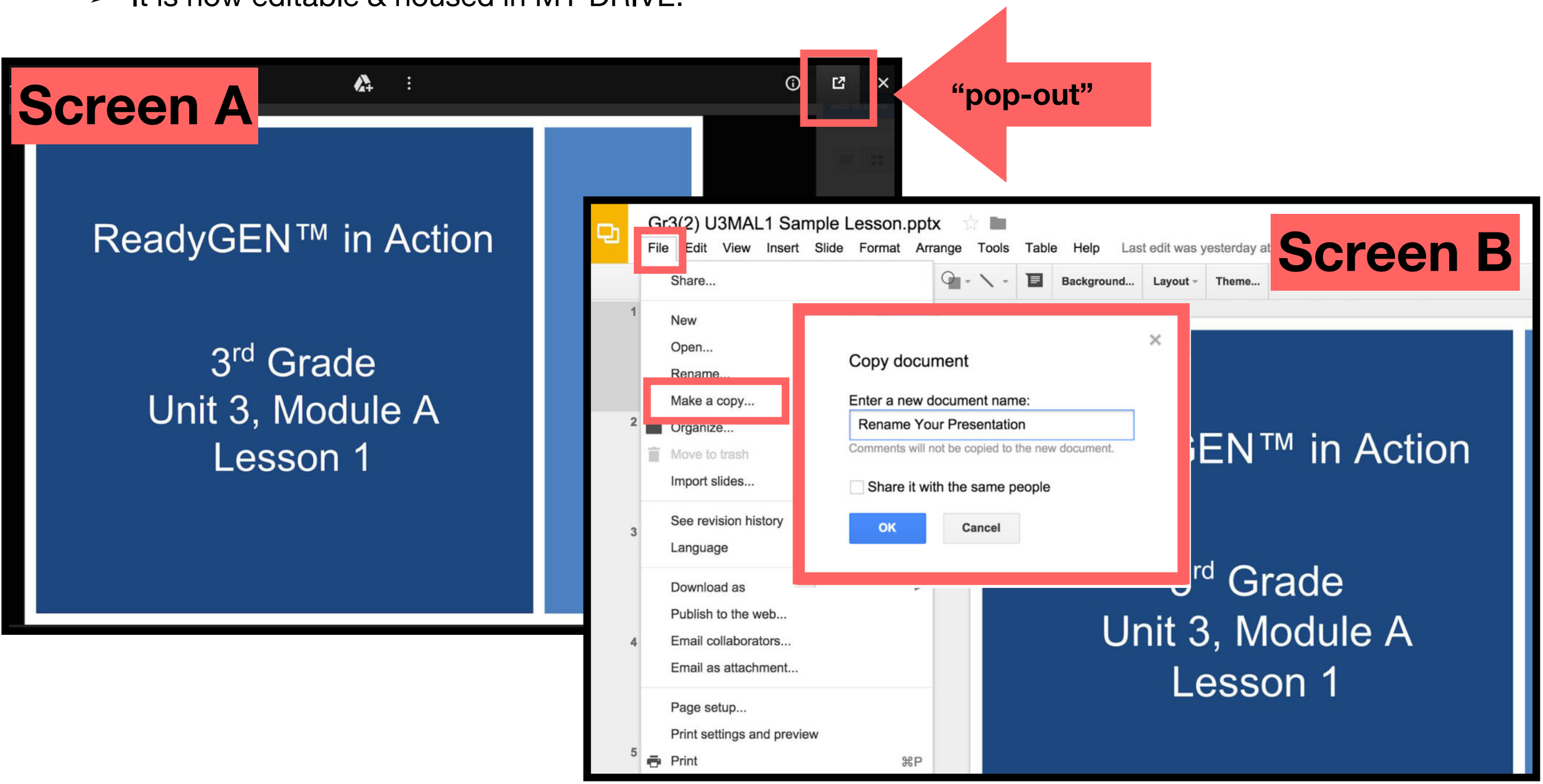
- ➢ Choose MAKE A COPY and rename your presentation.
- ➢ Google Slides will open your renamed presentation.
- ➢ It is now editable & housed in MY DRIVE.



Icons

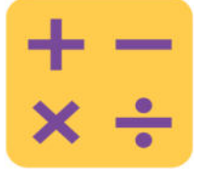
Read, Draw, Write

Learning Target

Personal White Board

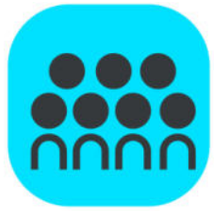
Problem Set

Manipulatives Needed



Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

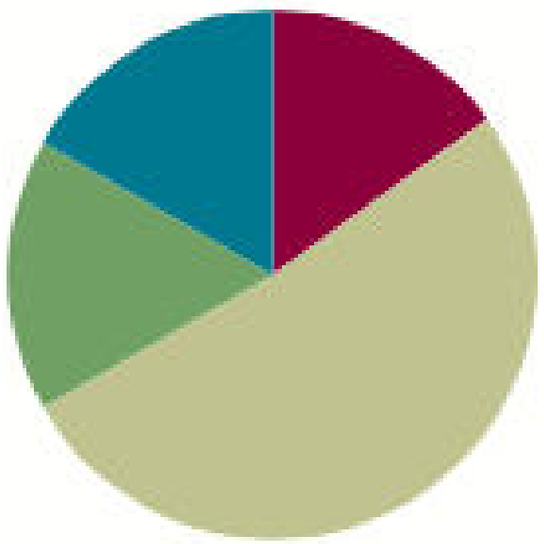
Small Group Time

Lesson 2

Objective: Rotate tape diagrams vertically.

Suggested Lesson Structure

Fluency Practice	(9 minutes)
Application Problem	(10 minutes)
Concept Development	(31 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**

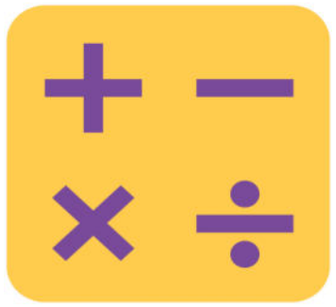


I can rotate tape diagrams vertically.

Materials: Students will need their personal white board

CSS.Math.Content.3.MD.B.3

Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*



Fluency Practice

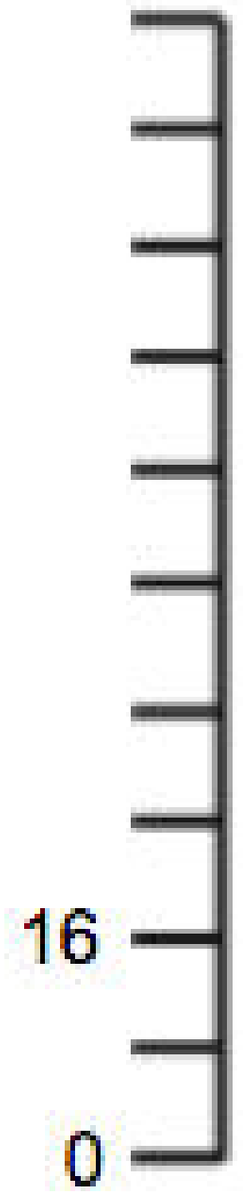
Group Counting on a Vertical Number Line **3.OA.1** **(3 minutes)**

Read Tape Diagrams **3.MD.4** **(6 minutes)**

Fluency Practice

Group Counting on a Vertical Number Line (3 min.)

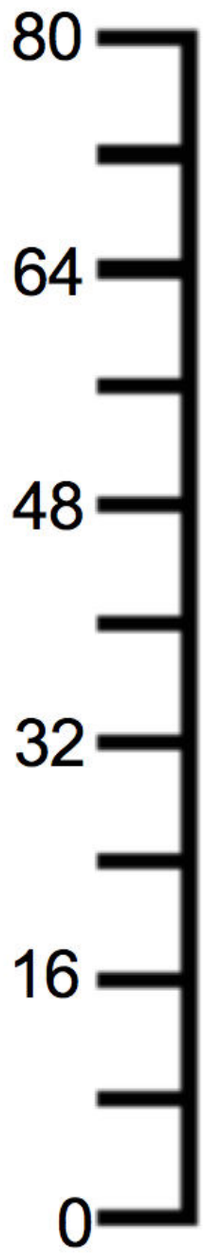
What is halfway between 0 and 16?



Fluency Practice

Group Counting on a Vertical Number Line (3 min.)

Let’s count by eights to 80.



Fluency Practice

Group Counting on a Vertical Number Line (3 min.)

Let’s count by sixes to 60.

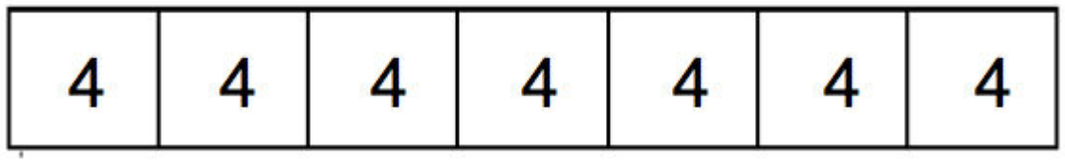
Let’s count by sevens to 70.

Let’s count by nines to 90.

Fluency Practice

Read Tape Diagrams (6 minutes)

Tell me a multiplication equation that represents the total value of the tape diagram.



Fluency Practice

Read Tape Diagrams (6 minutes)

Tell me a multiplication equation that represents the total value of the tape diagram.

4	4	4	4	4	4	4

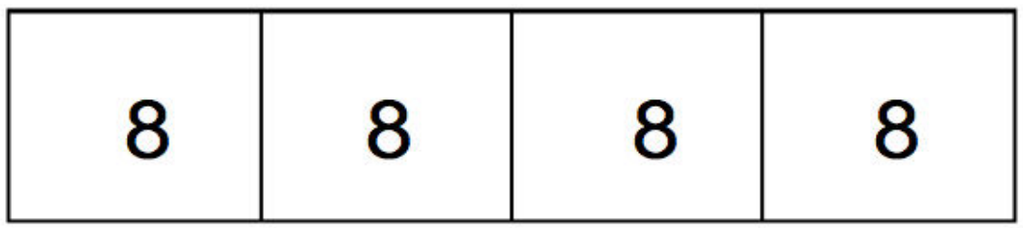
7 X 4 = 28

Fluency Practice

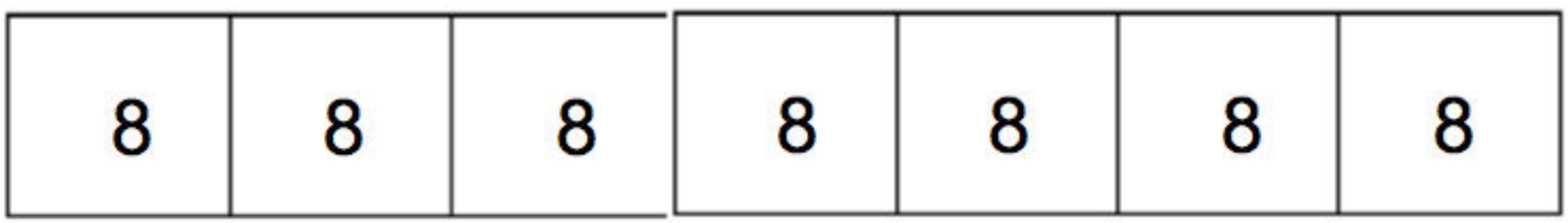
Read Tape Diagrams (6 minutes)

What is the value of each unit in Tape diagrams A and B?

A:



B:

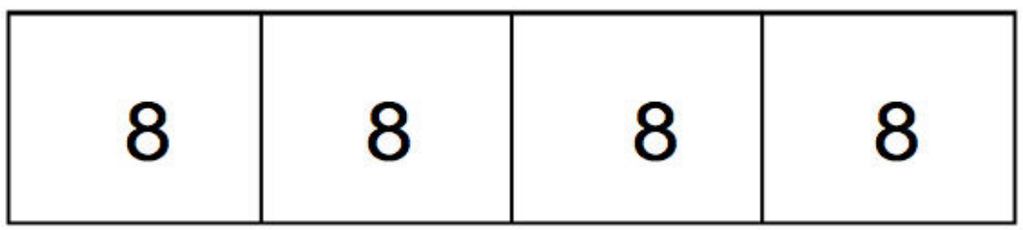


Fluency Practice

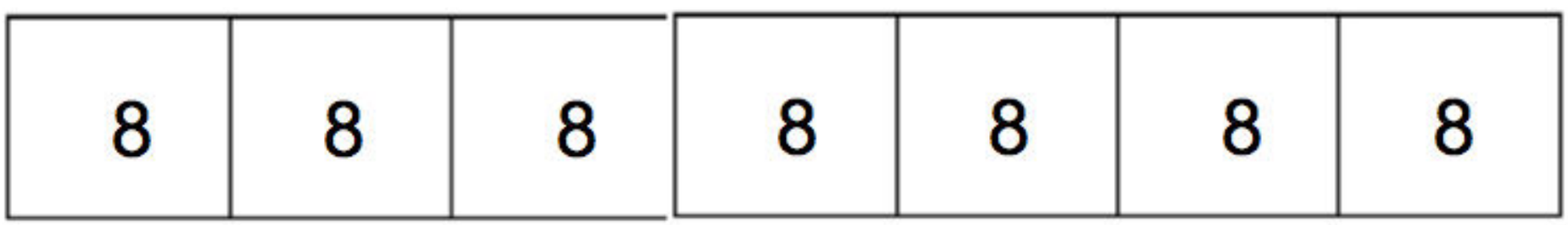
Read Tape Diagrams (6 minutes)

What is the value of each unit in Tape diagrams A and B?

A:



B:



A: 4 X 8 = 32

B: 7 X 8 = 56

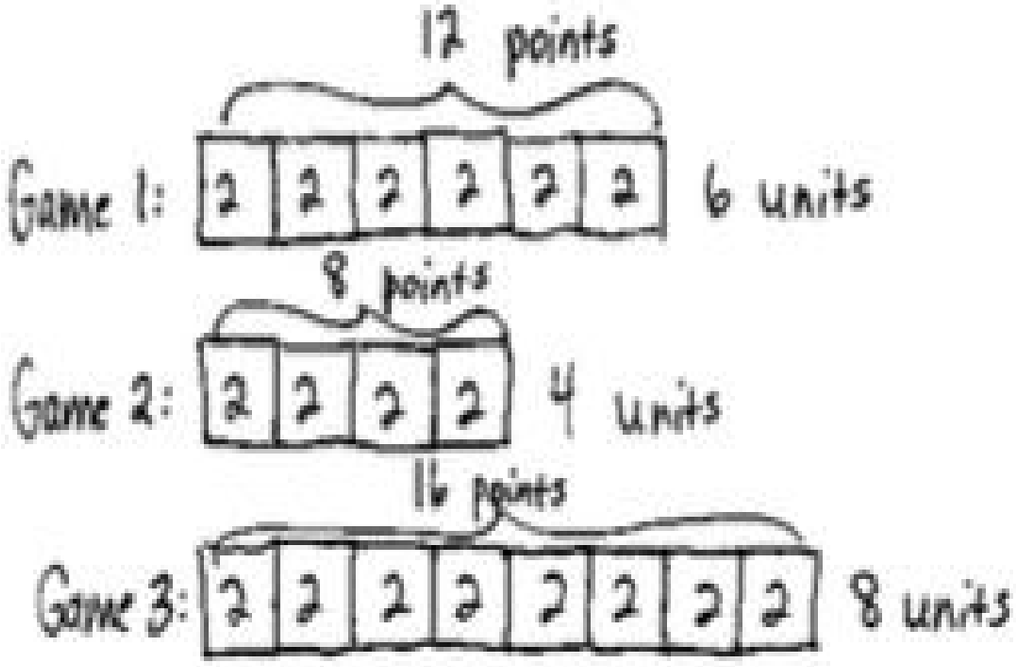
Application Problem

Reisha played in three basketball games.
She scored 12 points in Game 1, 8 points in Game 2, and
16 points in Game 3.
Each basket that she made was worth 2 points.
She uses tape diagrams with a unit size of 2 to represent the points she scored in each game.

How many total units of 2 does it take to represent the points she scored in all three games?

Application Problem

Reisha played in three basketball games.
She scored 12 points in Game 1, 8 points in Game 2, and 16 points in Game 3.
Each basket that she made was worth 2 points.
She uses tape diagrams with a unit size of 2 to represent the points she scored in each game.
How many total units of 2 does it take to represent the points she scored in all three games?



Total units of 2: 6 + 4 + 8 = 18
It will take 18 total units of 2 to represent the points scored in all 3 games.

- Students will need these tape diagrams for the Concept Development.

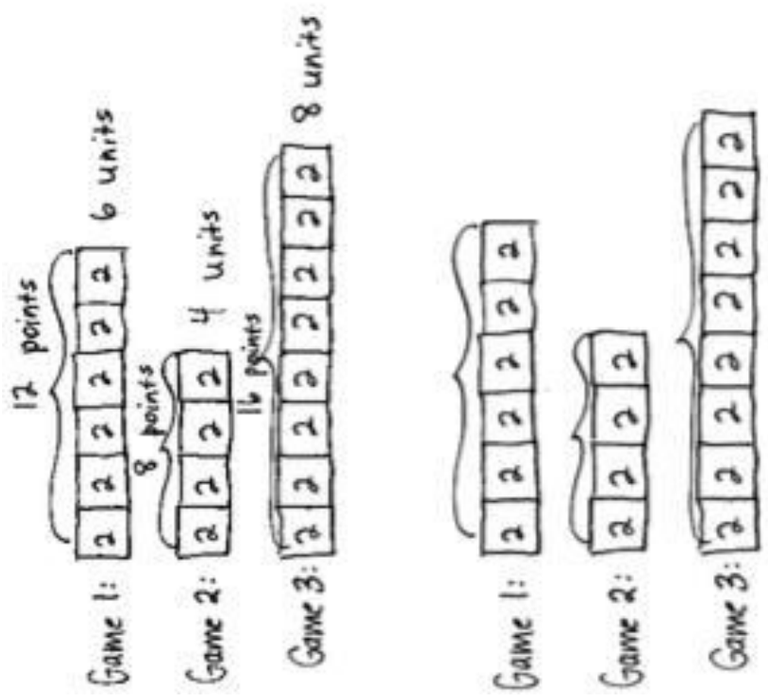
Concept Development

Rotate tape diagrams to make vertical tape diagrams

Materials: Students will need tape diagrams from Application Problem and personal white board

Problem 1:

Rotate tape diagrams to make vertical tape diagrams with units of 2.



How are the vertical tape diagrams different from the picture graphs?

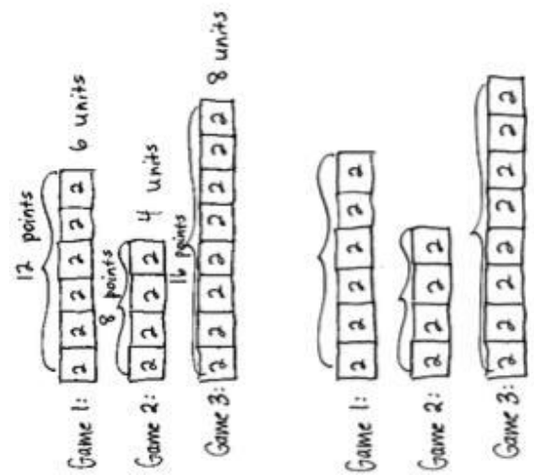
Concept Development

Rotate tape diagrams to make vertical tape diagrams

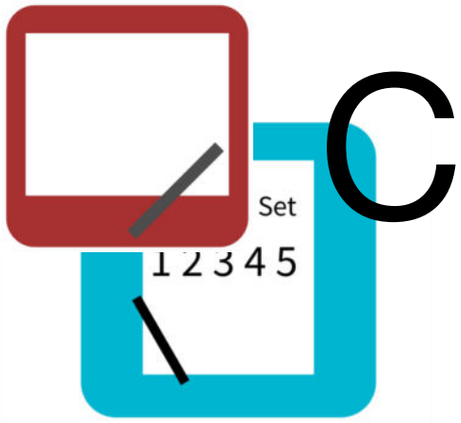
Materials: Students will need tape diagrams from Application Problem and personal white board

Problem 1:

Rotate tape diagrams to make vertical tape diagrams with units of 2.



The units are connected in the vertical tape diagrams. The pictures were separate in the picture graphs. The units in the vertical tape diagrams are labeled, but in our picture graphs the value of the unit was shown on the bottom of the graph.



Concept Development

Rotate tape diagrams to make vertical tape diagrams

Materials: Students will need tape diagrams from Application Problem and personal white board

Problem 1

Put your finger on the tape that shows data about Game 1.

Now, write a multiplication equation to show the value of Game 1's tape.

What is the value of Game 1's tape?

How did you know that the unit is points?

Write a title on our vertical tape diagrams to help others understand our data.
What do the data on the vertical tape diagrams show us?

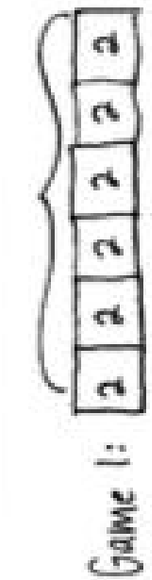
Write : Points Reisha Scores for your title.

Concept Development

Rotate tape diagrams to make vertical tape diagrams

Problem 2: Draw vertical tape diagrams with units of 4.

How many units should you draw to represent Reisha's points in Game 1 if each unit has a value of 4 points instead of 2 points?



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How do you know?

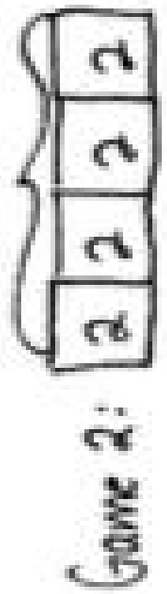
Draw the 3 units vertically, and label each unit 4.
What label do we need for this tape diagram?

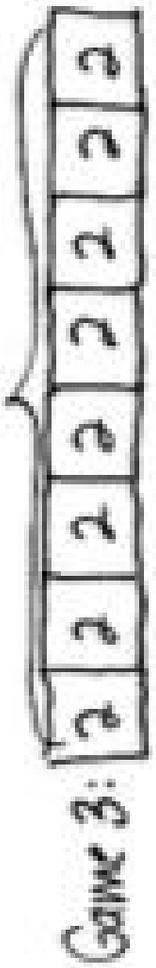
Concept Development

Rotate tape diagrams to make vertical tape diagrams

Problem 2: Draw vertical tape diagrams with units of 4.

Now try Games 2 and 3.
How many total units of 4 does it take to represent the points Reisha scored in all three games?





How does this compare to the total units of 2 it takes to represent Reisha's total points?

Why does it take fewer units when you use units of 4?

How can you use vertical tape diagrams to write a multiplication sentence to represent Reisha's total points in all three games?

Write a multiplication number sentence to show the total points Reisha scored in all three games.

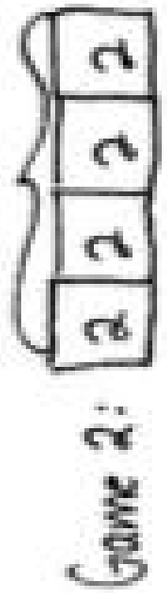
How many points did Reisha score in all three games?

Concept Development

Rotate tape diagrams to make vertical tape diagrams

Problem 2: Draw vertical tape diagrams with units of 4.

Now try Games 2 and 3.
How many total units of 4 does it take to represent the points Reisha scored in all three games? (9)



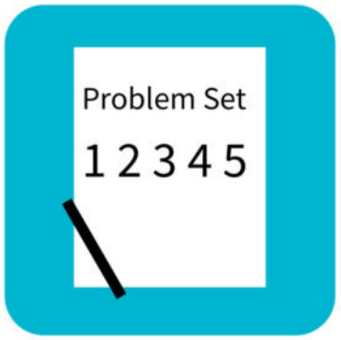
How does this compare to the total units of 2 it takes to represent Reisha's total points? (4, half as many)

Why does it take fewer units when you use units of 4? (the units are bigger)

How can you use vertical tape diagrams to write a multiplication sentence to represent Reisha's total points in all three games? (multiply the total number of units by the value of each unt.)

Write a multiplication number sentence to show the total points Reisha scored in all three games. (9 X 4 =36)

How many points did Reisha score in all three games? (36)



Problem Set (10 mins.)

Name _____ Date _____

1. Find the total number of stamps each student has. Draw tape diagrams with a unit size of 4 to show the number of stamps each student has. The first one has been done for you.

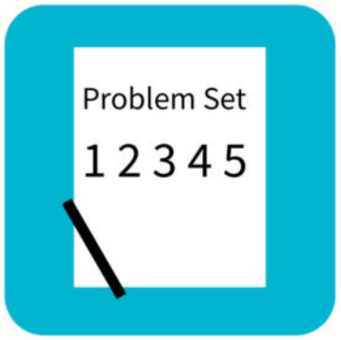
Dana: 4 4 4 4

Tanisha:

Raquel:

Anna:

2. Explain how you can create vertical tape diagrams to show this data.

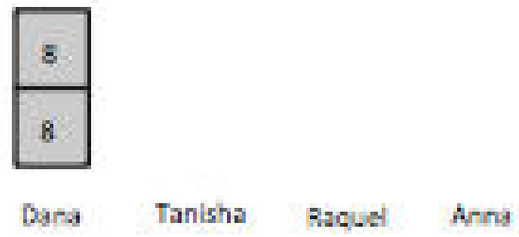


Problem Set

3. Complete the vertical tape diagrams below using the data from Problem 1.

a.

b.



c. What is a good title for the vertical tape diagrams?

d. How many total units of 4 are in the vertical tape diagrams in Problem 3(a)?

e. How many total units of 8 are in the vertical tape diagrams in Problem 3(b)?

f. Compare your answers to parts (d) and (e). Why does the number of units change?

g. Mattaeus looks at the vertical tape diagrams in Problem 3(b) and finds the total number of Anna's and Raquel's stamps by writing the equation $7 \times 8 = 56$. Explain his thinking.

Debrief

Lesson Objective: Rotate tape diagrams vertically.

In what ways do vertical tape diagrams relate to picture graphs?

How does multiplication help you interpret the vertical tape diagrams on the Problem Set?

Exit Ticket (3 minutes)

Name _____ Date _____

The chart below shows a survey of the book club's favorite type of book.

Book Club's Favorite Type of Book	
Type of Book	**Number of Votes**
Mystery	12
Biography	16
Fantasy	20
Science Fiction	8

a. Draw tape diagrams with a unit size of 4 to represent the book club's favorite type of book.