Eureka Math

3rd Grade
Module 6
Lesson 9

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Directions for customizing presentations are available on the next slide.

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Reflecting your Teaching Style and Learning Needs of Your Students

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- The view now looks like Screen B.
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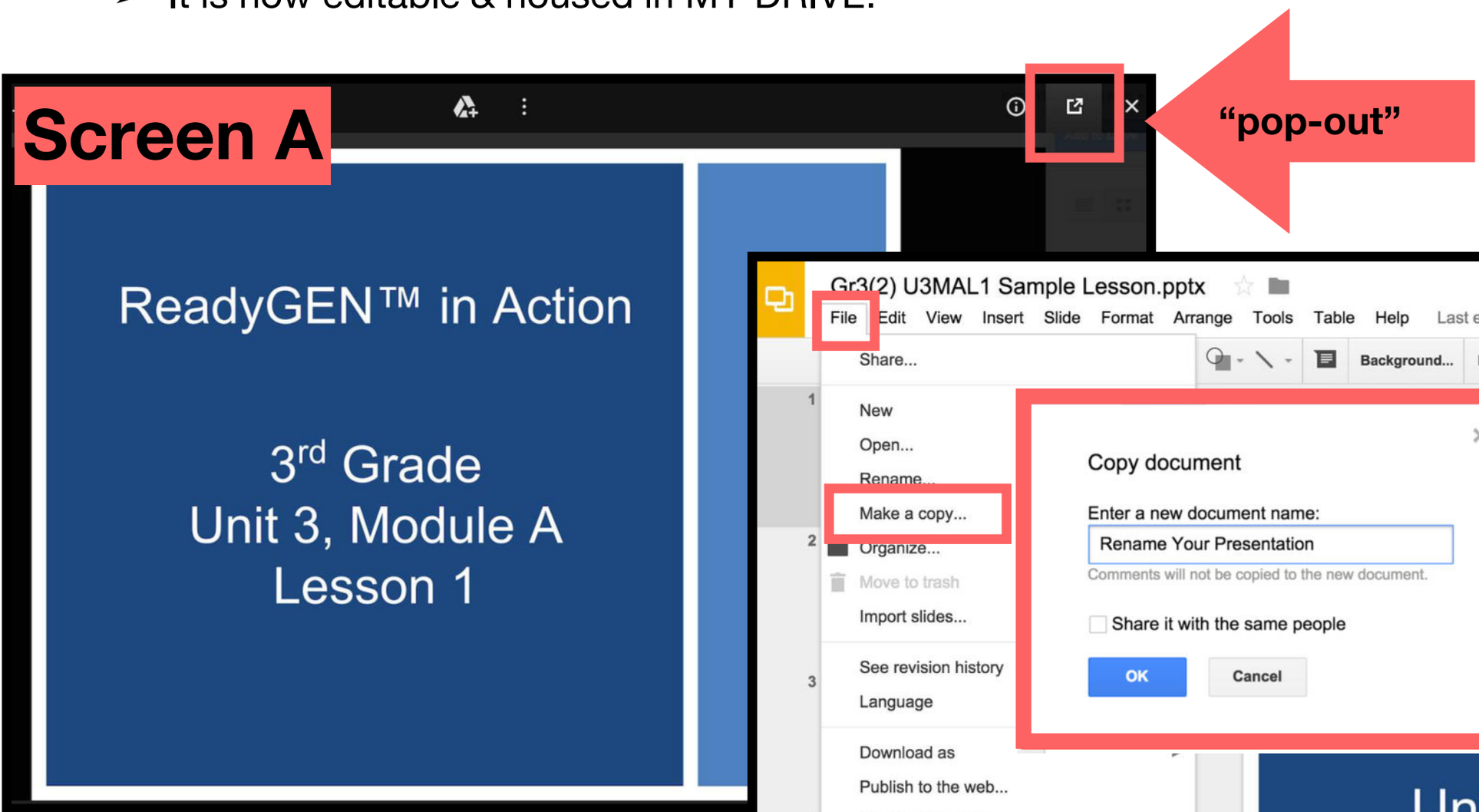
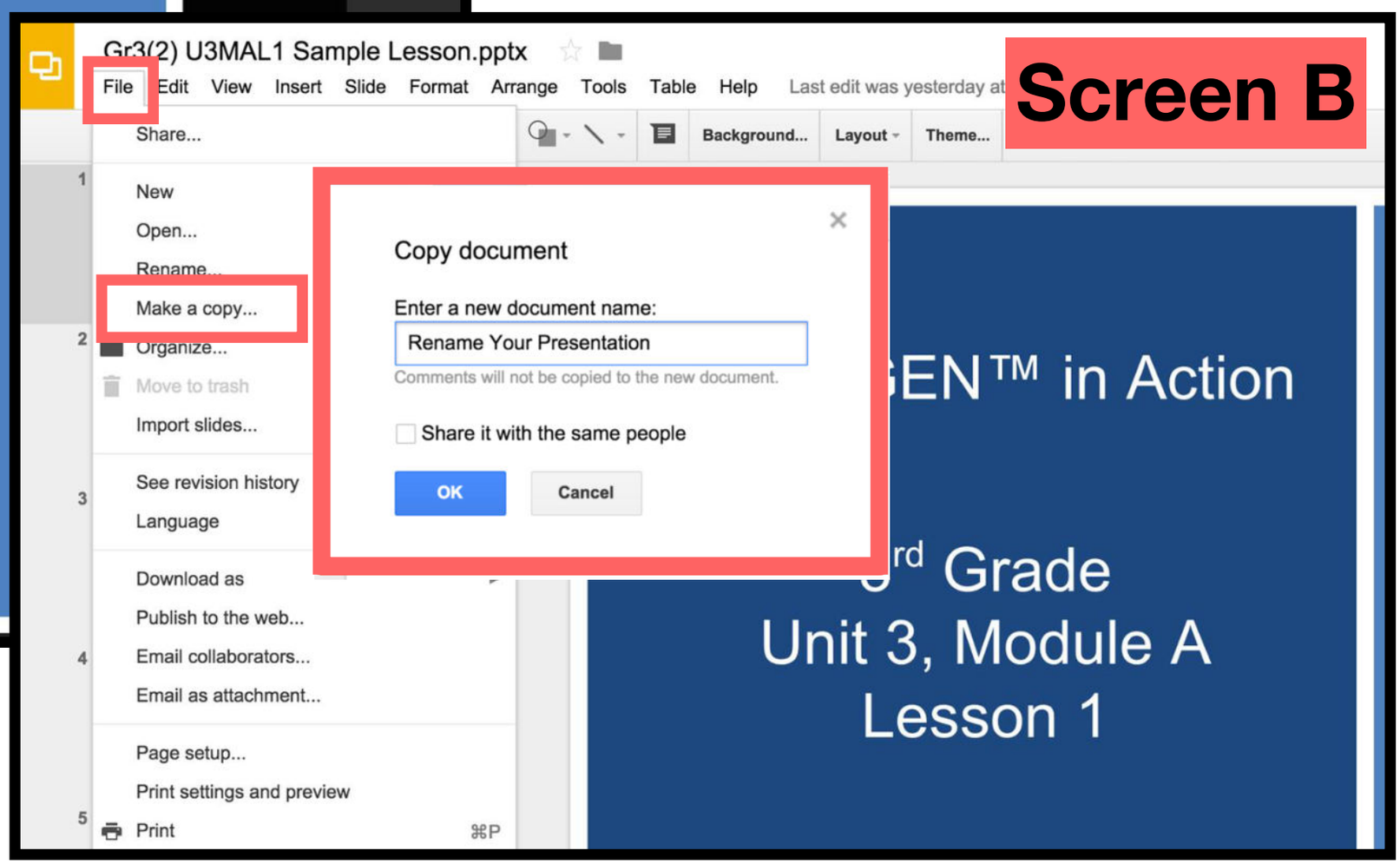
- Google Slides will open your renamed presentation.
- It is now editable & housed in MY DRIVE.





Icons

Read, Draw, Write

Learning Target

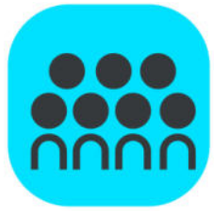
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

Small Group Time

Lesson 9

Objective: Analyze data to problem solve.

Suggested Lesson Structure

Fluency Practice	(14 minutes)
Application Problem	(5 minutes)
Concept Development	(31 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**

I can analyze data to problem solve.

Fluency Practice

Group Counting (3 min.)

Count by sixes to 60.

6, 12, 18, 24, 30, 36, 42, 48, 54, 60.

4 sixes = _____

Write the number sentence.

4 sixes = 26

Fluency Practice

Group Counting (3 min.)

Count by sixes to 60.

6, 12, 18, 24, 30, 36, 42, 48, 54, 60.

48 ÷ 6 = _____

Write the number sentence.

48 ÷ 6 = 8

Fluency Practice

Group Counting (3 min.)

Count by eights to 80.

8, 16, 24, 32, 40, 48, 56, 64, 72, 80.

3 eights = _____

Write the number sentence.

3 eights = 24

Write 3 eights as a multiplication sentence.

3 x 8 = 24

Fluency Practice

Group Counting (3 min.)

8, 16, 24, 32, 40, 48, 56, 64, 72, 80.

56 ÷ 8 = ____

Write the number sentence.

56 ÷ 8 = 7

Fluency Practice

Group Counting (3 min.)

Count by 9s to 90.

9, 18, 27, 36, 45, 54, 63, 72, 81, 90.

4 nines = _____

Write the number sentence.

4 nines = 36

Write 4 nines as a multiplication sentence.

4 x 9 = 36

Fluency Practice

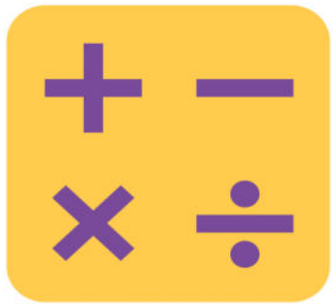
Group Counting (3 min.)

9, 18, 27, 36, 45, 54, 63, 72, 81, 90.

54 ÷ 9 =____

Write the number sentence.

54 ÷ 9 = 6



Fluency Practice

Multiply by 6 (7 minutes)

6 × 7 = ____

Let’s skip-count up by sevens to find the answer.

7, 14, 21, 28, 35, 42.

5 x 7 = 35

Let’s skip-count down to find the answer, too. Start at 70.

70, 63, 56, 49, 42.

Fluency Practice

Multiply by 6 (7 minutes)

8 × 7 = ____

Let’s skip-count up by sevens to find the answer.

7, 14, 21, 28, 35, 42, 49, 56.

8 x 7 = 56

Let’s skip-count down to find the answer, too. Start at 70.

70, 63, 56.

Fluency Practice

Multiply by 6 (7 minutes)

7 × 7 = ____

Let’s skip-count up by sevens to find the answer.

7, 14, 21, 28, 35, 42, 49.

7 x 7 = 49

Let’s skip-count down to find the answer, too. Start at 70.

70, 63, 56, 49.

Fluency Practice

Multiply by 6 (7 minutes)

9 × 7 = ____

Let’s skip-count up by sevens to find the answer.

7, 14, 21, 28, 35, 42, 49, 56, 63.

9 x 7 = 63

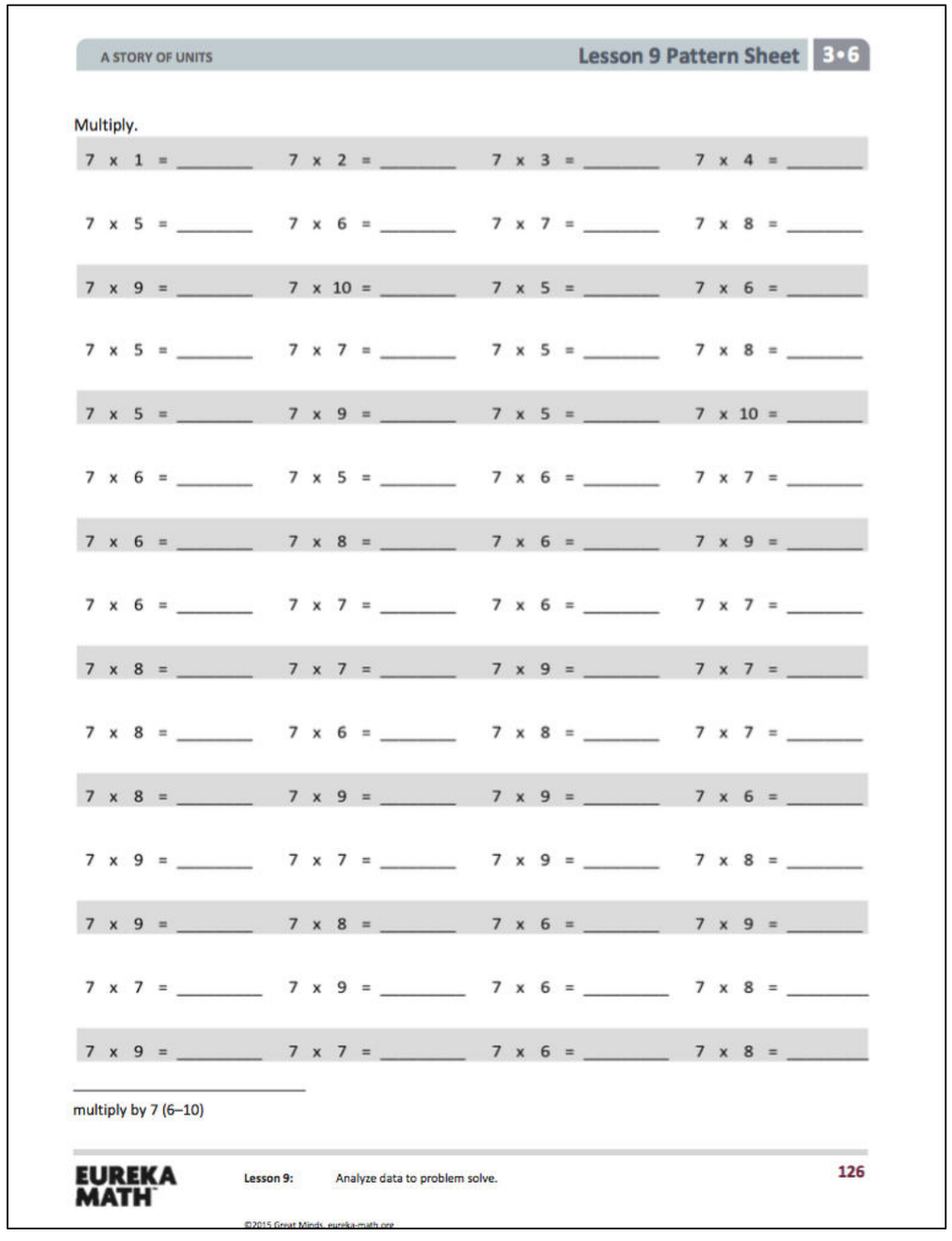
Let’s skip-count down to find the answer, too. Start at 70.

70, 63.

Fluency Practice

Multiply by 6 (7 minutes)

Let’s practice multiplying by 7. Be sure to work left to right across the page.



A STORY OF UNITS — Lesson 9 Pattern Sheet — 3•6

Multiply.

7 x 1 = _____	7 x 2 = _____	7 x 3 = _____	7 x 4 = _____
7 x 5 = _____	7 x 6 = _____	7 x 7 = _____	7 x 8 = _____
7 x 9 = _____	7 x 10 = _____	7 x 5 = _____	7 x 6 = _____
7 x 5 = _____	7 x 7 = _____	7 x 5 = _____	7 x 8 = _____
7 x 5 = _____	7 x 9 = _____	7 x 5 = _____	7 x 10 = _____
7 x 6 = _____	7 x 5 = _____	7 x 6 = _____	7 x 7 = _____
7 x 6 = _____	7 x 8 = _____	7 x 6 = _____	7 x 9 = _____
7 x 6 = _____	7 x 7 = _____	7 x 6 = _____	7 x 7 = _____
7 x 8 = _____	7 x 7 = _____	7 x 9 = _____	7 x 7 = _____
7 x 8 = _____	7 x 6 = _____	7 x 8 = _____	7 x 7 = _____
7 x 8 = _____	7 x 9 = _____	7 x 9 = _____	7 x 6 = _____
7 x 9 = _____	7 x 7 = _____	7 x 9 = _____	7 x 8 = _____
7 x 9 = _____	7 x 8 = _____	7 x 6 = _____	7 x 9 = _____
7 x 7 = _____	7 x 9 = _____	7 x 6 = _____	7 x 8 = _____
7 x 9 = _____	7 x 7 = _____	7 x 6 = _____	7 x 8 = _____

multiply by 7 (6–10)

EUREKA MATH — Lesson 9: Analyze data to problem solve. — 126

Fluency Practice

Count by Halves and Fourths (4 minutes)

Count by halves to 12 halves as I write. Please do not count faster than I can write.

(Write in fractional form as students count.)

Say 2 halves as a whole number.

Count by halves. Say whole numbers when you arrive at whole numbers. Try not to look at the board.

Fluency Practice

Count by Halves and Fourths (4 minutes)

Count by fourths to 12 fourths as I write. Please do not count faster than I can write.

(Write in fractional form as students count.)

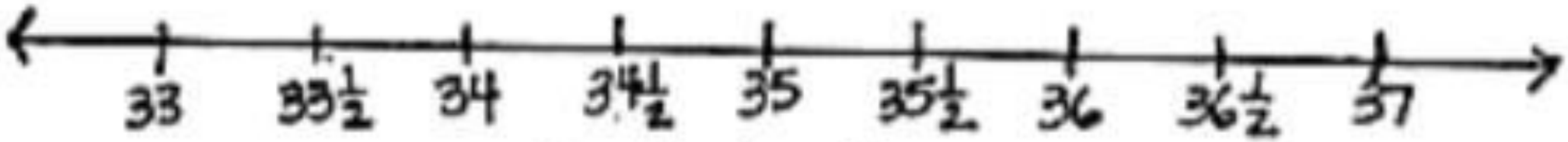
Say 4 fourths as a whole number.

Count by fourths. Say whole numbers when you arrive at whole numbers. Try not to look at the board.

Application Problem

Marla creates a line plot with a half-inch scale from 33 to 37 inches. How many tick marks should be on her line plot?

Application Problem



(in inches)

There will be 9 tick marks on Marla's line plot.

Concept Development

This graph shows how some friends spent their money at the fair.

Concept Development

How can you use the graph to solve this problem?

How much more money was spent on rides than on parking?

Concept Development

How much more money was spent on rides than on parking?

Choose a strategy and solve.

Concept Development

Talk to your partner: Why do you think more money was spent on rides than on parking?

Concept Development

The friends take a total of $120 to the fair. How much do they have left after the fair?

What is the first thing we need to find out?

Concept Development

Talk to your partner. How does the graph help us find the total amount?

Concept Development

Use the graph to write a number sentence to show how much money the friends spend in all.

How much do the friends spend in all?

Have we solved the problem?

Concept Development

Write a number sentence to show how much money the friends have left.

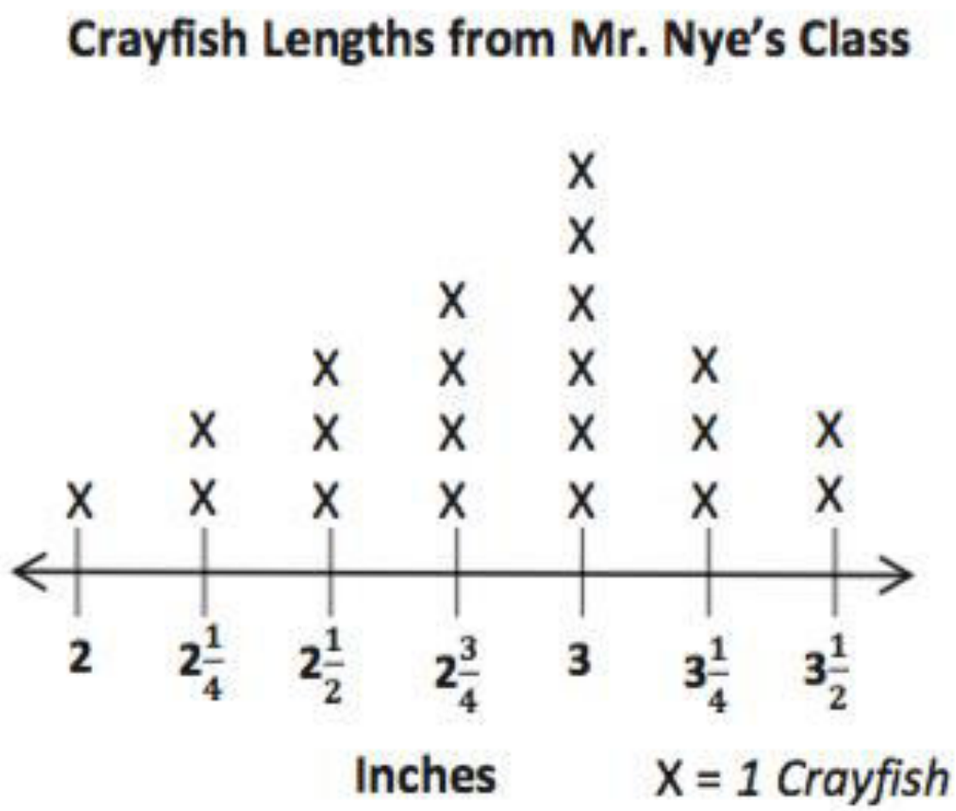
How much money do they have left after the fair?

Concept Development

How much less did the friends spend on rides than on games and food combined?

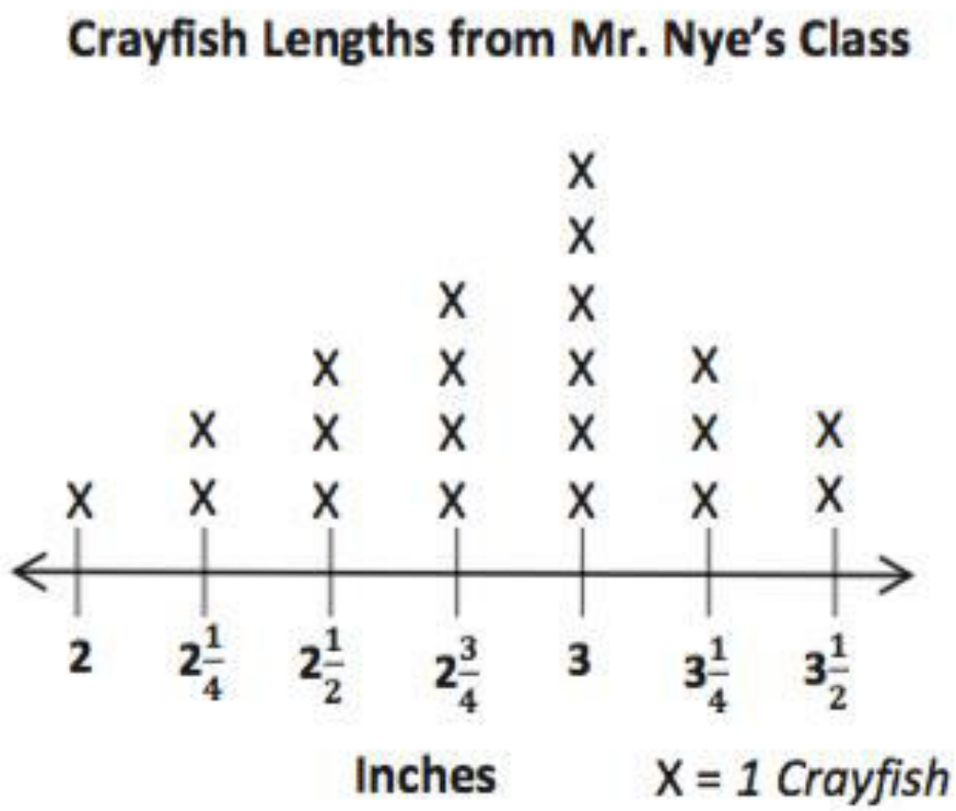
Parking costs $1 for each hour. The group of friends arrived at the fair at 3:00 p.m. What time did they leave?

Concept Development



This line plot shows the lengths of the crayfish in Mr. Nye's third-grade science class.

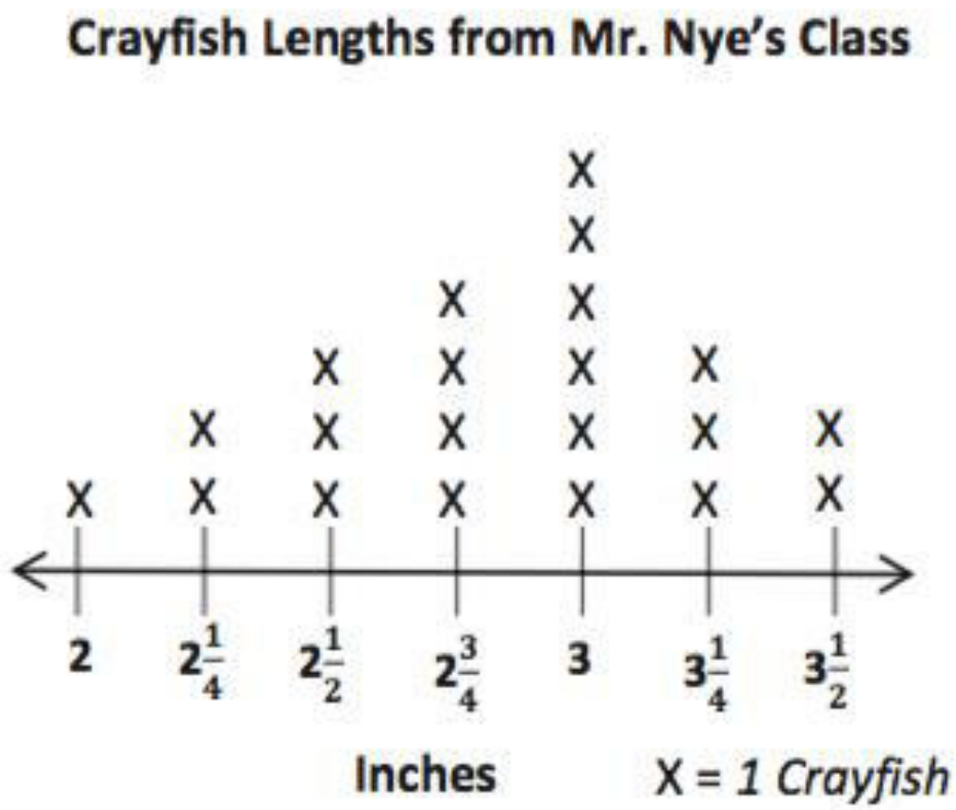
Concept Development



What is the total length of all the crayfish that are 3 inches long?

How can you use the line plot to help you solve this problem?

Concept Development



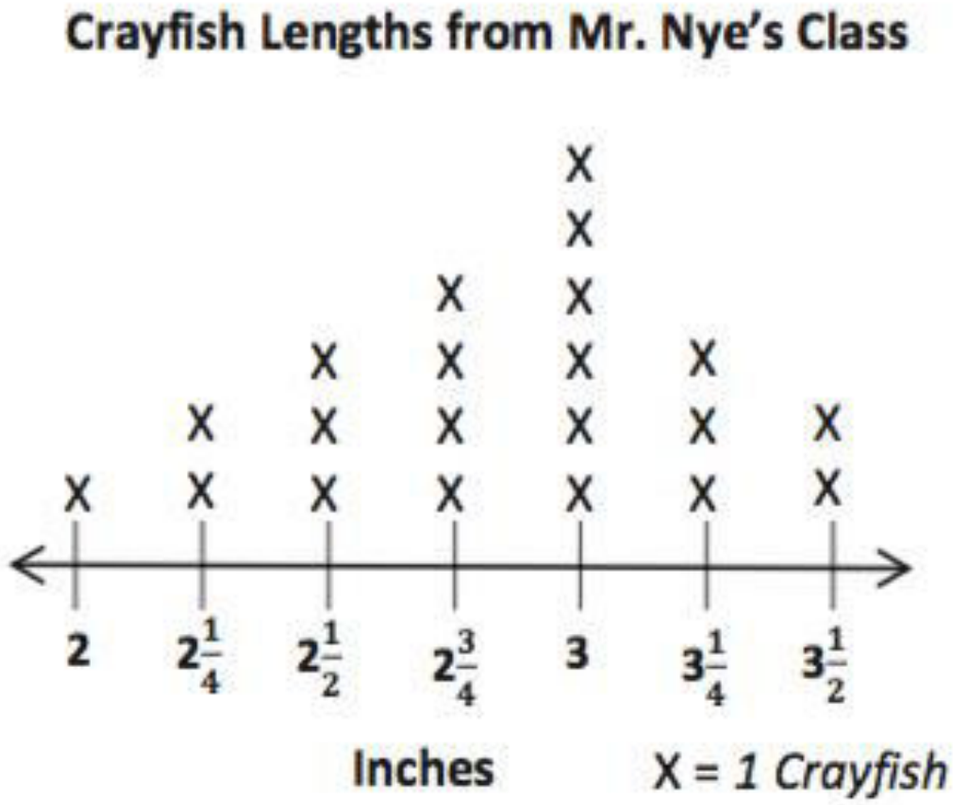
Solve.

What is the total length?

18 inches!

Concept Development

Mrs. Curie's students also measure the lengths of their crayfish. They notice the number of crayfish that are less than 3 inches long is half of the number of crayfish that are 3 inches long in Mr. Nye's class. How many crayfish are less than 3 inches long in Mrs. Curie's class?

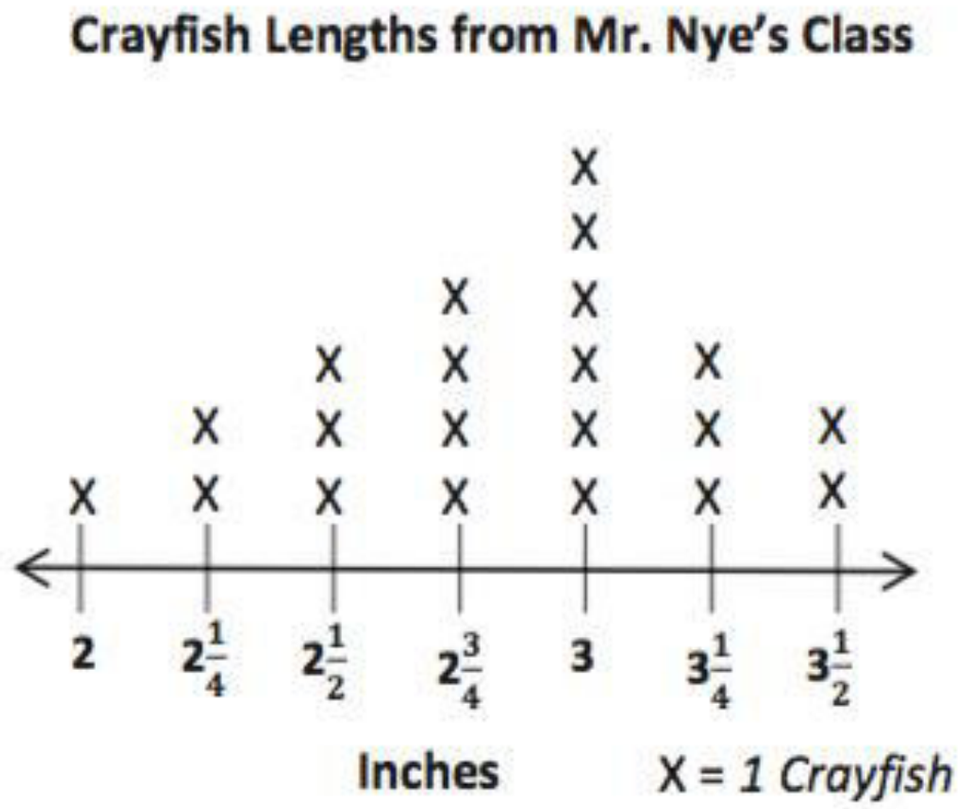


What do you need to figure out first to solve this problem?

Discuss with a partner how to find the number of crayfish in Mr. Nye's class that are less than 3 inches long.

Concept Development

Mrs. Curie's students also measure the lengths of their crayfish. They notice the number of crayfish that are less than 3 inches long is half of the number of crayfish that are 3 inches long in Mr. Nye's class. How many crayfish are less than 3 inches long in Mrs. Curie's class?

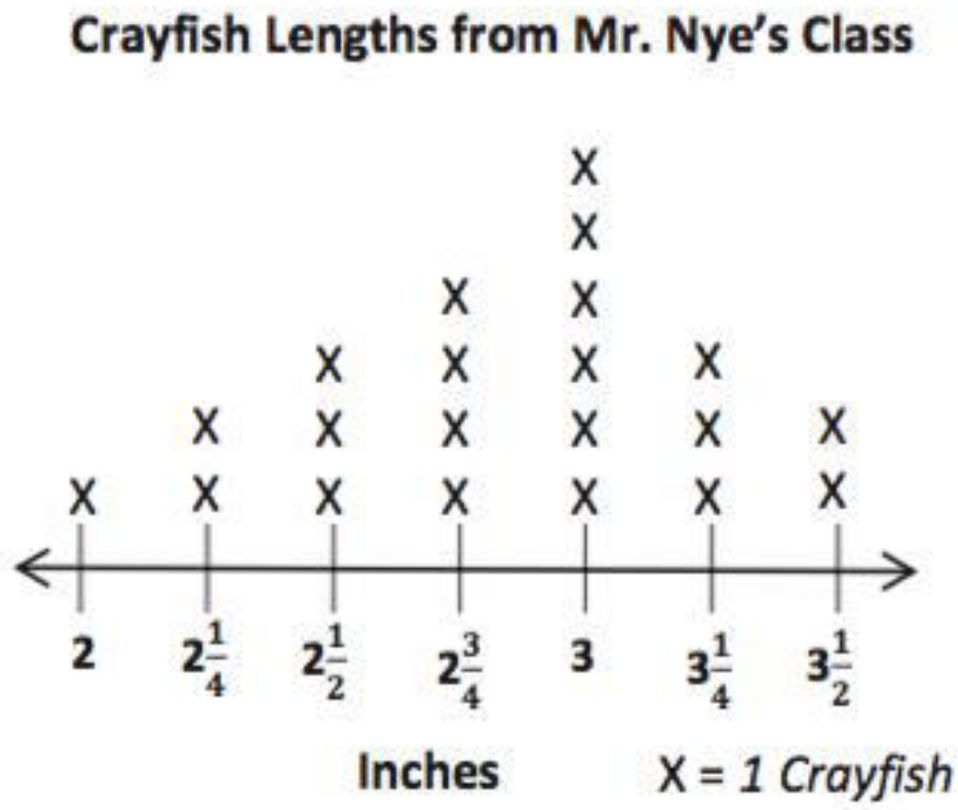


How many crayfish are less than 3 inches long in Mr. Nye's class?

How does this help you find the answer to the problem?

Concept Development

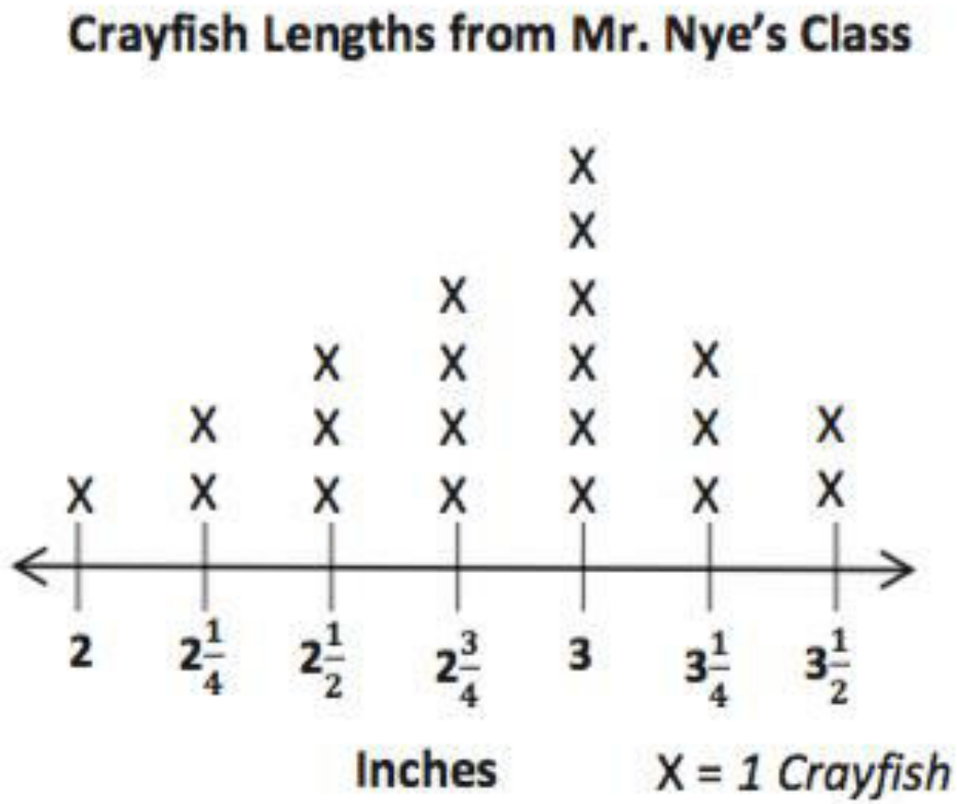
Mrs. Curie's students also measure the lengths of their crayfish. They notice the number of crayfish that are less than 3 inches long is half of the number of crayfish that are 3 inches long in Mr. Nye's class. How many crayfish are less than 3 inches long in Mrs. Curie's class?



How many crayfish are less than 3 inches long in Mrs. Curie's class?

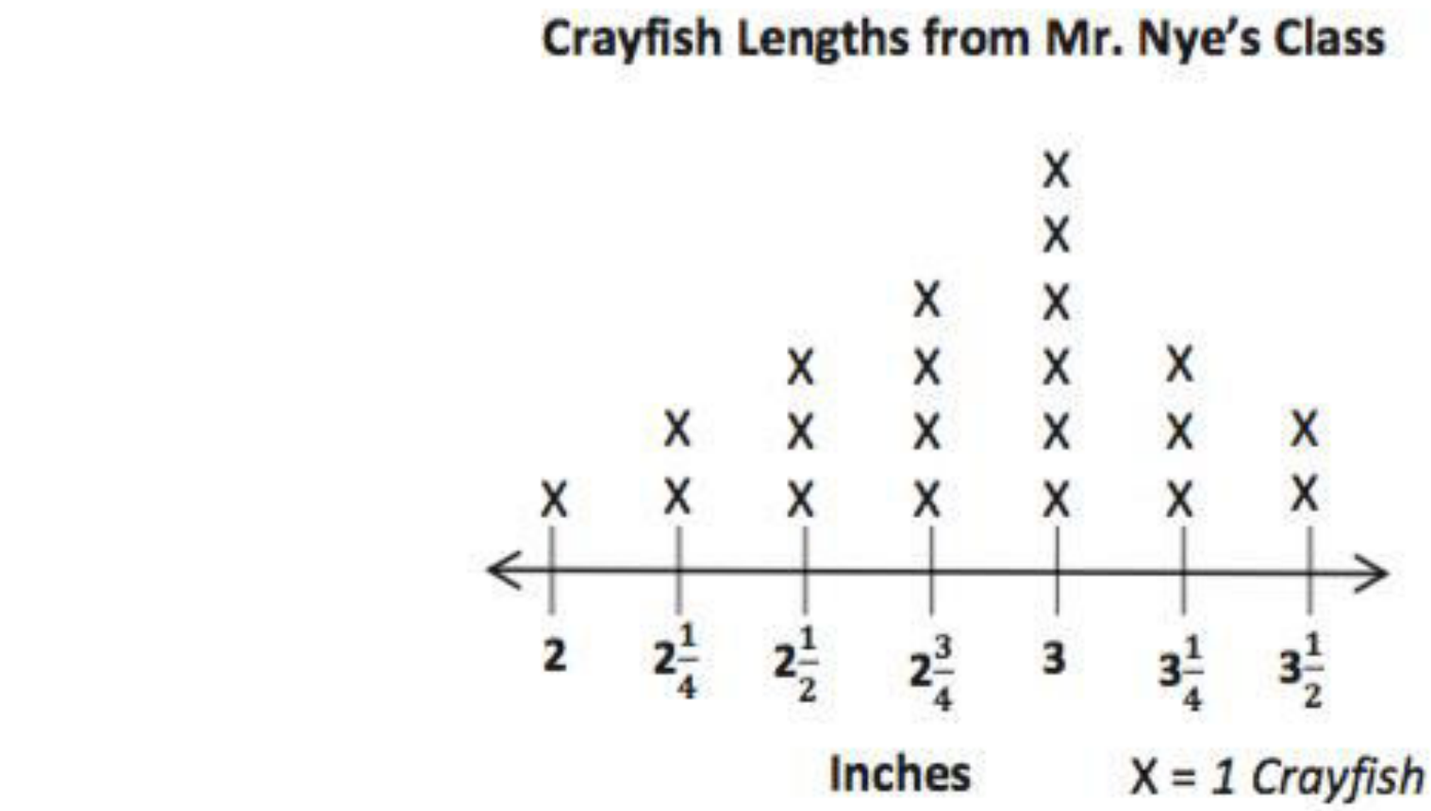
5 crayfish!

Concept Development



Ginny uses half-inch square tiles to measure the longest crayfish. How many half-inch square tiles does she use?

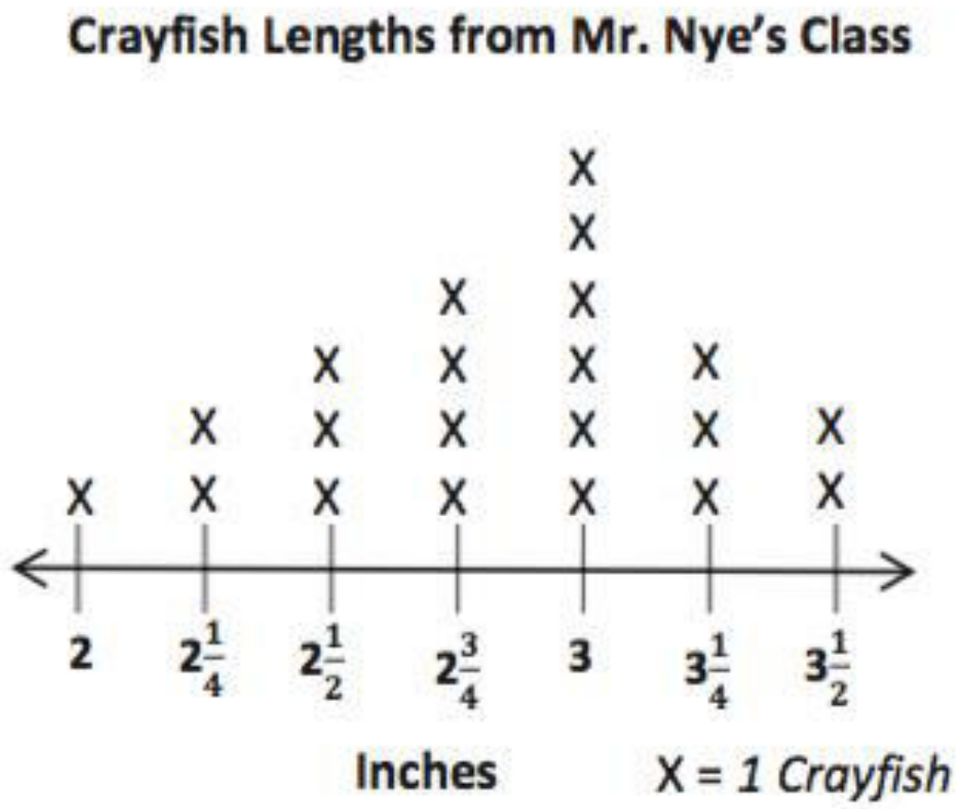
Concept Development



Classroom	Mr. Franklin	Mrs. Curie	Mr. Nye	Mrs. Nobel
Number of Crayfish	21	23	?	24

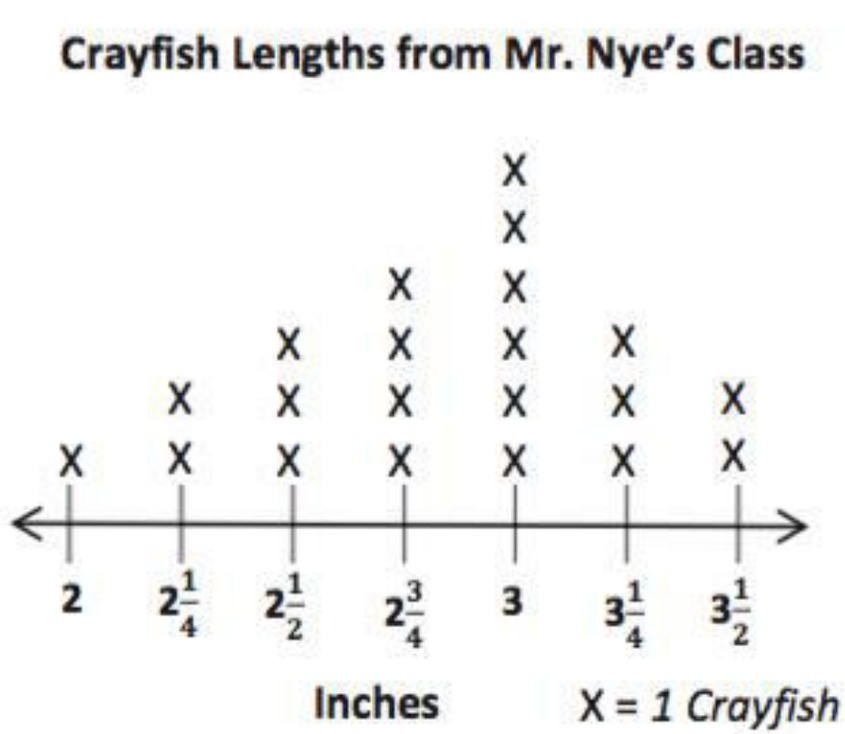
Use the line plot and the chart below to find the total number of crayfish that all of the third-grade classes are studying.

Concept Development



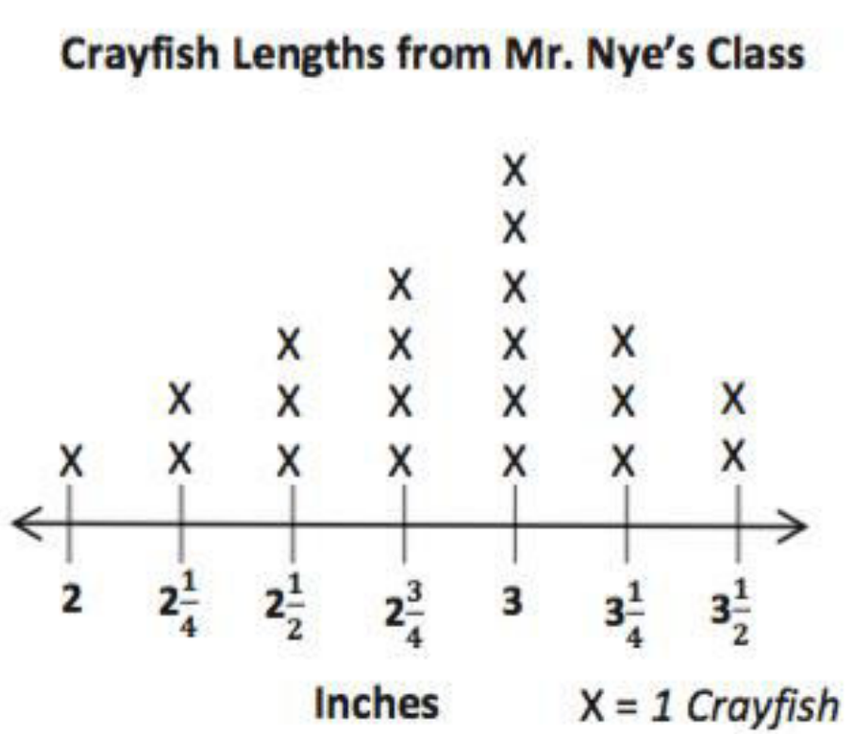
The crayfish are kept in small tanks. There are 3 crayfish in each tank. How many tanks does Mr. Nye's class need?

Concept Development



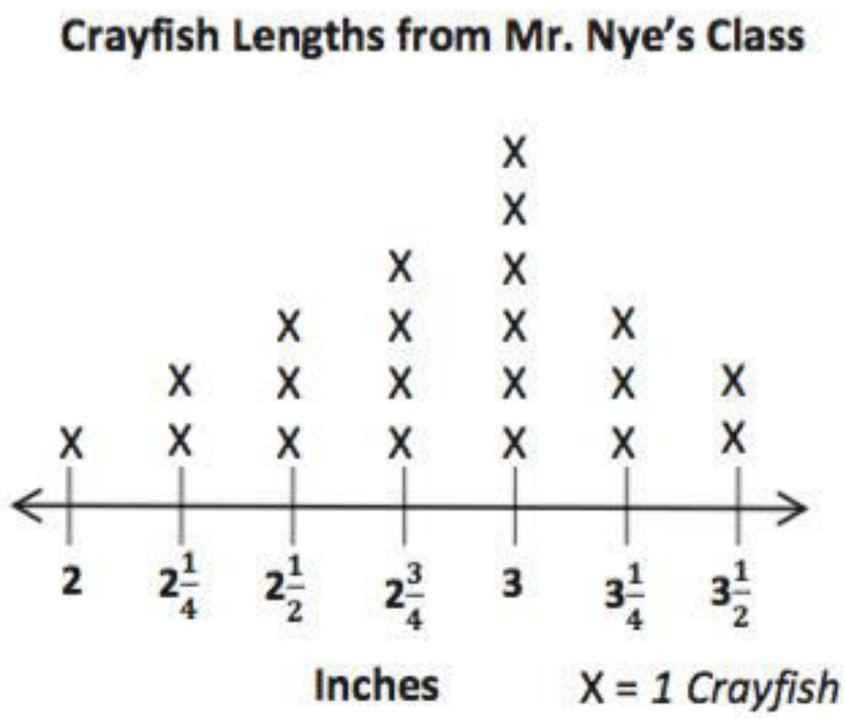
Data is shown in different forms depending on how it is used. Compare the money spent at the fair problem to Mr. Nye's class's crayfish problem. Talk to your partner. Would it make sense for the money spent at the fair data to be switched to a line plot? Explain why or why not. Think about how each representation helps you analyze the data.

Concept Development



Bar graphs are used to compare things between different groups, and line plots are used to show frequency of data along a number line.

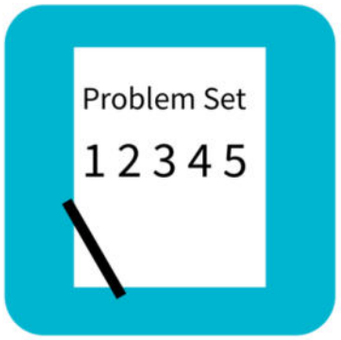
Concept Development



Turn and talk to your partner. If we wanted to show the number of coins in 4 piggy banks, what graph would you use and why?

Concept Development

Bar Graphs	Line Plots
▪ Number of fish in each tank ▪ Number of students in each class ▪ Amount of money saved each month ▪ Number of magazines sold by each student ▪ Number of visitors to a carnival each day ▪ Number of coins in each piggy bank	▪ Lengths of straws ▪ Time spent outside over the weekend ▪ Heights of children on a third-grade basketball team ▪ Lengths of worms ▪ Lengths of plants' roots ▪ Heights of bean plants ▪ Heights of sunflower plants ▪ Widths of silver maple tree leaves



Problem Set

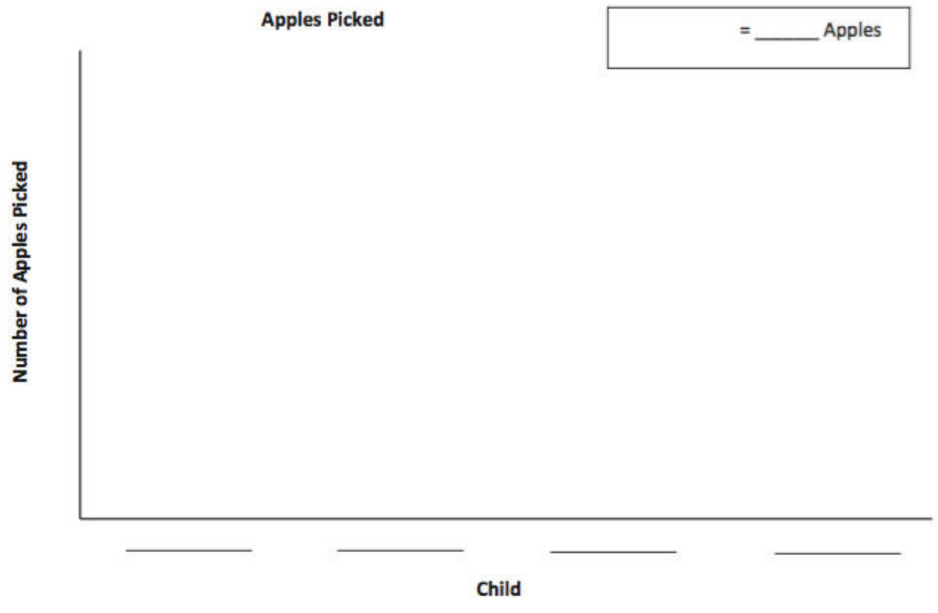
Name _____ Date _____

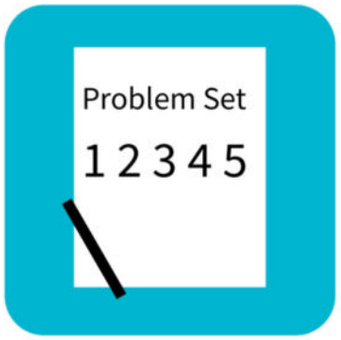
1. Four children went apple picking. The chart shows the number of apples the children picked.

Name	Number of Apples Picked
Stewart	16
Roxanne	_____
Trisha	12
Philip	20
	Total: 72

a. Find the number of apples Roxanne picked to complete the chart.

b. Create a picture graph below using the data in the table.





Problem Set

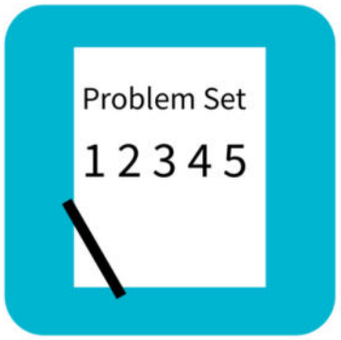
2. Use the chart or graph to answer the following questions.

   a. How many more apples did Stewart and Roxanne pick than Philip and Trisha?

   b. Trisha and Stewart combine their apples to make apples pies. Each pie takes 7 apples. How many pies can they make?

3. Ms. Pacho's science class measured the lengths of blades of grass from their school field to the nearest $\frac{1}{4}$ inch. The lengths are shown below.

Lengths of Blades of Grass (in Inches)					
$2\frac{1}{4}$	$2\frac{3}{4}$	$3\frac{1}{4}$	3	$2\frac{1}{2}$	$2\frac{3}{4}$
$2\frac{3}{4}$	$3\frac{3}{4}$	2	$2\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{1}{4}$
3	$2\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$	3
$3\frac{1}{4}$	$2\frac{1}{4}$	$3\frac{3}{4}$	3	$3\frac{1}{4}$	$2\frac{3}{4}$



Problem Set

a. Make a line plot of the grass data. Explain your choice of scale.

b. How many blades of grass were measured? Explain how you know.

c. What was the length measured most frequently on the line plot? How many blades of grass had this length?

d. How many more blades of grass measured $2\frac{3}{4}$ inches than both $3\frac{3}{4}$ inches and 2 inches combined?

Debrief

What scale did you use for Problem 1(b)? Would that scale work if Philip picked 21 apples?

Compare your solution for Problem 2(b) to a partner's solution. Did you and your partner use the same strategy to solve the problem?

Explain to your partner how you chose the scale for the line plot in Problem 3(a).

Debrief

Other than counting the X’s, is there another strategy you can use to find the total number of blades of grass that were measured in Problem 3(b)?

Debrief

Would it make sense to display the number of apples picked data in a line plot? Why or why not?

When is it best to show your data as a picture graph? A bar graph? A line plot? What is the difference?

Exit Ticket (3 minutes)

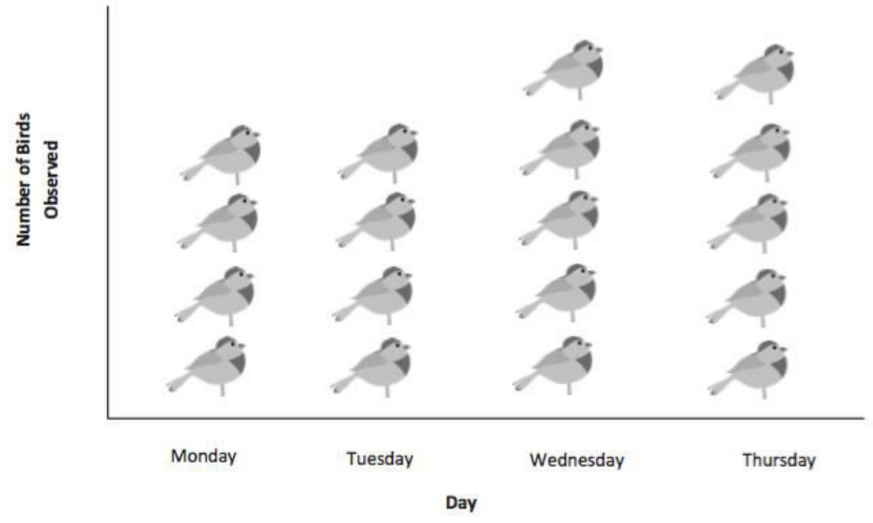
Lesson 9 Exit Ticket 3•6

Name _____ Date _____

Mr. Gallagher's science class goes bird watching. The picture graph below shows the number of birds the class observes.

Number of Birds Mr. Gallagher's Class Observed

= 6 Birds



a. How many more birds did Mr. Gallagher's class observe on Wednesday and Thursday than on Monday and Tuesday?

b. Mr. Manning's class observed 104 birds. How many more birds did Mr. Gallagher's class observe?