

EUREKA MATH

A STORY OF UNITS



Mathematics Curriculum



Grade 3 • MODULE 6

Collecting and Displaying Data

PROBLEM SETS

Video tutorials: <http://embarc.online>

Version 3

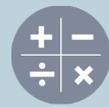


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GRADE 3 • MODULE 6

Collecting and Displaying Data

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Name _____

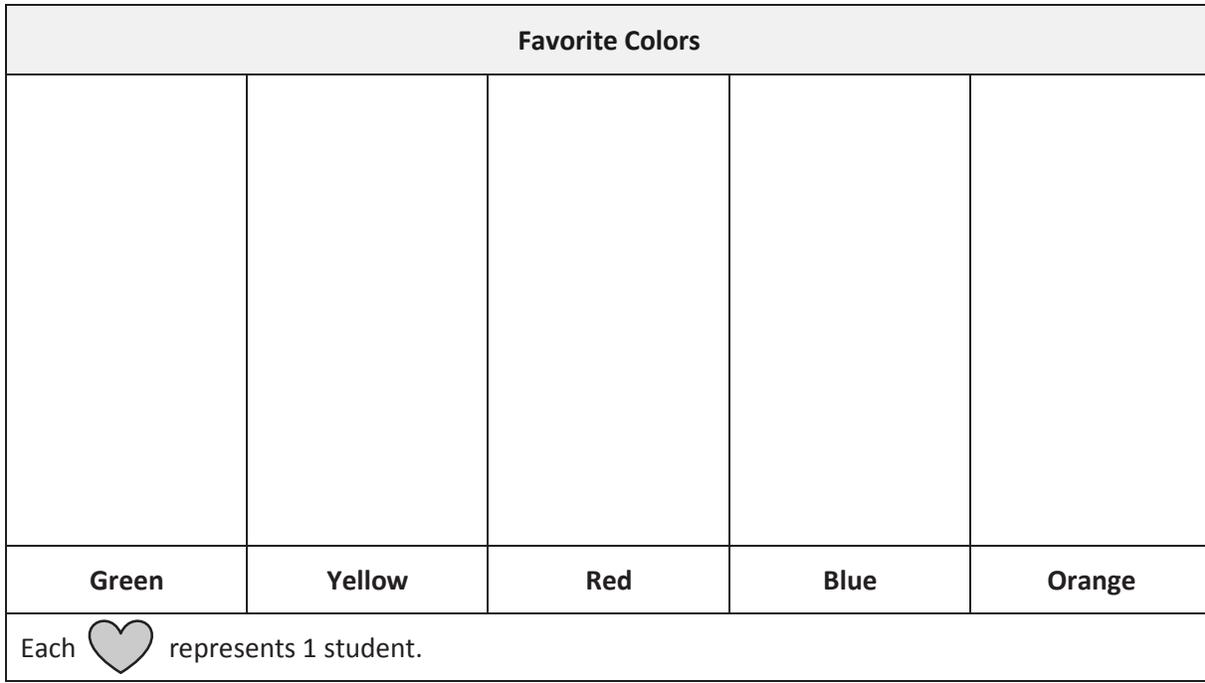
Date _____

1. “What is your favorite color?” Survey the class to complete the tally chart below.

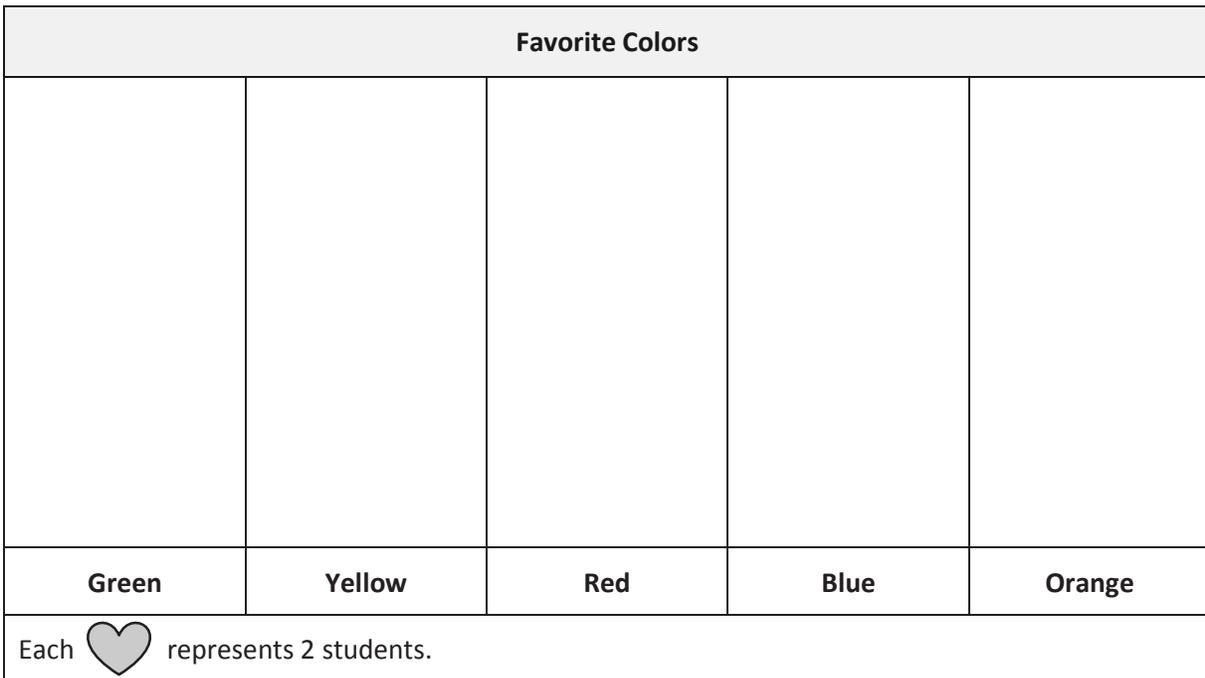
Favorite Colors	
Color	Number of Students
Green	
Yellow	
Red	
Blue	
Orange	

2. Use the tally chart to answer the following questions.
- How many students chose orange as their favorite color?
 - How many students chose yellow as their favorite color?
 - Which color did students choose the most? How many students chose it?
 - Which color did students choose the least? How many students chose it?
 - What is the difference between the number of students in parts (c) and (d)? Write a number sentence to show your thinking.
 - Write an equation to show the total number of students surveyed on this chart.

3. Use the tally chart in Problem 1 to complete the picture graphs below.
- a.



b.



4. Use the picture graph in Problem 3(b) to answer the following questions.

a. What does each  represent?

b. Draw a picture and write a number sentence to show how to represent 3 students in your picture graph.

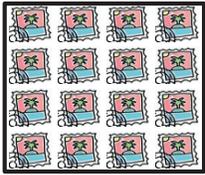
c. How many students does  represent? Write a number sentence to show how you know.

d. How many more  did you draw for the color that students chose the most than for the color that students chose the least? Write a number sentence to show the difference between the number of votes for the color that students chose the most and the color that students chose the least.

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



Tanisha



Raquel



Anna

Each  represents 1 stamp.

Dana:



Tanisha:

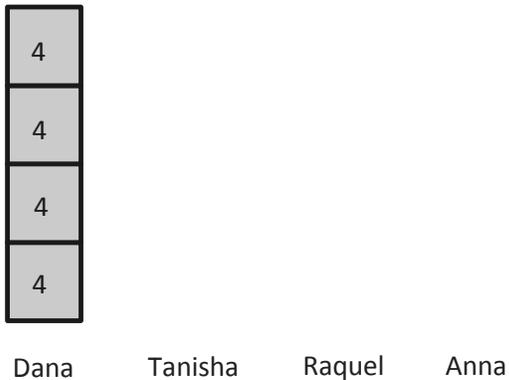
Raquel:

Anna:

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

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.

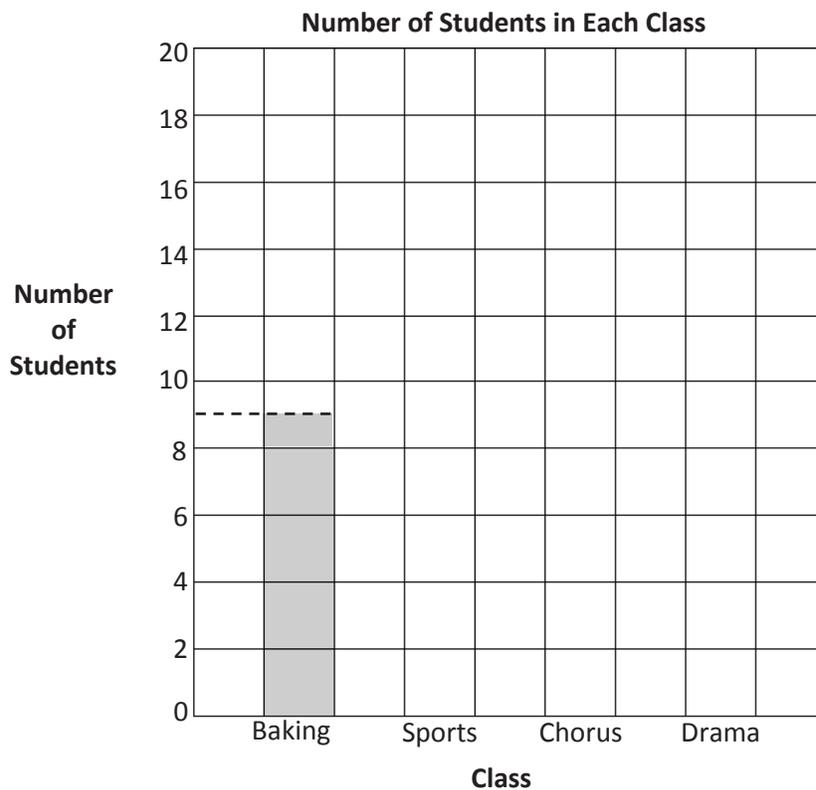
Name _____

Date _____

1. This table shows the number of students in each class.

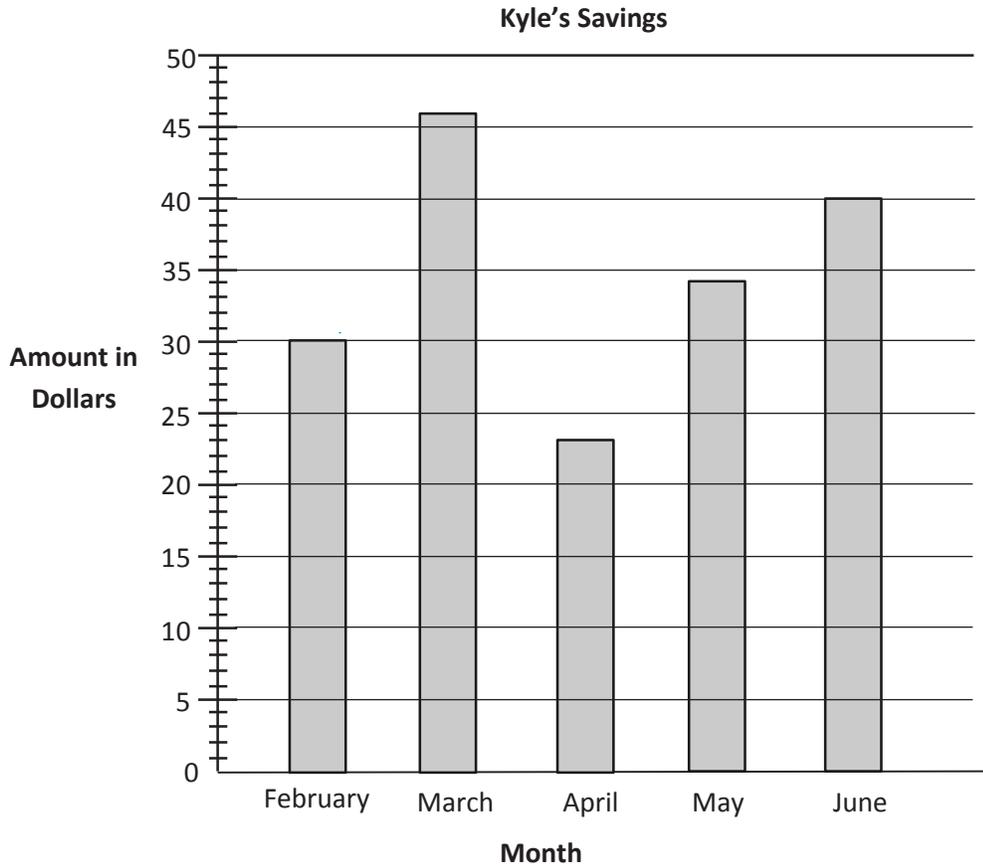
Number of Students in Each Class	
Class	Number of Students
Baking	9
Sports	16
Chorus	13
Drama	18

Use the table to color the bar graph. The first one has been done for you.



- What is the value of each square in the bar graph?
- Write a number sentence to find how many total students are enrolled in classes.
- How many fewer students are in sports than in chorus and baking combined? Write a number sentence to show your thinking.

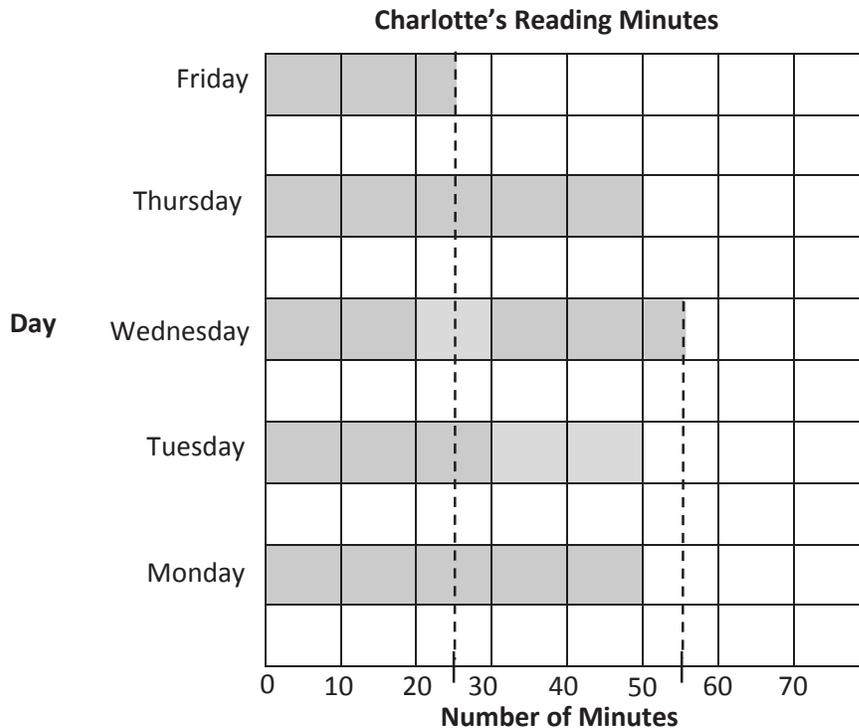
2. This bar graph shows Kyle’s savings from February to June. Use a straightedge to help you read the graph.



- How much money did Kyle save in May?
 - In which months did Kyle save less than \$35?
 - How much more did Kyle save in June than April? Write a number sentence to show your thinking.
 - The money Kyle saved in _____ was half the money he saved in _____.
3. Complete the table below to show the same data given in the bar graph in Problem 2.

Months	February				
Amount Saved in Dollars					

This bar graph shows the number of minutes Charlotte read from Monday through Friday.



4. Use the graph's lines as a ruler to draw in the intervals on the number line shown above. Then plot and label a point for each day on the number line.
5. Use the graph or number line to answer the following questions.
 - a. On which days did Charlotte read for the same number of minutes? How many minutes did Charlotte read on these days?
 - b. How many more minutes did Charlotte read on Wednesday than on Friday?

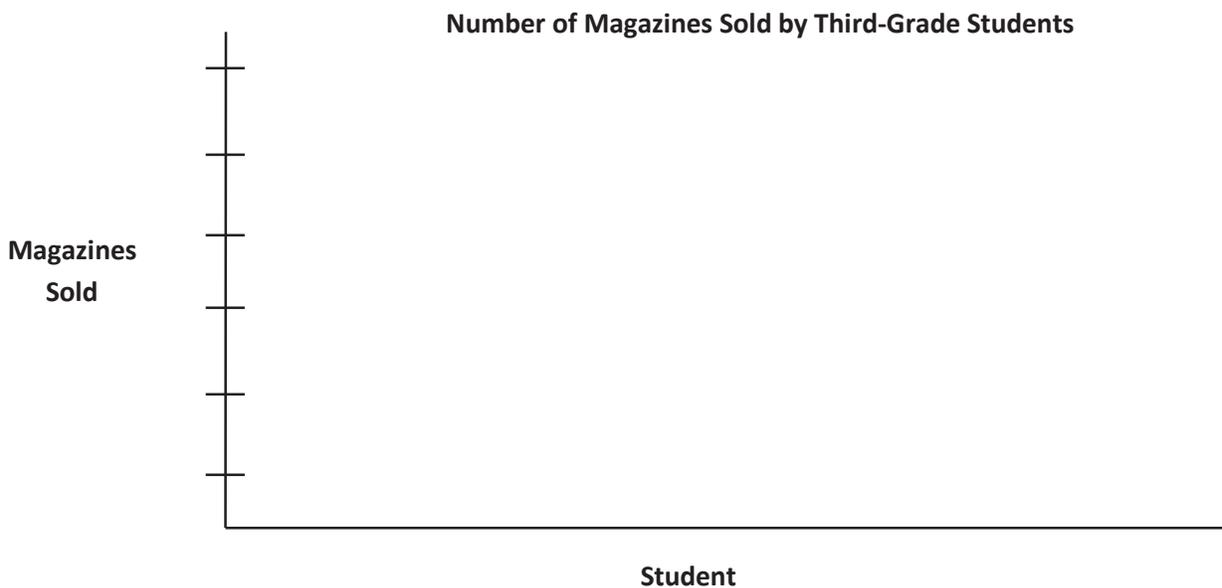
Name _____

Date _____

1. The chart below shows the number of magazines sold by each student.

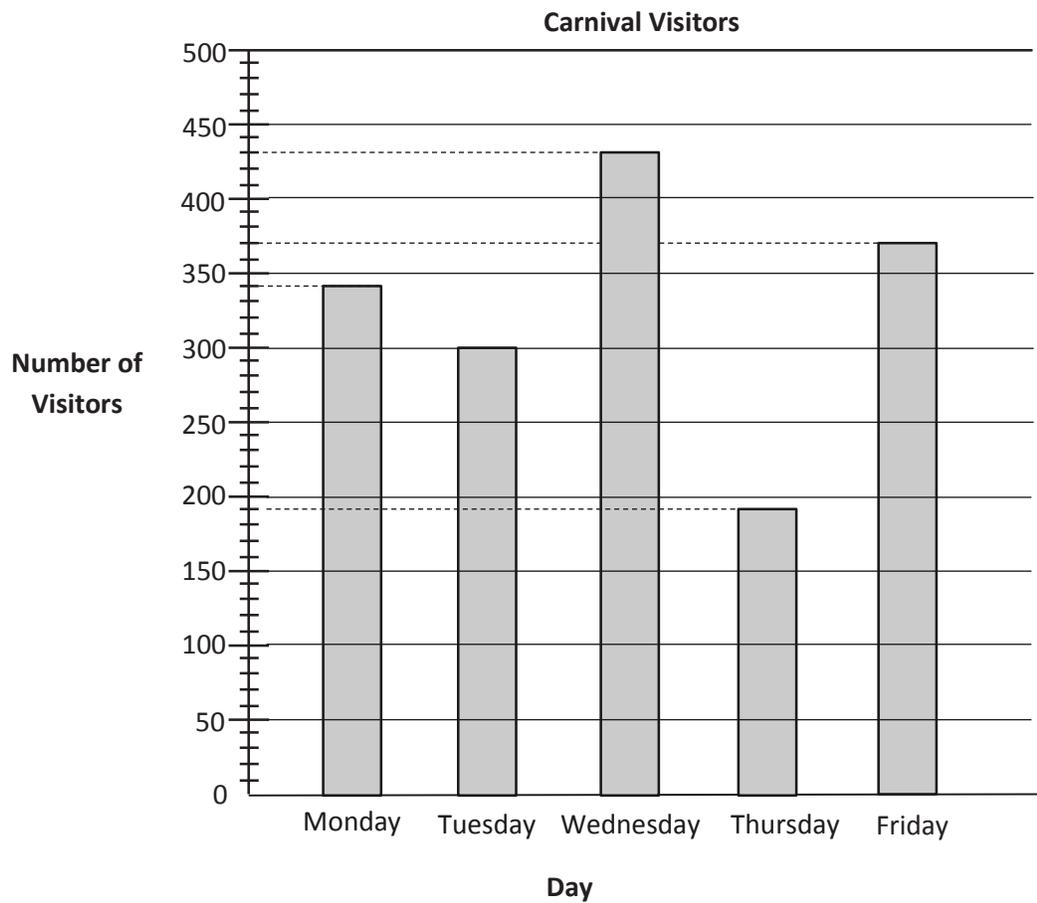
Student	Ben	Rachel	Jeff	Stanley	Debbie
Magazines Sold	300	250	100	450	600

- a. Use the chart to draw a bar graph below. Create an appropriate scale for the graph.



- b. Explain why you chose the scale for the graph.
- c. How many fewer magazines did Debbie sell than Ben and Stanley combined?
- d. How many more magazines did Debbie and Jeff sell than Ben and Rachel?

2. The bar graph shows the number of visitors to a carnival from Monday through Friday.



- a. How many fewer visitors were there on the least busy day than on the busiest day?
- b. How many more visitors attended the carnival on Monday and Tuesday combined than on Thursday and Friday combined?

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?

2. Jenna marks a 5-inch paper strip into equal parts as shown below.



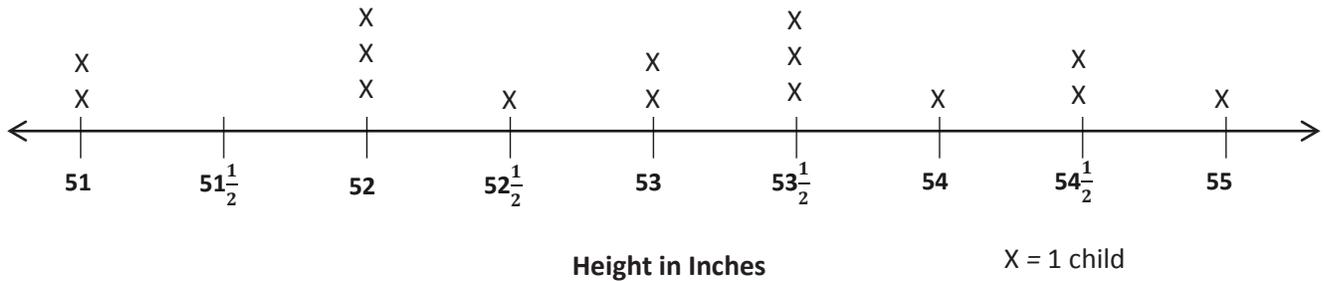
- a. Label the whole and half inches on the paper strip.
- b. Estimate to draw the $\frac{1}{4}$ -inch marks on the paper strip. Then, fill in the blanks below.
- 1 inch is equal to _____ half inches.
- 1 inch is equal to _____ quarter inches.
- 1 half inch is equal to _____ quarter inches.
- c. Describe how Jenna could use this paper strip to measure an object that is longer than 5 inches.
3. Sari says her pencil measures 8 half inches. Bart disagrees and says it measures 4 inches. Explain to Bart why the two measurements are the same in the space below. Use words, pictures, or numbers.

Name _____

Date _____

1. Coach Harris measures the heights of the children on his third-grade basketball team in inches. The heights are shown on the line plot below.

Heights of Children on Third-Grade Basketball Team



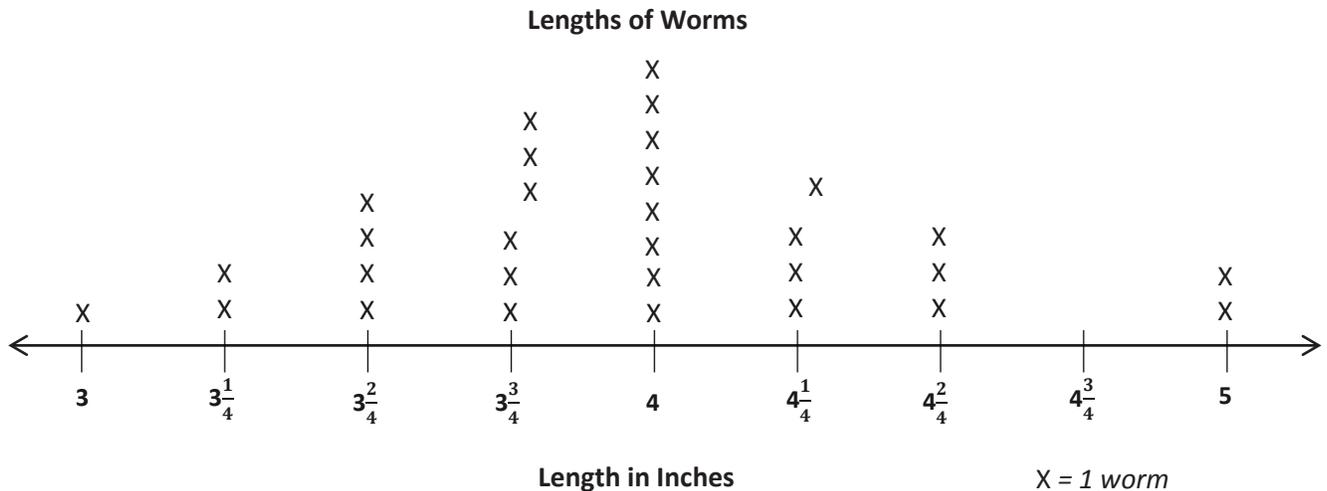
- a. How many children are on the team? How do you know?

- b. How many children are less than 53 inches tall?

- c. Coach Harris says that the most common height for the children on his team is $53\frac{1}{2}$ inches. Is he right? Explain your answer.

- d. Coach Harris says that the player who does the tip-off in the beginning of the game has to be at least 54 inches tall. How many children could do the tip-off?

2. Miss Vernier's class is studying worms. The lengths of the worms in inches are shown in the line plot below.



- a. How many worms did the class measure? How do you know?
- b. Cara says that there are more worms $3\frac{3}{4}$ inches long than worms that are $3\frac{2}{4}$ and $4\frac{1}{4}$ inches long combined. Is she right? Explain your answer.
- c. Madeline finds a worm hiding under a leaf. She measures it, and it is $4\frac{3}{4}$ inches long. Plot the length of the worm on the line plot.

Name _____

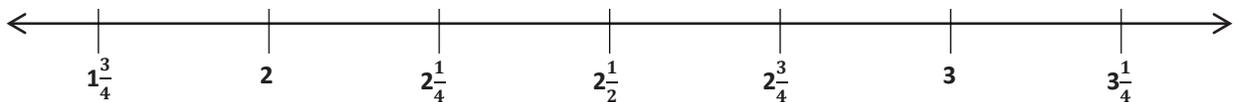
Date _____

Mrs. Weisse's class grows beans for a science experiment. The students measure the heights of their bean plants to the nearest $\frac{1}{4}$ inch and record the measurements as shown below.

Heights of Bean Plants (in Inches)				
$2\frac{1}{4}$	$2\frac{3}{4}$	$3\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$
$1\frac{3}{4}$	3	$2\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{1}{2}$
2	$2\frac{1}{4}$	3	$2\frac{1}{4}$	3
$2\frac{1}{2}$	$3\frac{1}{4}$	$1\frac{3}{4}$	$2\frac{3}{4}$	2

- a. Use the data to complete the line plot below.

Title: _____



Label: _____

X =

- b. How many bean plants are at least $2\frac{1}{4}$ inches tall?
- c. How many bean plants are taller than $2\frac{3}{4}$ inches?
- d. What is the most frequent measurement? How many bean plants were plotted for this measurement?
- e. George says that most of the bean plants are at least 3 inches tall. Is he right? Explain your answer.
- f. Savannah was absent the day the class measured the heights of their bean plants. When she returns, her plant measures $2\frac{2}{4}$ inches tall. Can Savannah plot the height of her bean plant on the class line plot? Why or why not?

Name _____

Date _____

Delilah stops under a silver maple tree and collects leaves. At home, she measures the widths of the leaves to the nearest $\frac{1}{4}$ inch and records the measurements as shown below.

Widths of Silver Maple Tree Leaves (in Inches)				
$5\frac{3}{4}$	6	$6\frac{1}{4}$	6	$5\frac{3}{4}$
$6\frac{1}{2}$	$6\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{3}{4}$	6
$6\frac{1}{4}$	6	6	$6\frac{1}{2}$	$6\frac{1}{4}$
$6\frac{1}{2}$	$5\frac{3}{4}$	$6\frac{1}{4}$	6	$6\frac{3}{4}$
6	$6\frac{1}{4}$	6	$5\frac{3}{4}$	$6\frac{1}{2}$

- a. Use the data to create a line plot below.

- b. Explain the steps you took to create the line plot.
- c. How many more leaves were 6 inches wide than $6\frac{1}{2}$ inches wide?
- d. Find the three most frequent measurements on the line plot. What does this tell you about the typical width of a silver maple tree leaf?

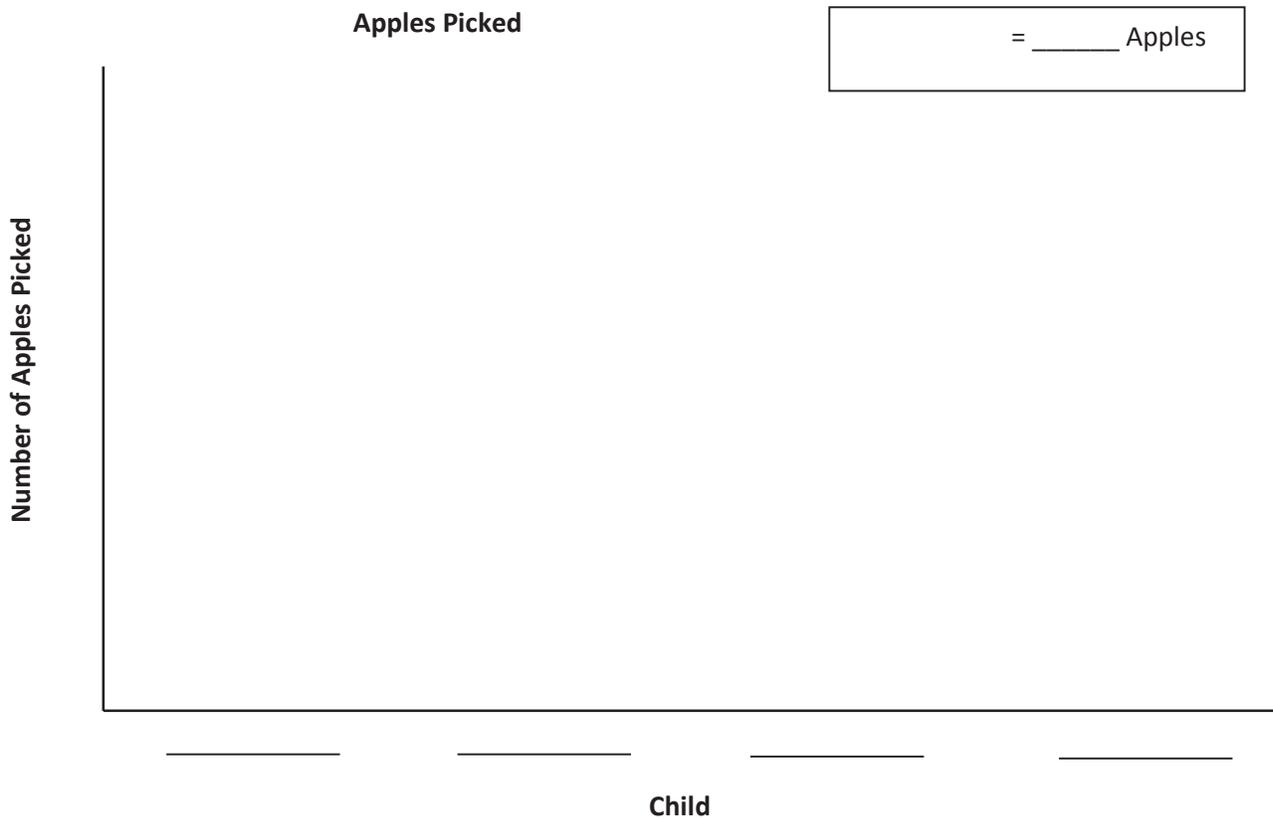
Name _____

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

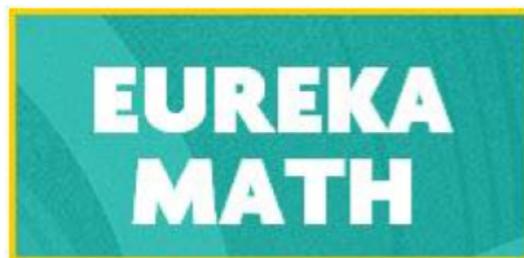
- a. Find the number of apples Roxanne picked to complete the chart.
- b. Create a picture graph below using the data in the table.



2. Use the chart or graph to answer the following questions.
- How many more apples did Stewart and Roxanne pick than Philip and Trisha?
 - 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	$3\frac{1}{4}$	$2\frac{3}{4}$

- 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?



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