North Penn School District

Elementary Math Parent Letter

Grade 3

Unit 2 – Chapter 2: Represent and Interpret Data

Examples for each lesson:

Lesson 2.1

Problem Solving • Organize Data

One way to show data is in a tally table. Another way to show data is in a frequency table.
A **frequency table** uses numbers to record data.

The students in Jake's class voted for their favorite sport. How many more students chose soccer than chose baseball?

Favorite Sport	
Sport	**Tally**
Soccer	𝍸 ||||
Baseball	𝍸 |
Football	||||

Read the Problem	Solve the Problem
What do I need to find? How many more students chose soccer than chose baseball?	Count the tally marks for each sport. Write the numbers in the frequency table. **Think:** | = 1 vote 𝍸 = 5 votes Soccer has 1 𝍸 and 4 |, so write 9 in the frequency table.
What information do I need to use? the data about favorite sport from the tally table	
How will I use the information? I will count the tally marks. Then I will write the number of tally marks for each sport in the frequency table. Next, I will subtract to compare the votes for soccer and the votes for baseball.	Subtract to find how many more students chose soccer than chose baseball. $9 - 6 = 3$ So, 3 more students chose soccer than chose baseball as their favorite sport.

Favorite Sport	
Sport	**Number**
Soccer	9
Baseball	6
Football	4

More information on this strategy is available on Animated Math Model #6.

Lesson 2.2

Use Picture Graphs

A **picture graph** shows information using small pictures or symbols.

A **key** tells what the symbol stands for. A symbol can stand for more than 1.

Which state in the picture graph below has 9 national park areas?

The key for the picture graph shows that each 🌲 = 6 national park areas.

Count the number of 🌲 next to each state.

Oregon has one tree picture and half of a tree picture.

Think:
🌲 = 6 park areas
🌲 = 3 park areas

So, Oregon has 9 national park areas.

National Park Areas

Michigan	🌲
Minnesota	🌲
Missouri	🌲 🌲
New York	🌲 🌲 🌲 🌲 🌲
Oregon	🌲 🌲

Key: Each 🌲 = 6 national park areas.

Lesson 2.3

Make Picture Graphs

Use the data in this table to make a picture graph.

Step 1 Write the title.

Step 2 Write the names of the games.

Step 3 Decide what number each picture will represent. You can count by fives to find the number of caps sold, so let each ⌓ represent 5 caps.

Step 4 Draw one cap for every 5 caps sold during each game. There were 20 caps sold during the Falcons and Mustangs game. Count to 20 by fives. 5, 10, 15, 20. So, 4 caps should be drawn. Draw the caps for the rest of the games.

Number of Ball Caps Sold

Basketball Game	Caps
Falcons and Mustangs	20
Sharks and Bulldogs	30
Hawks and Comets	5
Rams and Cardinals	15

Number of Ball Caps Sold

Falcons and Mustangs	⌓ ⌓ ⌓ ⌓
Sharks and Bulldogs	
Hawks and Comets	
Rams and Cardinals	

Key: Each ⌓ = 5 caps.

More information on this strategy is available on Animated Math Model #7.

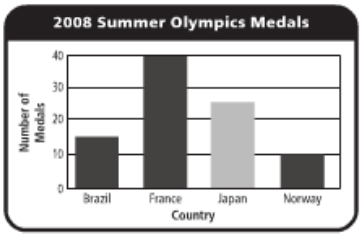
Lesson 2.4

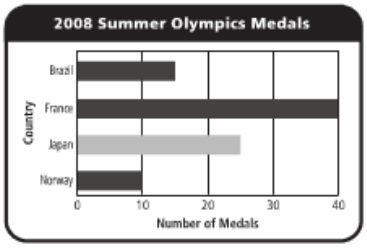
Use Bar Graphs

How many Olympic medals did Norway win in the 2008 Summer Olympics?

- Both bar graphs show the same data about Olympic medals. The top graph is a **vertical bar graph**. The bottom graph is a **horizontal bar graph**.
- Find Norway on the vertical bar graph and follow the bar to its end. Then follow the end across to the scale to find the number of medals. 10 medals.
- Find Norway on the horizontal bar graph and follow the bar to its end. Then follow the end down to the scale to find the number of medals. 10 medals.

So, Norway won 10 medals.





More information on this strategy is available on Animated Math Model #8.

Lesson 2.5

Make Bar Graphs

Use data in a table to make a bar graph.

Step 1 Write the title for the bar graph.

Step 2 Label the side and the bottom.

Step 3 Write the names of the sports.

Step 4 Choose a scale for your graph.

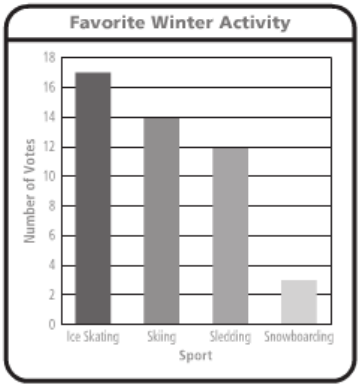
- The scale must be able to show the least number, 3, and the greatest number, 17.
- The numbers must be equally spaced. Start with 0 and count by twos until you reach 18.

Step 5 Draw the bar for ice skating. The bar will end halfway between 16 and 18 at 17.

Step 6 Then use the results in the table to draw the rest of the bars.

Favorite Winter Activity

Sport	Number of Votes
Ice Skating	17
Skiing	14
Sledding	12
Snowboarding	3

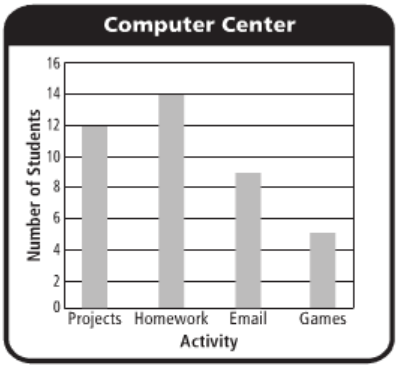


More information on this strategy is available on Animated Math Model #9.

Lesson 2.6

Solve Problems Using Data

You can use a model or write a number sentence to help you answer questions about data.



The bar graph shows the different ways students use the computer center after school. How many more students use the computer center for projects than for games?

One Way Use a model.

Find the bar for projects. The bar ends at 12. So, 12 students use the computer center for projects.

Find the bar for games. The bar ends halfway between 4 and 6. So, 5 students use the computer center for games. Count back along the scale from 12 to 5 to find the difference. The difference is 7 students.

Another Way Write a number sentence.

Subtract to compare the number of students.
Think: There are 12 students who work on projects. There are 5 students who play games.

$12 - 5 = 7$

So, 7 more students use the computer center for projects than for games.

More information on this strategy is available on Animated Math Model #8.

Lesson 2.7

Use and Make Line Plots

A **line plot** uses marks to record each piece of data above a number line.

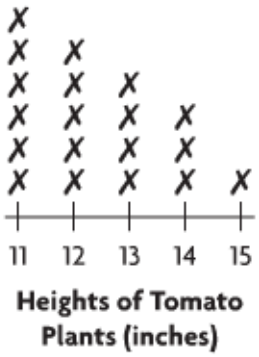
Louise measured the heights of tomato plants in her garden. She recorded the height of each plant.

How many tomato plants are there?

Each ✗ stands for 1 plant.

Count all the ✗s. There are 19 in all.

This tells the total number of plants.



How many plants are taller than 13 inches?

Add the number of ✗s for 14 and 15.

3 plants are 14 inches tall. 1 plant is 15 inches tall.

$3 + 1 = 4$ So, 4 plants are taller than 13 inches.

Vocabulary

Bar graph – a graph that uses bars to show data

Frequency table – a table that uses numbers to record data

Horizontal bar graph – a bar graph in which the bars are read from left to right

Key – the part of a map or graph that explains the symbols

Line plot – a graph that uses marks to record each piece of data above a number line

Picture graph – a graph that uses pictures to show and compare information

Scale – the numbers placed at fixed distances on a graph to help label the graph

Vertical bar graph – a bar graph in which the bars are read from the bottom to the top