

# LESSON 8

## Objective

Make and interpret a bar graph.

## Common Core State Standards

- **3.MD.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.*

## Measurement and Data

# Bar Graphs

Students need to be given opportunities to collect, display, compare, and interpret data on a regular basis in order to become familiar with the process of gathering and analyzing information. The results of these investigations should be represented using a variety of graphs and tables. Students’ involvement in the collection of data and the creation of the graphs will help them see the connection between the information and the way it is displayed.

**Try It!** Perform the Try It! activity on the next page.

## Talk About It

Discuss the Try It! activity.

- Invite students to look at their bar graphs. **Ask:** *What does the graph show? Which type of shoe was worn the most? The least? How can you tell?*
- **Ask:** *If students in another class made a graph of their shoes, would the graph look the same or different from the one you made? Why?*
- **Ask:** *Why is it important to have a title on a graph? Why is it important to label each bar? What would happen if these were left out?*

## Solve It

With students, reread the problem. Then have students write directions for Tomas. They should tell him how to gather the information, how to keep track of it, and how to show it on a bar graph.

## More Ideas

For other ways to teach about bar graphs—

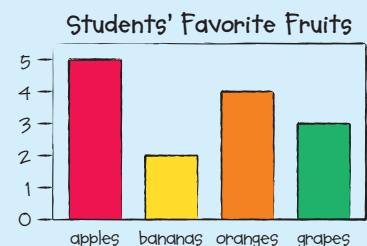
- Ask several teachers from a variety of grade levels if your students can collect data from their classes. Then send pairs of students to ask what the students’ favorite after-school activities are. Choices could include *reading*, *playing sports*, *riding bikes*, and *playing video games*. Have students pose the questions, tally the results, and make a bar graph using Color Tiles to display the results. Compare the results gathered from each class.
- Pose a survey question to the class and give four answer choices. Have students write their choices on slips of paper, and then collect them and tally the results. Then have each student create a bar graph using Color Tiles. Remind students to label their graphs.

## Formative Assessment

Have students try the following problem.

*Which fruit is the favorite of the most students?*

- A. apples
- B. bananas
- C. oranges
- D. grapes



## Try It! 30 minutes | Pairs

Here is a problem about bar graphs.

*Tomas wants to find out what kinds of shoes the students in his class are wearing. He asks the students what shoes they are wearing. The choices are "sneakers," "sandals," "boots," and "other." How can Tomas show what kinds of shoes the class is wearing by using a bar graph?*

Introduce the problem. Then have students do the activity to solve the problem. Distribute Color Tiles and Graphing Grids (BLM 4) to pairs. Explain that students will make a graph to show the types of shoes they are wearing.

### Materials

- Color Tiles (60 per pair)
- Graphing Grid (BLM 4; 2 per pair)
- paper (1 sheet per pair)
- pencils (1 per pair)



**1.** Instruct students to label the columns on the Graphing Grid with the following shoe types: sneakers, sandals, boots, other. Have students write a title at the top of the graph.



**2.** Have students collect data about shoe type from their classmates and tally the results on a tally chart. Then students should use tiles to construct a bar graph to display the data.



**3.** Point out that each tile represents one student wearing one type of shoe. **Ask:** *What if we had colored in bars instead of using tiles?* Lead students to conclude that they should also label the side of the graph with numbers. Have students do so. Then have them discuss their data.

### Look Out!

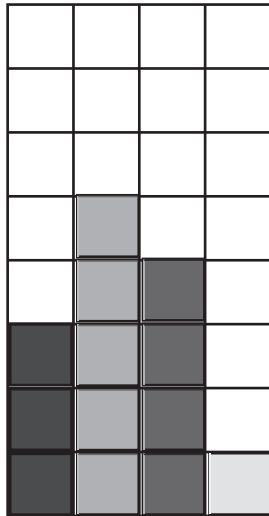
Students may not remember to label the graph and include a title. Explain the importance of including this information so that readers correctly understand and interpret the data displayed.



Use Color Tiles to model each bar graph. Record the number for each type of data.

(Check students' work.)

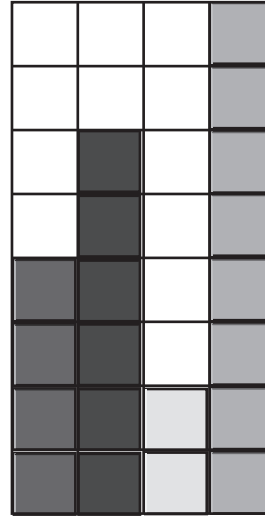
1. Types of Proteins



Beef Fish Pork Tofu

Beef 3 Fish 5  
Pork 4 Tofu 1

2. Favorite Drinks

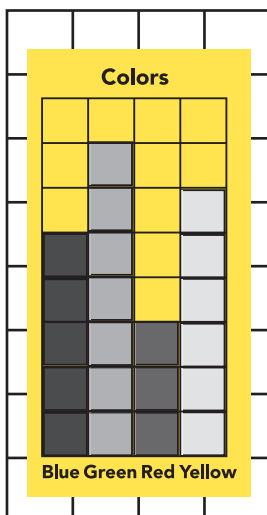


Juice Milk Soda Water

Juice 4 Milk 6  
Soda 2 Water 8

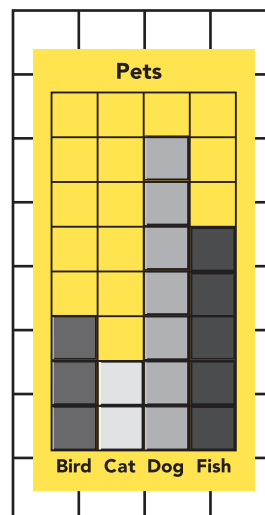
Using Color Tiles, model a bar graph for each set of data. Sketch the graph below.

3. Blue: IIII Green: IIII  
Red: III Yellow: IIII



Blue Green Red Yellow

4. Bird: III Cat: II  
Dog: IIII Fish: IIII



Bird Cat Dog Fish

## Answer Key

**Challenge!** If you were making a bar graph about five types of flowers, how would you have to change the graphing grid from the grids provided on the previous page? If one of the flowers had 12 tally marks, what would you have to do to be able to use the graphing grids on the previous page?

Challenge: (Sample) For five types of flowers, I would have to add one more column to the grid. For a bar that has a height of 12, I would have to add 4 more rows to the grid.

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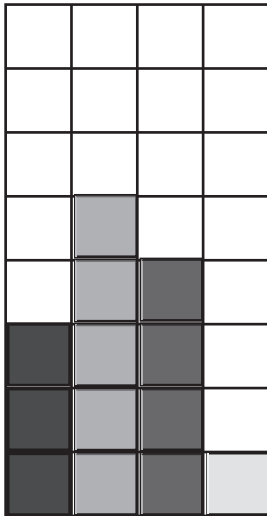
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**Use Color Tiles to model each bar graph. Record the number for each type of data.**

**1. Types of Proteins**

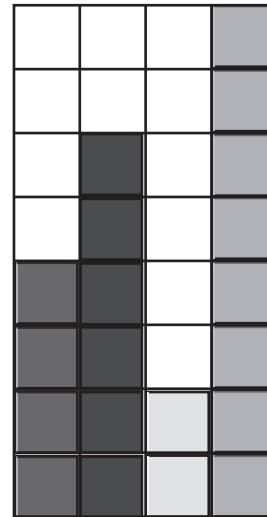


Beef Fish Pork Tofu

Beef \_\_\_\_\_ Fish \_\_\_\_\_

Pork \_\_\_\_\_ Tofu \_\_\_\_\_

**2. Favorite Drinks**



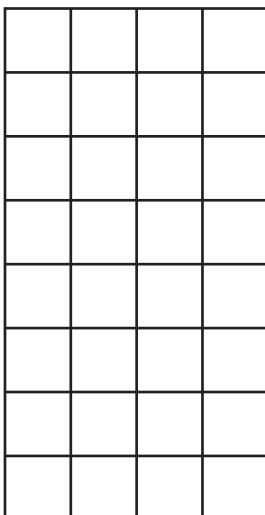
Juice Milk Soda Water

Juice \_\_\_\_\_ Milk \_\_\_\_\_

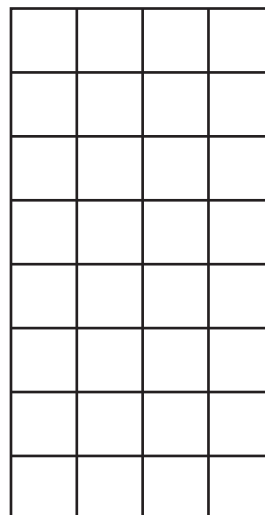
Soda \_\_\_\_\_ Water \_\_\_\_\_

**Using Color Tiles, model a bar graph for each set of data. Sketch the graph below.**

- 3.** Blue: IIII Green: IIII II  
Red: III Yellow: IIII I



- 4.** Bird: IIII Cat: II  
Dog: IIII Fish: IIII



Name \_\_\_\_\_

**Challenge!** If you were making a bar graph about five types of flowers, how would you have to change the graphing grid from the grids provided on the previous page? If one of the flowers had 12 tally marks, what would you have to do to be able to use the graphing grids on the previous page?

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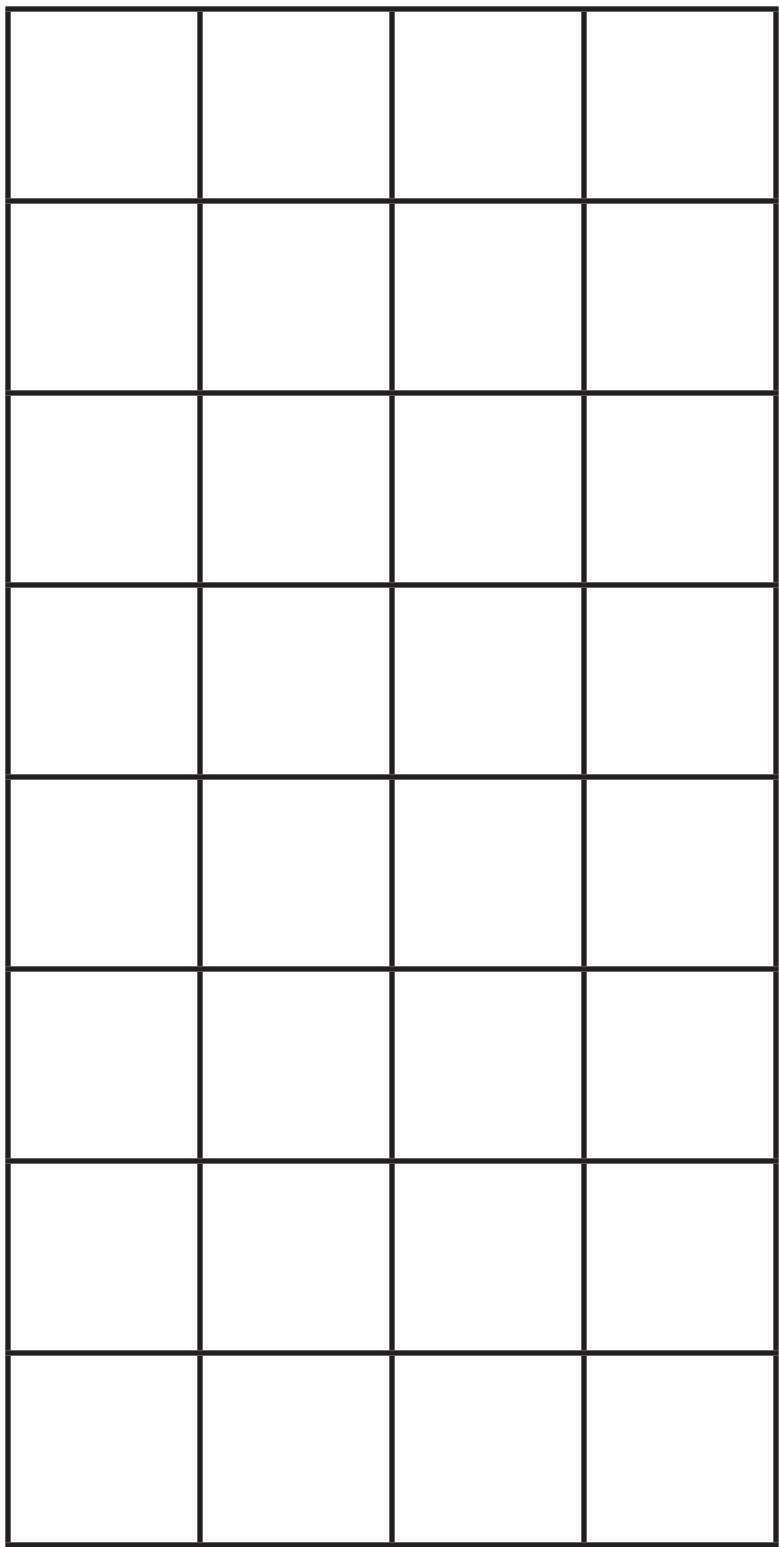
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Name \_\_\_\_\_



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