

TOPIC 12

Collect, Represent, and Interpret Data



OVERVIEW

Topic 12 focuses on reading and making scaled pictographs and scaled bar graphs that represent data sets that have several categories. Your child will also solve problems involving the data represented in the graphs.

READ PICTOGRAPHS AND BAR GRAPHS

Read Scaled Graphs Your child will read pictographs and scaled bar graphs. When each picture or interval represents more than one unit, students can multiply by the scale to find the total. Bar graphs can be shown using horizontal or vertical bars.

This is a scaled pictograph. The key explains the value of the symbols.

Number of Hockey Teams in Each League

East Falls



North Falls



South Falls



West Falls

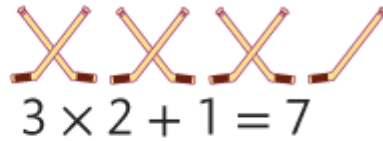


Each  = 2 teams.

Each  = 1 team.

To find out how many hockey teams are in a league, use the key.

East Falls



$$3 \times 2 + 1 = 7$$

South Falls

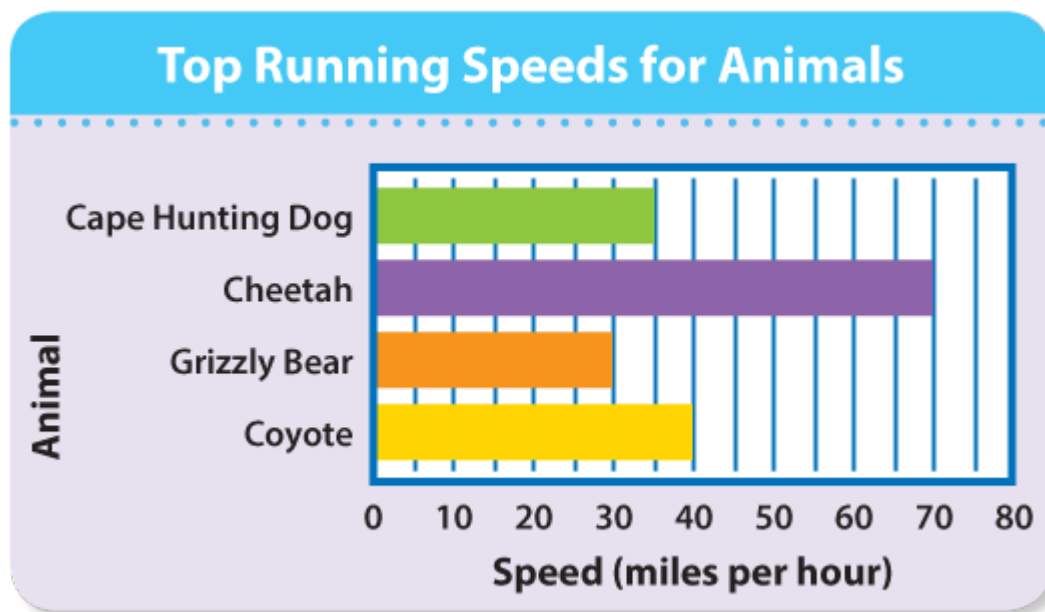


$$2 \times 2 = 4$$

So, the East Falls League has 7 teams.

The South Falls team has 4 teams.

This is a scaled bar graph. The vertical lines are marked in increments of 10.



To find the top running speeds of different animals, see where the animal's bar ends and read the scale along the bottom of the graph.

The top running speed for a cheetah is 70 miles per hour. The top running speed for a grizzly bear is 30 miles per hour.

MAKE PICTOGRAPHS AND BAR GRAPHS

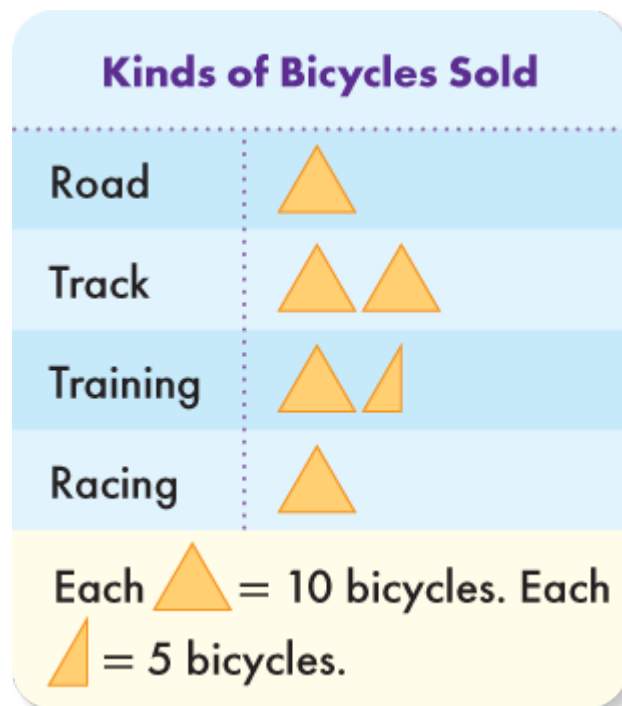
Make Scaled Pictographs Your child will use data from a frequency table to make a pictograph in which a picture or symbol represents more than 1 of something, and half of that picture or symbol represents half as many. When considering the choice of scale, your child will need to consider the size of the numbers in the data.

The numbers in this frequency table range from 10 to 20, and they are all multiples of 5.

Kinds of Bicycles Sold		
Kind of Bicycle	Tally	Number
Road		10
Track		20
Training		15
Racing		10

To make a pictograph, your child can choose a simple symbol for the key, like a triangle. Pictographs are easier to read if there are not too many symbols, so your child might decide that each symbol should stand for 10 bicycles. That would mean that each half-symbol would stand for 5 bicycles.

Here is how a scaled pictograph of the data would look.

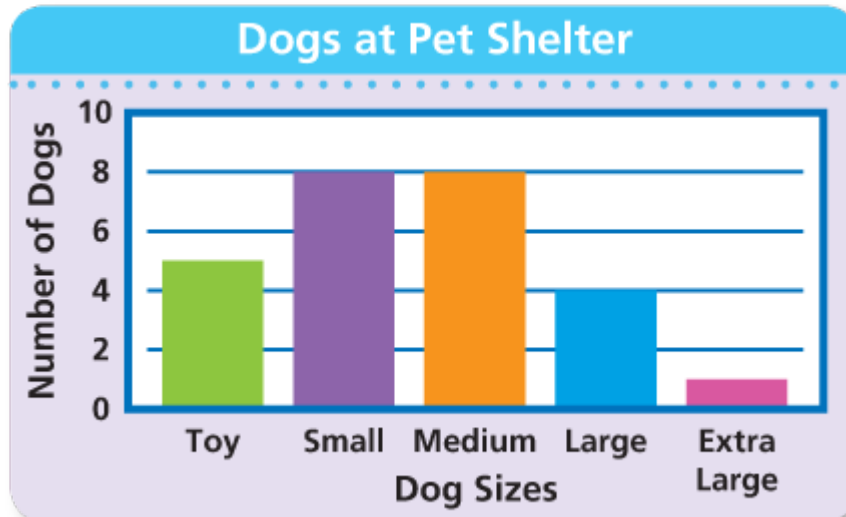


Make Scaled Bar Graphs Your child will use data from tables to make bar graphs in which the interval between grid lines represents more than 1.

This table represents data collected about the number of dogs at the pet shelter in each size category.

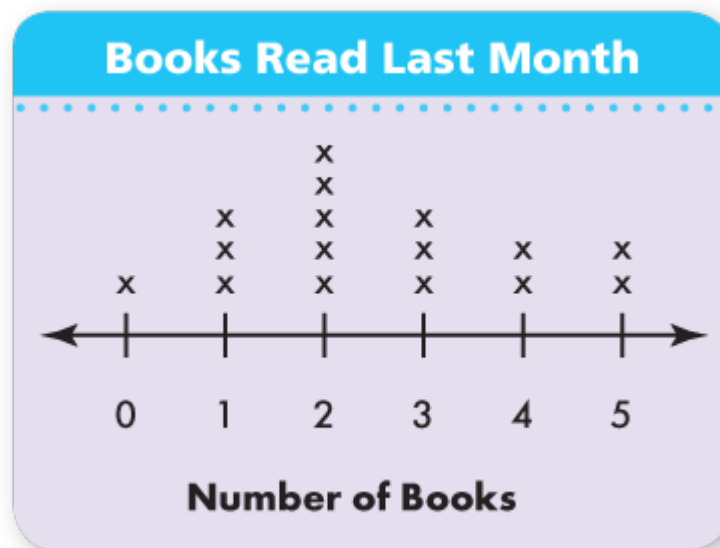
Dogs at Pet Shelter		
Size	Tally	Number
Toy		5
Small		8
Medium		8
Large		4
Extra Large	/	1

The numbers range from 1 to 8, so your child may decide to make a bar graph that has a scale marked in increments of 2. The bar for Extra Large dogs ends halfway between 0 and 2, so the bar represents 1 Extra Large dog.



Line Plots This topic introduces how to collect data and represent the information in a line plot. A line plot is a way to organize and display data on a number line.

On this line plot, each X represents one person who read the number of books indicated on the number line. So, 5 people read 2 books, and 1 person read 0 books.

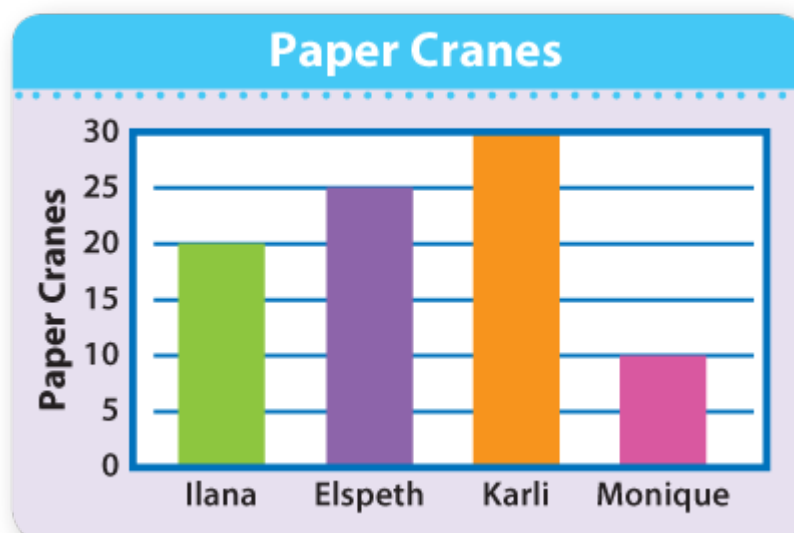


Comparison Problems Your child will solve one- and two-step real-world “how many more” and “how many less” problems using information represented in scaled pictographs and scaled bar graphs.

Here is how your child might solve the problem, “Karli and Monique want to make 60 cranes together. How many more do they need to make?”

First, answer the hidden question.

How many cranes have Karli and Monique made so far?



The scale is marked in increments of 5.

Karli has made 30 cranes, and Monique has made 10.

$$30 + 10 = 40$$

Answer the original question.

How many more cranes do they need?

$$60 - 40 = 20$$

Karli and Monique need to make 20 more cranes to have 60 in all.

CONNECT THE MATH

You can connect the math in this topic to everyday experiences. When you see child-friendly pictographs and bar graphs in newspapers and on websites, invite your child to help you read and interpret them. Draw your child's attention to the scale used on a graph and ask, "Why do you think the person who made the graph decided to have the symbol represent 10?" You can also have your child make pictographs and bar graphs of data collected in your family or neighborhood. For example, your child could graph the number of showers taken in the family each day for a week.

TOPIC 12 LESSONS

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|--------------------|---|
| Lesson 12-1 | <u>Interpret Data: Pictographs and Bar Graphs</u> |
| Lesson 12-2 | <u>Collect and Represent Data: Tables and Pictographs</u> |
| Lesson 12-3 | <u>Collect and Represent Data: Bar Graphs</u> |
| Lesson 12-4 | <u>Collect and Represent Data: Line Plots</u> |
| Lesson 12-5 | <u>Interpret Data: Solve Problems</u> |
| Lesson 12-6 | MATH THINKING AND REASONING
Apply Math to Real-World Contexts |

