**AUTHOR:**

Stuart J. Murphy

This entertaining book uses bar graphs, pie charts, line graphs, and pictographs to show favorite foods and common pets, rank amusement park rides, and track the miles driven on a family trip.

Ages: 5 to 9 years**ATOS Reading Level:**

N/A

Lexile: N/A**ISBN:** 9781623541750

Show and Tell!

Great Graphs and Smart Charts

An Introduction to Infographics

What type of infographic will you create and what story will it tell?

Topics: bar graphs, pie charts, line graphs, pictographs, infographics

Activities To Do Together:

Before you read the book *Show and Tell! Great Graphs and Smart Charts* ask your child:

- Have you ever seen a graph? If so, where?
- Do you know what graphs are used for?
- Why do you think Stuart J. Murphy, the author of this story, might have named the book *Show and Tell! Great Graphs and Smart Charts*?

As you read *Show and Tell! Great Graphs and Smart Charts* with your child:

- Talk about how tally marks work when reading page 9 of the story.
- Notice whether your favorite meal is represented on the bar graph on page 11. About how many people liked pizza best? How can you tell?
- Consider the Infographic Ideas on page 41. Which ideas are most interesting to your child?

When you are done reading *Show and Tell! Great Graphs and Smart Charts* try the following activities with your child:

- Plan your own graph. Decide on a topic that interests you. Take a poll. Keep track of responses with tally marks. Decide what type of graph you will use to show your results. Get creative!
- Compare the Best Meals Ever Graph (page 11) and the Burp-O-Rama Graph (page 15). How are they the same? In what ways are they different?
- Look at the Pets Galore pictograph on page 18. Talk about the information that you can gather from the graph. Which is the most popular pet? Does the graph show how many families didn't have a pet? Can you tell how many people have both a cat and a dog? Do you know how many families were surveyed?



Questions for Mathematical Thinking:

1. The book says that it's often faster and more fun to learn something from a graph. Do you agree? Why or why not?
2. Which graph did you like best in the book? Why was it your favorite?
3. What steps would you take to make a graph of your friends' favorite ice cream flavors?
4. What type of graph would you use to keep track of a plant's growth? Why would you use that type of graph?
5. What similarities did you notice in the graphs in this book? What differences did you notice?
6. How can a graph help people see trends? How could a graph help someone make a decision?

Early Math Project Resources:

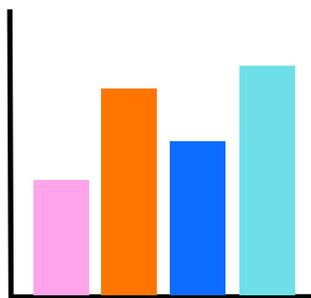
[What did you roll?](#)

[Cross the Finish Line Game board](#)

[Roll Across the Finish Line?](#)

[Roll Across the Finish Line Game board](#)

Follow this [link](#) for additional online resources.



BAR
GRAPHS

Spanish Title: N/A

Vocabulary for Building Math

Concepts: $1/8$, $1/4$, $1/2$, add, another, approximate quantities, bar graph, big, bottom, categories, charts, circle, circle graph, column, comparing, data, decreases, diagram, difference, distance, divide, down, equal, fewer, five, four, fraction, graph, graph paper, group, half, height, horizontal, in all, increases, infographics, information, intervals, key, least, line, line graph, list, middle, miles, most common, number, one, parallel, parts, patterns, percent, percentages, percent sign, pictograph, pie chart, poll, quarter, represents, round, ruler, second, segment, small, statistics, straight, table, tally, tally marks, ten, three, tick marks, top, trends, two, up, vertical, whole, x-axis, y-axis

Related Books: *Tiger Math: Learning to Graph from a Baby Tiger* by Ann Whitehead Nagda; *Lemonade for Sale* by Stuart J. Murphy; *Tally O'Malley* by Stuart J. Murphy; *The Great Graph Contest* by Loreen Leedy

Math Connections:

Use *Show and Tell! Great Graphs and Smart Charts* to explore bar graphs, line graphs, pictographs, and pie charts.

Graphs and charts help us organize and analyze data, make comparisons, spot trends, make decisions, and reach conclusions about what's happening around us. A graph might show you how fast a plant is growing, that many people like vanilla ice cream, or that most people don't have pet giraffes. Encourage your child to conduct surveys and create graphs on topics that they find interesting. When children make graphs and charts they often engage in estimating, sorting, classifying, comparing, counting, organizing, recording, problem solving, and analyzing.

Most graphs have common parts that allow people to make sense of the information the graph is conveying. Graphs have titles and labels, which identify the information contained in the graph. Line graphs, bar graphs, and pictographs have a vertical axis and horizontal axis. Each axis is labeled to describe the data that is shown. Many graphs have a set of numbers, or scale, along one axis. Notice the different scales used in *Show and Tell! Great Graphs and Smart Charts*. The scale for the *Best Meals Ever* Graph has 25 individual tick marks and every fifth tick mark is labeled with a multiple of 5. In *Burp-O-Rama* the scale is on the horizontal axis and labeled with multiples of 10. The *Pets Galore* Pictograph uses a key to explain the scale and the *Having A Field Day* Graph uses increments of 100 since larger numbers are involved. When making graphs discuss what scale makes sense given the data you want to display.

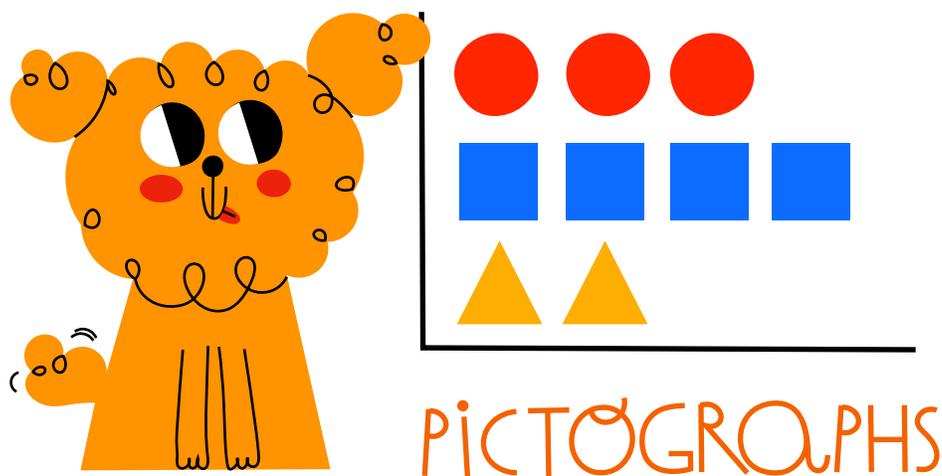
This link to the [World Catalog](#) will help you find *Show and Tell! Great Graphs and Smart Charts* in the public library.

Vocabulary for Extending Math

Concepts: always, box and whisker plot, histogram, least, many, most, never, often, scatter plot, Venn diagram

Vocabulary for Reading

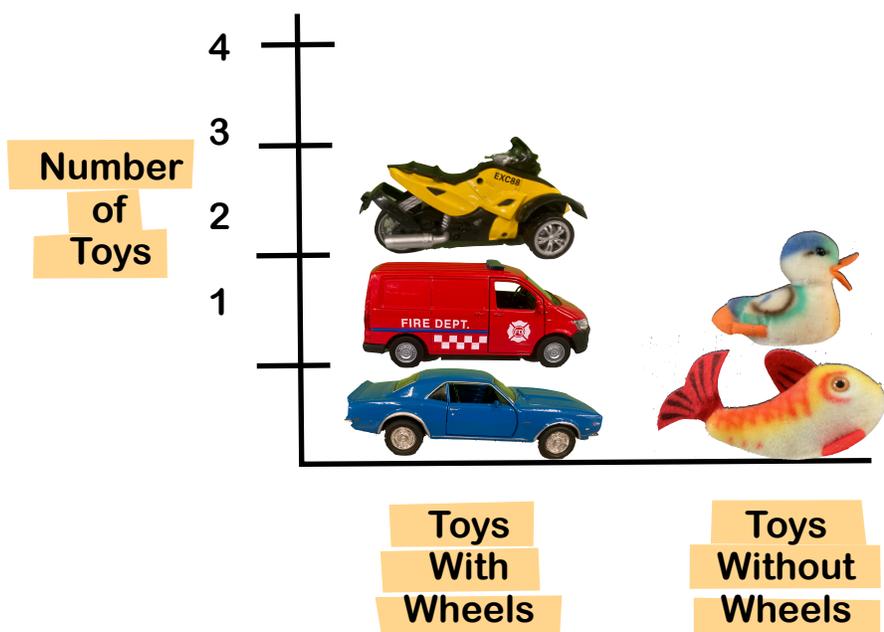
Comprehension: alphabetical, attendance, better part, biography, collect, common, complicated, decisions, endless, event, facts, favorite, flat, galore, maximum capacity, odometer, organize, participation, populations, suppose, visual



Graphing reinforces children’s understanding of one-to-one correspondence and counting. For example, each piece of data collected for a graph should be counted and recorded once and only once.

Interlinking cubes or real objects can be used for three-dimensional graphs. For example, a small collection of toys can be sorted into two groups, toys with wheels and toys without wheels. This can be turned into a three-dimensional graph by placing the actual toys onto a graph that’s drawn on a piece of paper or created with masking tape labels on the floor as in the example below.

Toys With and Without Wheels



Graphing is a fun, social, and interactive way for children to collect and interpret information. Take advantage of in-the-moment opportunities to graph with children. If your child has sorted a collection of objects, make a simple graph together to represent how they divided up the collection. Ask questions about the graph your child makes. What story does the graph tell? What was there the most of? What was there the least of? What can't you tell from the graph? What questions do you have now that you've completed the graph? Ask your child what they learned.

Older preschoolers may enjoy collecting data and tallying the results as well as the social aspect of surveying friends and families about the things that they like or do. Who likes pizza? Who is and isn't wearing red? How do you feel today? are simple questions that can be turned into a bar graph. Graphs are a great visual tool for making sense of information and making comparisons. Engage preschool-age children as much as possible in co-constructing the graph. Talk with your child about the graph's title, labels, and intervals on the graph's axes. When they add their survey results to the graph, talk about what they learned and what others could learn from looking at their graph.

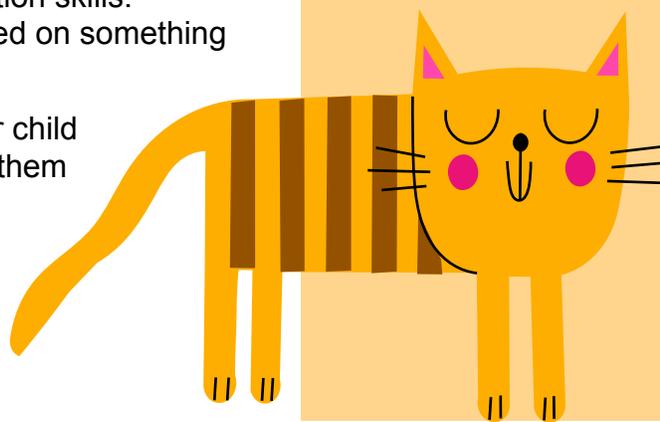
Talk with your child about the places they've seen graphs. Make a habit of looking for graphs. Talk about the information that is shared in the graph.

Support older children's success with data collection and graphing by discussing the steps involved. Data collection and graphing often includes:

- Deciding what a graph will be about.
- Creating a survey question. Consider whether the survey question will be open-ended or limited to a selection of given responses.
- Determining the survey audience. Who will you survey and how many people will you survey?
- Collecting data.
- Creating a table of data results.
- Deciding on a graph type.
- Creating a graph with a clear title, labels, and logical scale and scale increments.

Some graphs don't require a survey. For example, you might graph the growth of a plant, the weather on every day of a month, or the different colors of fish in an aquarium. These types of graphing activities rely on observation skills. Encourage your child to make a graph based on something they observe.

Have fun with whichever type of graph your child wants to create. Follow their interests. Ask them to tell you about it!



DISCOVERING THE MATH: BOOK GUIDE

Age Level	Related Preschool Foundations and CA State Standards
Preschool/ TK	Algebra and Functions 1.0 Children expand their understanding of sorting and classifying objects in their everyday environment.
Kindergarten	Standards of Mathematical Practice 1) Make sense of problems and persevere in solving them. 4) Model with mathematics. 5) Use appropriate tools strategically.
1st Grade	Standards of Mathematical Practice 1) Make sense of problems and persevere in solving them. 4) Model with mathematics. 5) Use appropriate tools strategically. Measurement and Data 1. MD Represent and Interpret Data
2nd Grade	Standards of Mathematical Practice 1) Make sense of problems and persevere in solving them. 4) Model with mathematics. 5) Use appropriate tools strategically. Measurement and Data 2. MD Represent and Interpret Data - Draw a picture graph and a bar graph
3rd Grade	Standards of Mathematical Practice 1) Make sense of problems and persevere in solving them. 4) Model with mathematics. 5) Use appropriate tools strategically. Measurement and Data 3. MD Represent and Interpret Data

