

<b>Topic:</b>	Graphing Your Story
<b>Grades:</b>	3-4
<b>Content:</b>	Students will use simple graphs to practice math skills while reading.
<b>Learning Standard:</b>	<p><b>Common Core Standards</b></p> <ul style="list-style-type: none"> <li>• RF.3.4. Read with sufficient accuracy and fluency to support comprehension.</li> <li>• Read grade-level text with purpose and understanding.</li> </ul> <p><a href="http://www.corestandards.org/the-standards/english-language-arts-standards/reading-foundational-skills/grade-3/">www.corestandards.org/the-standards/english-language-arts-standards/reading-foundational-skills/grade-3/</a></p> <p>10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a graph.</p> <p><a href="http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf">www.corestandards.org/assets/CCSSI_Math%20Standards.pdf</a></p>
<b>Goals:</b>	<ul style="list-style-type: none"> <li>• Teaching students to combine math skills with reading skills to achieve greater comprehension and visualization while reading</li> </ul>
<b>Introduction:</b>	<p>Explain it is possible to quickly show information presented in stories or articles in the form of a graph or chart.</p> <p><b>Pie charts</b> are good for showing parts of a whole, or percentages. To express this, ask how many students in class are wearing shoes with laces. If 20 out of 30 students are wearing shoes with laces and 10 are wearing shoes without laces, draw a pie chart to reflect this information. Explain that the circle represents the total of 30 students and the “pieces of the pie” show what you’ve learned about shoe lace percentages. If there are more students wearing laces, that piece of the pie looks bigger.</p> <p><b>Line and bar graphs</b> are good for showing how something changes over time. To demonstrate this, find out what the high temperature was in your city for the past five days. Chart this information on the board on a simple line graph to show students how the graph communicates the changes. Point out that the x-axis shows days of the week (time), while the y-axis gives the increments of the thing being measured (degrees of temperature). Make a second line graph that charts how many cupcakes a fictional bakery sells over time. Read the data aloud (“Daisy bakery sold 17 cupcakes on Monday, 11 on Tuesday, 25 on Wednesday,” etc.). Ask students what should go on the x- and y-axis to make sure they understand how line graphs work.</p>

Explain that stories and articles often contain information or numbers that can be graphed. As a class, practice graphing the following paragraph:

“Beth’s mom was a veterinarian who loved animals. The whole family liked pets, so they had a lot of them. It seemed there was always a pet that needed to be fed, walked, or played with. There were two dogs, three cats, four gerbils, and one goldfish.”

Ask students, “What part of the paragraph has information that could be put into a graph?” (the last sentence). Ask, “What kind of graph would you like to use?” (pie chart). Finally, draw a circle on the board and complete a pie chart using the information in the paragraph.

Have a short discussion about how putting information from a story or article into graph form can be useful. Explain that putting numbers and relationships in graph form makes it possible to better understand what you’re reading and to help others understand it. Many kinds of nonfiction writing include graphs and charts. Examples of this can be found in news stories, business reports, and science articles.

### **From Story to Graph**

Make sure all students have some plain white paper. Ask students to break into pairs and make a graph for each of these two paragraphs:

“John wanted to make enough money to get his bike tires replaced because they were old and kept going flat right after he put air in them. He decided to open a lemonade stand in his neighborhood, near the city bike path. John’s mom provided the lemonade, the cups, the cooler, and the table. He made a sign and decided to charge \$0.25 per cup. On the first day of business, July 1, John sold 15 cups of lemonade. They next day, June 2, it was cooler and cloudy. John only sold 6 cups. John’s third day was better. It was hot and bikers were thirsty. John sold 22 cups. He decided to take July 4<sup>th</sup> off. On July 5<sup>th</sup>, John sold 12 cups. He was happy with his first week of business.”

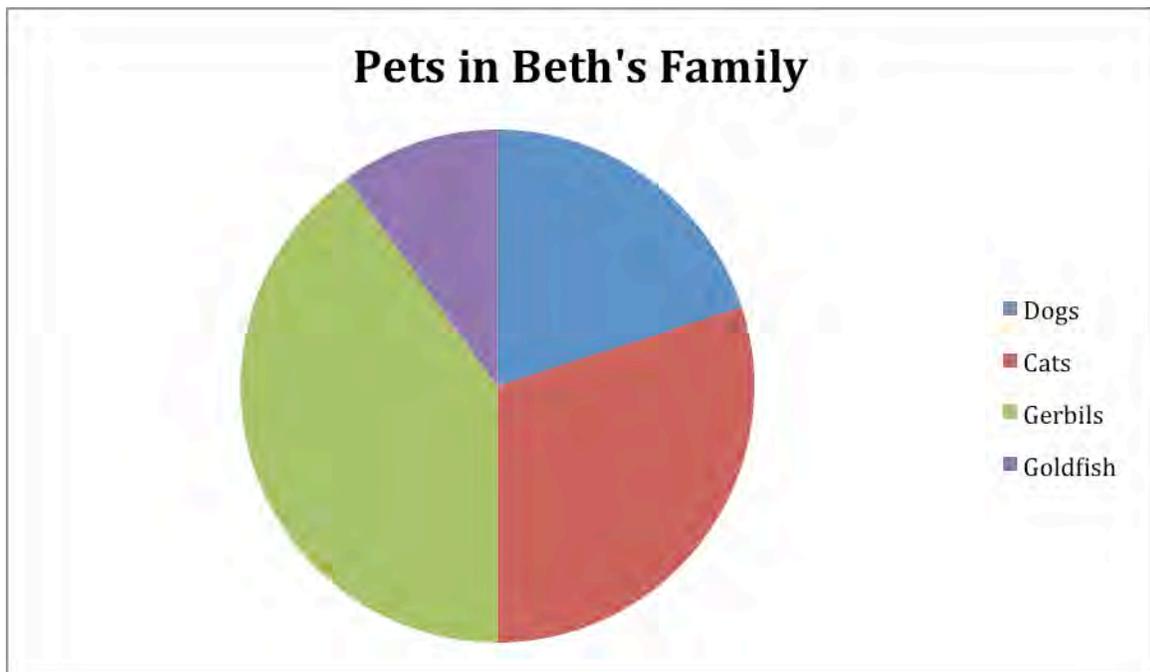
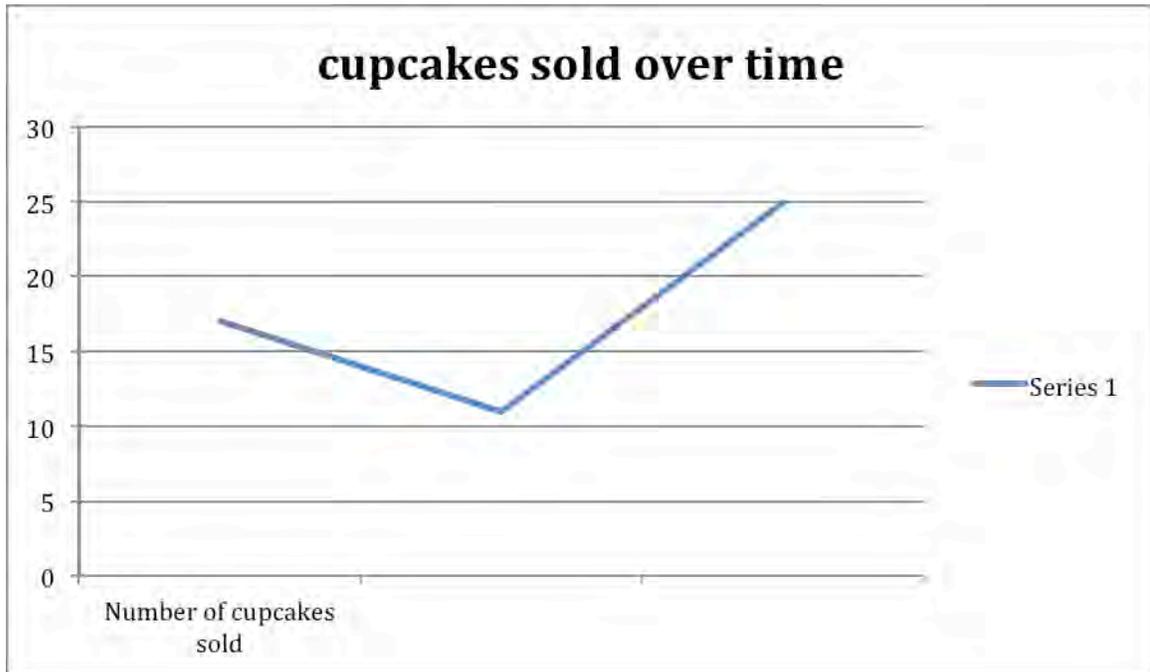
“Shana’s class participated in lots of afterschool activities. Of the 25 total students, four took a painting class. They were working on watercolors right now and all four brought in samples of their work to help decorate the classroom. Seven did gymnastics. Two played piano, and the rest played soccer. Soccer was definitely the most popular activity. Sometimes on game days, the players wore their jerseys to school to get pumped up.”

When all the pairs are done with the activity, check work. Have a discussion about how students chose the best graph to show the data in the stories. As a **bonus question**, ask if anyone figured out how much money John made in total during his first week of running his lemonade stand.

### **Activities:**

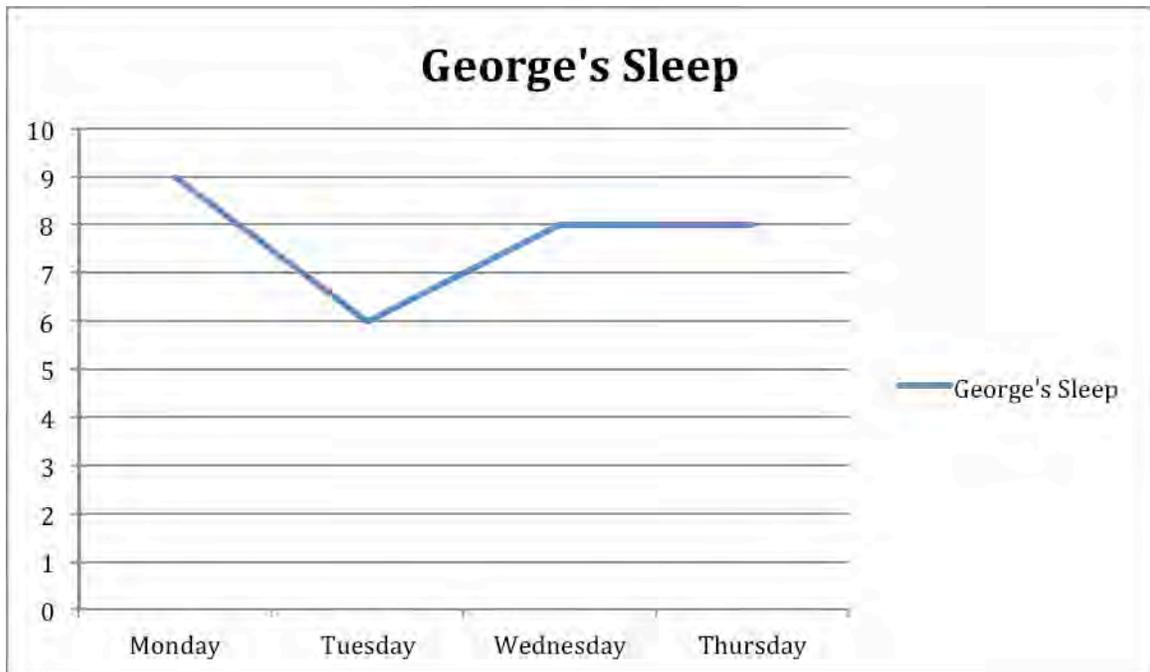
	<p>If additional practice is necessary, give students another paragraph and have them graph the information it contains on their own.</p> <p><b>From Graph to Story</b> For this writing activity, students will work alone to take information given on a pie chart or line graph and turn it into a story. To prepare them for the activity, hold up a graph and communicate the information it gives in sentence form. For example, you could hold up a line graph showing the amount of sleep someone got each night for a week and say, “Monday was a good night for George. He slept for nine hours and felt wonderful the next day. Tuesday night was a bit rough. He only got six hours of sleep because the neighbors were being noisy and he was worried about a test. On Wednesday night, George got eight hours of sleep. He also got eight hours on Thursday night.”</p> <p>Explain that students should add extra details to the story to make it more interesting. Give students 10-15 minutes of writing time and then ask for volunteers to share their stories.</p>
<p><b>Practice:</b></p>	<p>When students have quiet reading time, remind them to think about whether it would be possible to put the information they’re learning into a graph. Ask students to <b>think about how graphing data makes it more memorable and clear.</b></p> <p><b>Model</b> noticing graphs and charts when you read the newspaper.</p> <p>Ask students to <b>practice making pie charts</b> on scrap paper when they come across percentages in their reading.</p>
<p><b>Checking:</b></p>	<p><b>Have students answer “pie chart” or “line graph” for each of the following questions.</b></p> <ol style="list-style-type: none"><li>1. Which is better for showing the percentage of students who have a cold right now? (pie)</li><li>2. Which is better for showing the amount of rainfall a region receives over time? (line)</li><li>3. What is better for showing a baseball player’s batting average over the course of five seasons? (line)</li><li>4. Which is better for showing the percentage of silver cars in the school parking lot compared to every other color? (pie)</li></ol>

## INTRODUCTION GRAPHIC ORGANIZERS



## ACTIVITY GRAPHIC ORGANIZER EXAMPLE

### FROM GRAPH TO STORY



Here is an additional graph that students could use to write original stories:

