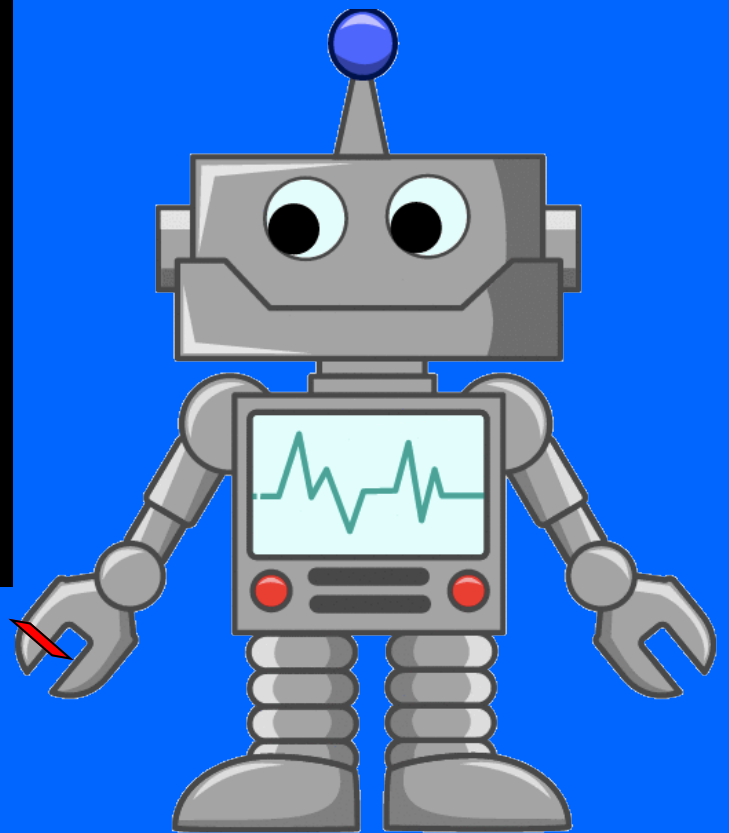
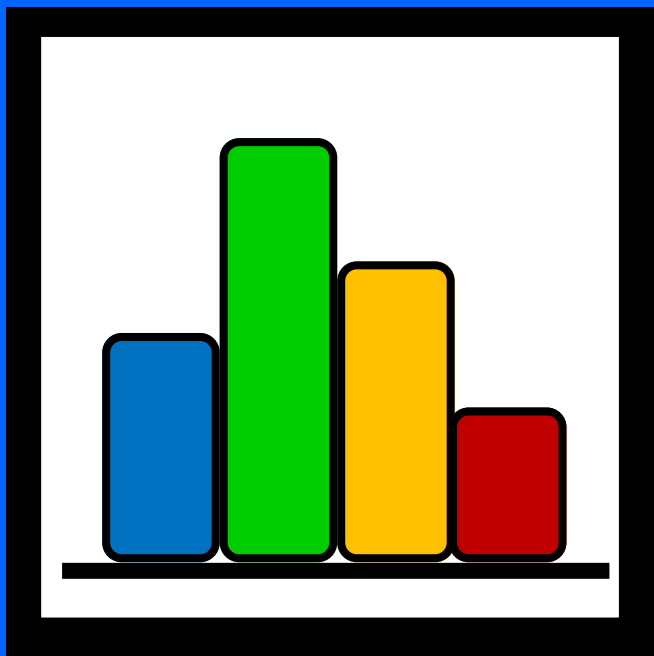


A Kid's Guide to Charts and Graphs



This book belongs to: _____

MEMORANDUM

TO: Lisa Dusenberry
FROM: Jessica Chastain, Michael Cox, Michael Hines, and Thang Nguyen
DATE: November 25, 2014
SUBJECT: Group Best Practices Project Memo

Our group created a “Charts and Graphs 101” manual for an adult audience and “A Kid’s Guide to Charts and Graphs” workbook for children. This memo reflects on our overall process of completing this project, while describing the rhetorical decisions we made when creating our youth artifact.

TOPIC AND RESEARCH

When choosing our topic for our Group Best Practices Project, we tried to focus on something with which we all had a degree of familiarity. Charts and Graphs are something that we have all used extensively throughout our scholarly careers, and so we thought that we had a reasonably high level of competence. After delving into the technical guides online, we realized that we had a lot left to learn. We had all been taught to create charts and graphs in Excel, and we discovered all of the technical choices that Excel makes for you. We realized that we had been doing things incorrectly all our lives. After we saw all there was to learn before entering “the real world,” we decided to create a best practices guide to charts and graphs

THE ADULT MANUAL: “Charts and Graphs 101: A Georgia Tech Student’s Guide to Data Visualization”

For our adult manual, we decided that our target audience would be Georgia Tech students. We chose this group because we can so easily relate to them and understand the way they think, and as such we can tailor the manual to meet their unique capabilities. We used a Georgia Tech color scheme and theme throughout the manual to further connect with the audience. To adapt our researched information to our target, we made various rhetorical decisions:

1. Choice of Medium

We decided to create our manual in the form of a flip book. We also made the manual so that it doubles as a PowerPoint presentation that can be stored as a reference on the student’s computer. By providing both options, we ensure that the student will have access to the information from anywhere. We also included a table of contents and clearly marked headers to ensure that a busy student will quickly find the information they are looking for when they access this resource.

2. Breadth of Information

Our adult manual was comprised of data visualization information that we thought would be insightful and helpful to college students. We began with a section on why we should use charts and graphs followed by an analysis of the different types of data relationships we often face. From there, we broke the types of charts and graphs down into 4 groups based on the data relationship they best portray. We provided a short description and comparison for each graph, then detailed the best practices for creating the graph. Because most college students already know how to make graphs in Excel, we decided it would be most effective to focus instead on effective utilization. By using our manual, the reader will not only become aware of the types and purpose of graphs available for use, but will be able to effectively use them to portray data in the real world.

THE YOUTH ARTIFACT: “A Kid’s Guide to Charts and Graphs”

We decided to create a youth artifact for children beginning to develop mastery of their literacy skills (mainly 1st-3rd grade students). We want to market our artifact as a downloadable guide that a teacher or parent can print to introduce their child to charts and graphs.

1. Breadth of Information

- a. **Chart & Graph Selection:** To reach our target audience, we had to select graphs that would not require any math to create. We selected bar graphs and pie charts because they can both be created using a tally chart. The only number skill a child needs is the ability to count to ten. Although the real life application of these graphs can require some intermediate math skills, in our guide the child will gain an introductory grasp of the purpose and use of these graphs.
- b. **Graph-by-Color:** In order to teach our audience how to create our selected graphs, we developed a “graph-by-color” system. The child learns what information to put where due to color cues. On each chart and graph, the titles are always placed in a blue box and totals are written in a yellow box. This system allowed us to create simple instructions requiring no math. The repetition of the colors and labeling also helps the student understand how to properly label parts of graphs.

2. Choice of Medium

Our youth artifact is in the form of a printable workbook. This medium makes it easily assessable for both teachers and parents. The workbook format encourages the child to participate throughout by including “Your Turn!” sections that allow the child to make their own charts and graphs in the same format as a given example. Each “Your Turn!” is on a separate page from the instructions, so that they can be turned in. The “Your Turn!” sections also feature pencil friendly background colors so that the child can use a pencil to complete them.

3. Youth Engagement Strategies

a. **Rusty the Robot:** We incorporated Rusty the Robot into the youth artifact to help retain the reader’s attention and provide them with additional information. He appears on the many pages to either offer additional insight to the topic being discussed or in an attempt to provide gentle comedic relief.

b. **Relevant Examples:** For our graphing examples, we tried to use examples that would engage children while providing useful information. We chose topics such as dinosaurs and M&Ms because those are concepts that a child understands.

4. “Ask Yourself”

After each “Your Turn!” graph, we included an “Ask Yourself” section. This section is designed to build the reader’s graph interpretation skills and help them retain the information they are learning. These sections ask questions about both the example and self-made graphs so that the child can apply concepts to multiple examples. The “Ask Yourself” pages also create another means by which teachers can track the student’s progress.

5. Glossary

The last page of the guide is a glossary that defines key words throughout the book. This section allowed us to introduce more complex concepts such as composition while still maintaining a low reading level. This is also something that children in our target age group are familiar with utilizing in textbooks.

PROCESS

While working on projects throughout the semester, we discovered that our group works best by setting up weekly concept meetings. We discuss our ideas and form a game plan for accomplishing our goals. Due to our hectic schedules, we rely heavily on Google Docs outside of class and meetings. Individually, we create and edit the components when our schedules allow, then get together after the workshop to polish our project. This plan worked well when incorporated into this project; we were able to create what we consider to be effective and creative final artifacts.

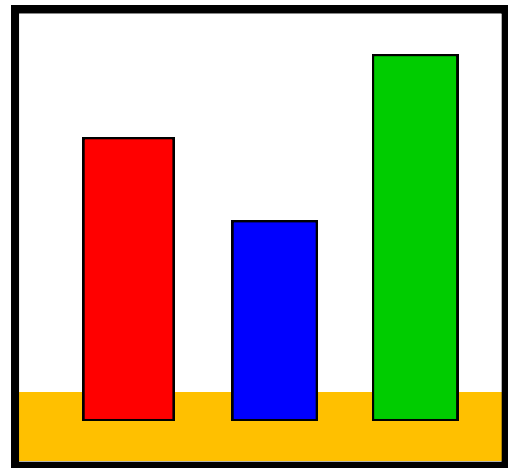
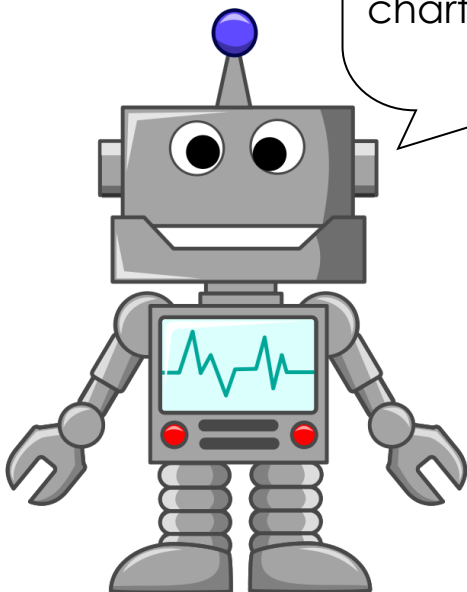
CONCLUSION

Throughout the creation of the group best practices project, our group was required to incorporate most if not all of the technical communication strategies we have learned throughout the semester. The adaptation of the youth artifact from the adult manual required a great deal of rhetorical awareness and the incorporation of reader-centered communication. When deciding upon our use of media and organization, we had to approach it in such a way that we maximized its utility for a specific reader. The how-to sections were created using effective instruction strategies. This project served a reminder of how much our rhetorical skills have progressed throughout the semester, and also highlighted some opportunities we have to improve. Please inform us of any questions you may have regarding the use of these artifacts or with any suggestions on how to increase their effectiveness.

Why Do We Use Charts and Graphs?

Have you ever heard the saying “A picture is worth 1,000 words?” Sometimes words do not give information as well as pictures do. When trying to explain things with numbers to others it is often easier to show them a chart or graph. In this guide, you will learn when and how to use **charts** and **graphs** to help you show information to your classmates.

Hi! My name is Rusty the Robot. Turn the page to learn more about charts and graphs!

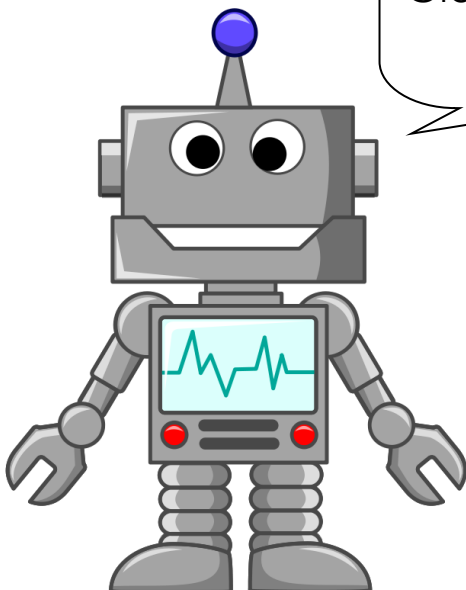


What is a Chart?

Charts are a great way to gather and organize your **data**. A **tally chart** is a simple chart that can be used when the question you want to ask has different choices, such as “what is your favorite ice cream?”



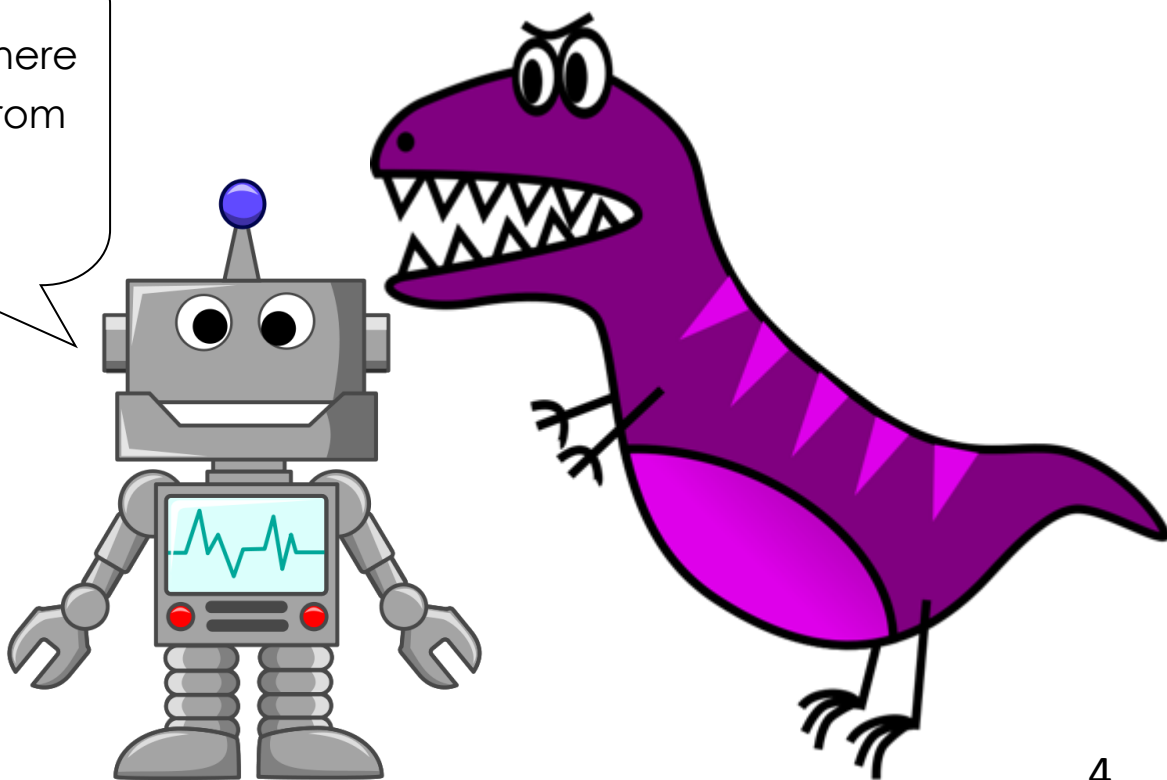
Words in **red** are defined in the Glossary on page 17.



How Do I Make a Tally Chart?

1. **Decide what question you are going to ask.** We will be asking what is your favorite dinosaur? Write the question in the blue title box in the Your Turn! Section on page 5.
2. **List your answer choices.** Try not to use more than 4 because the graph becomes hard to read. Write the choices in the green boxes.
3. **Ask your friends!** Try to ask your question to at least ten friends. Make a tally, or a mark, in the purple box next to the choice that your friend chooses.
4. **Count your tally marks.** After asking at least 10 friends your question, in each row count all of your tally marks and put the number in the yellow boxes labeled total.

You could ask your friends where I should hide from this dinosaur! Quick!



Make Your Own Tally Chart

Example:

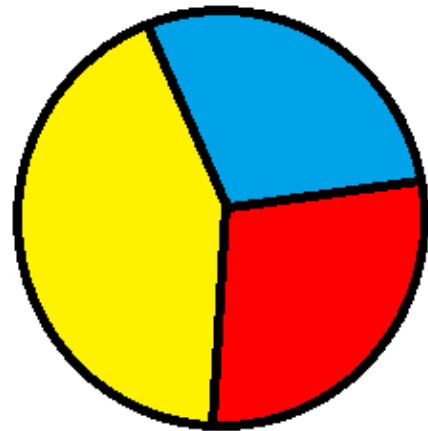
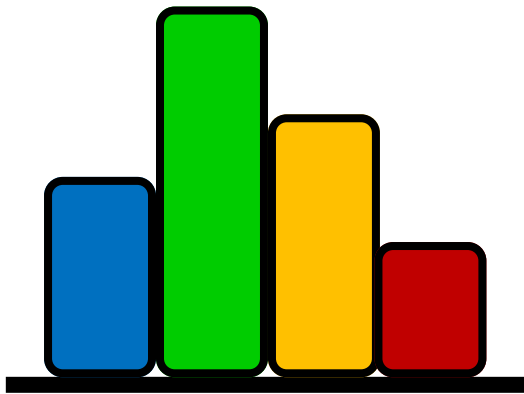
	What is your favorite dinosaur?	TOTAL
Triceratops	IIII	4
T-Rex	IIIIII	6
Stegosaurus	III	3
Pterodactyl	II	2

Your turn!

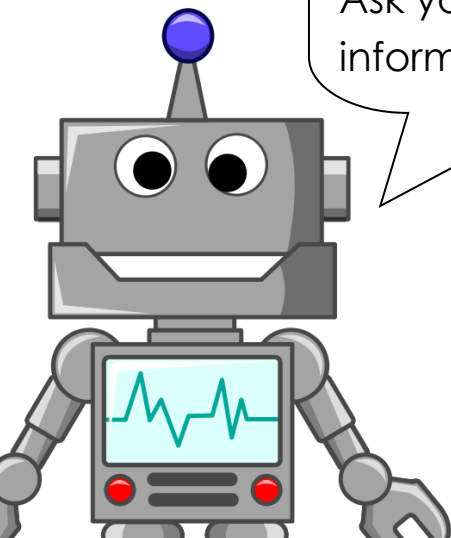
		TOTAL

What Is A Graph?

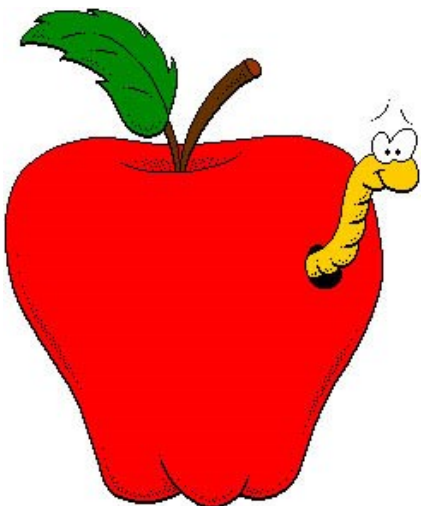
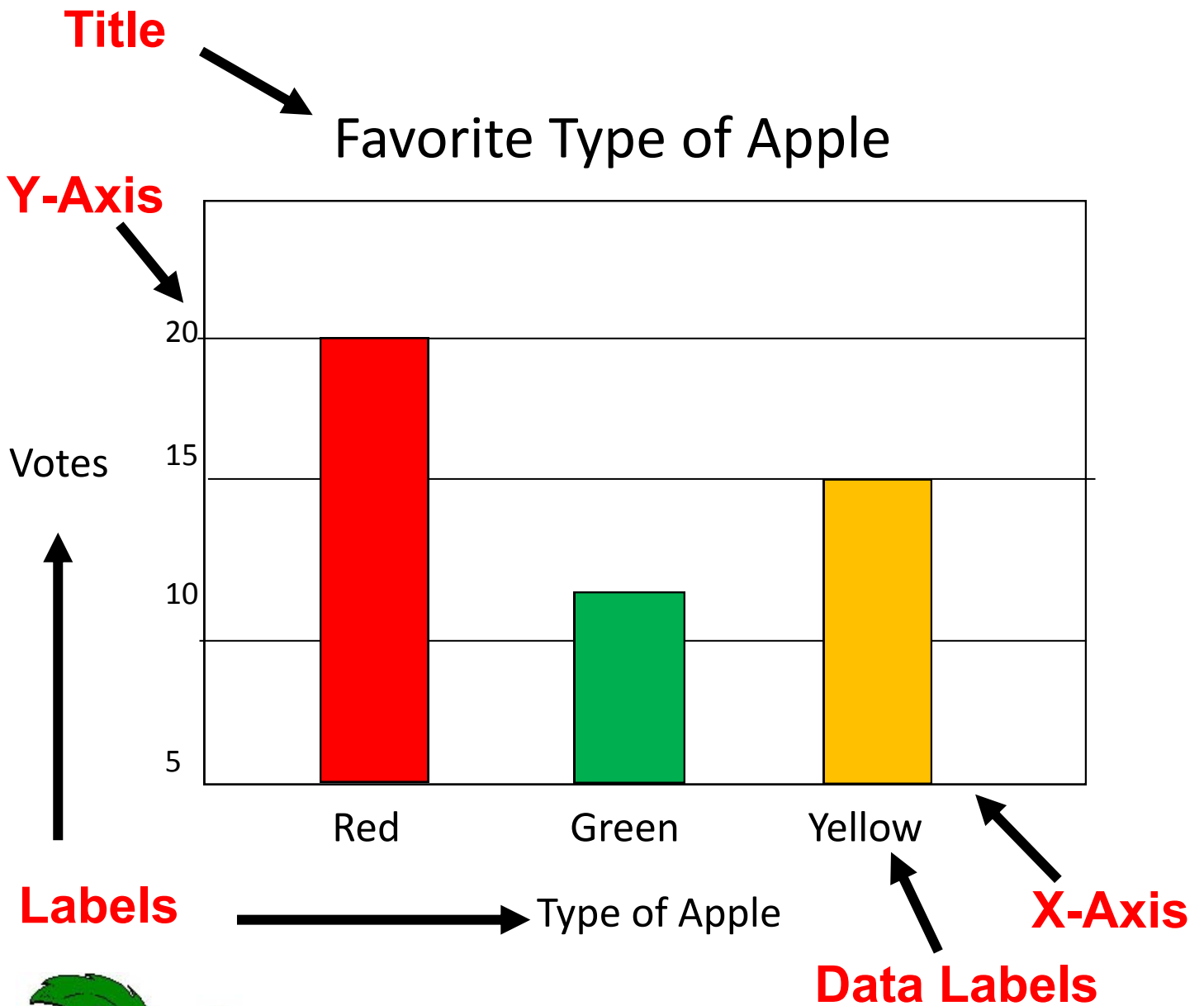
Once you have placed your data into a chart, you can use the chart to make a graph. Graphs make the information in charts easy to read. Different graphs are used to show different things. You will learn how to make 2 types of graphs: **bar graphs** and **pie charts**.



There are also many other types of graphs such as line graphs and scatter plots. Ask your teacher for more information!

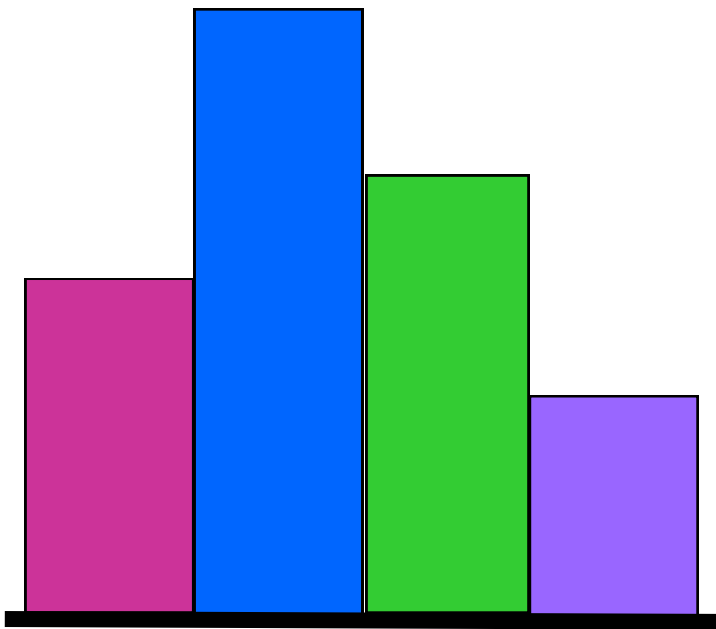


What Are the Parts of Graphs?

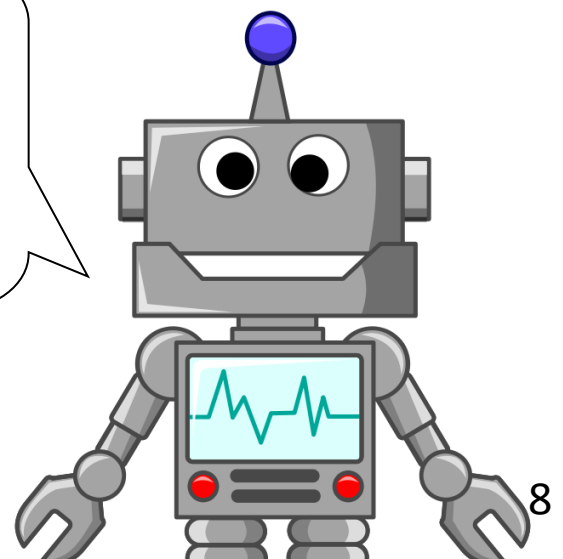


What Is A Bar Graph?

Bar graphs are used to compare things. With a bar graph, you can easily find the most and least popular of something. We can create a bar graph from the tally chart we made on page 4. Flip the page to see our example and learn how to make your own!

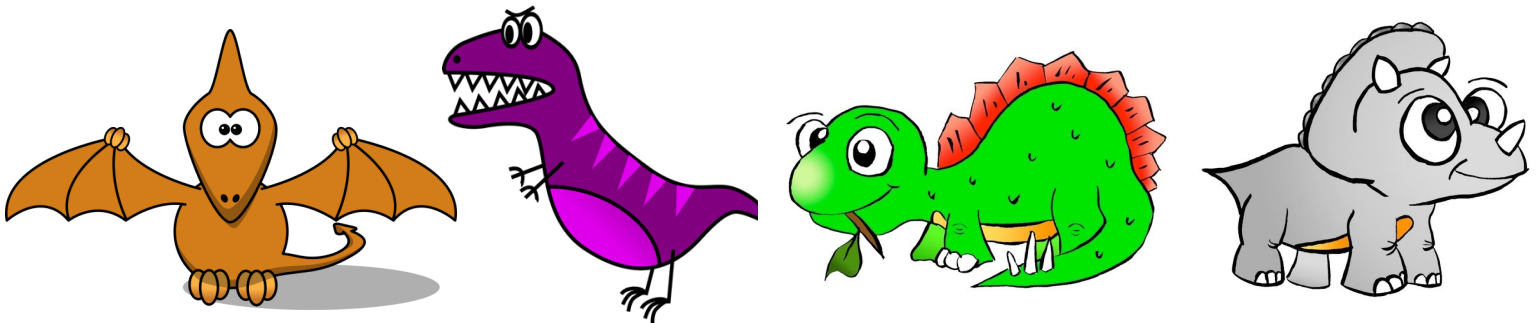


We could even compare megabits to Mega Bloks!



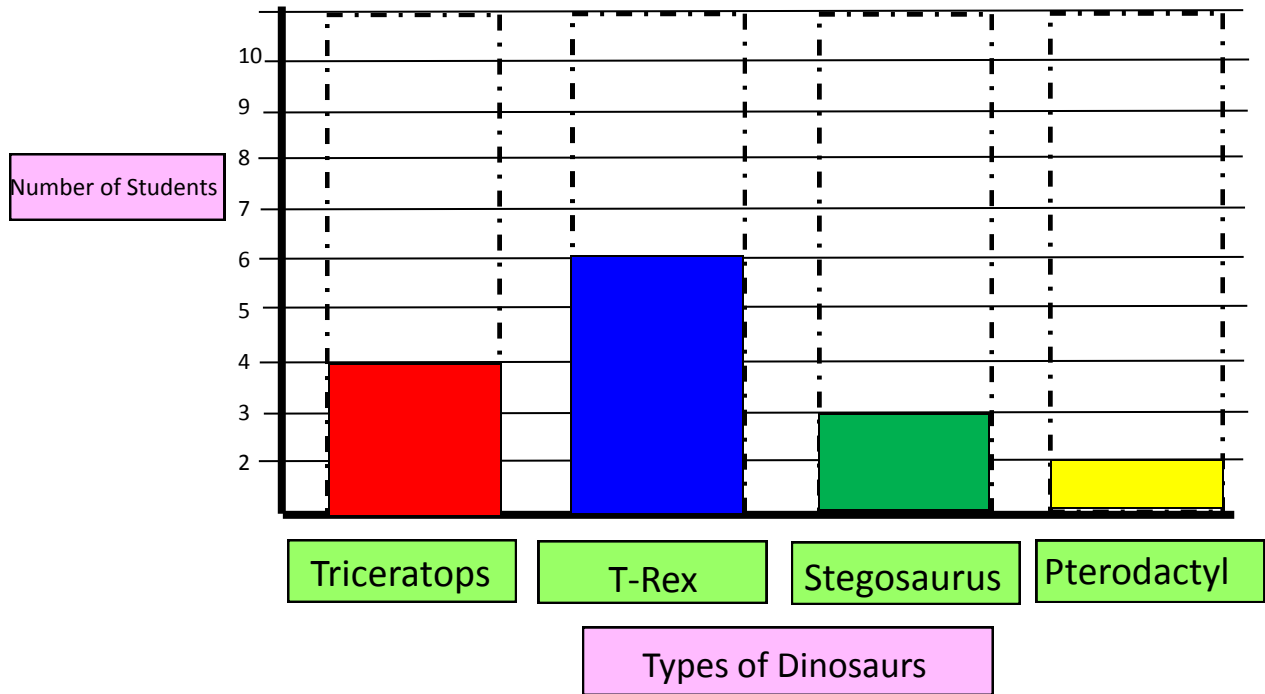
How Do I Make A Bar Graph?

1. **Ask a question!** Think of a comparison question. We will be using our tally chart example from page 4.
2. **Create a tally chart for this question.** You can either use the one you have already made or use the instructions on page 4 to create a new one.
3. **Fill in the title and data labels.** Using your tally chart, fill in the title and data labels on the bar graph on page 10 in the Your Turn! Section. The blue boxes are for titles and the choices go in the green boxes.
4. **Create axis labels** in the pink boxes. Think of what each axis is showing. Is it number of people? Favorite colors? Our Y axis is showing the number of students and our X axis is showing types of dinosaurs.
5. **Make the bars!** For each choice on your tally chart, fill in the dashed lines on the bar graph to the number in yellow total boxes on the tally chart. You can even use a different color for each bar.

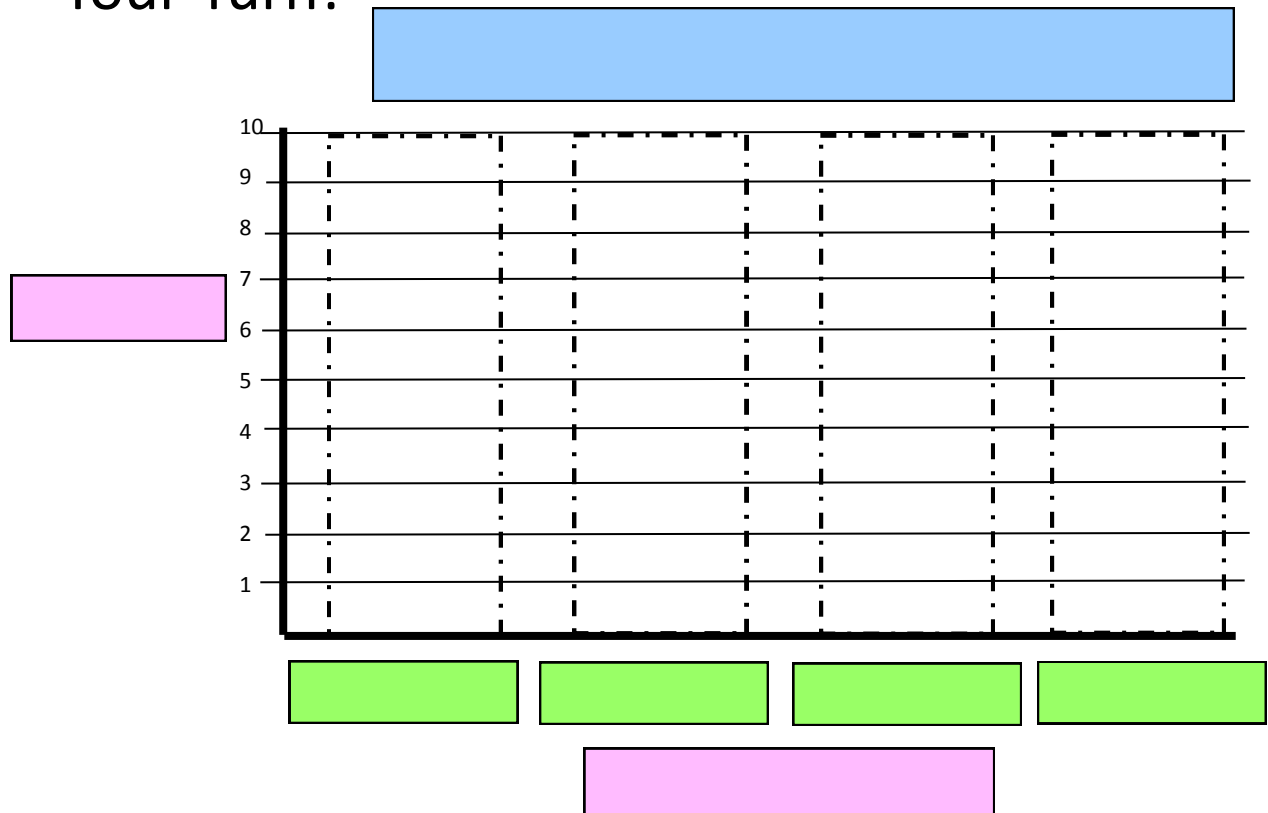


Make Your Own Bar Graph

Example: What is your favorite dinosaur?



Your Turn!



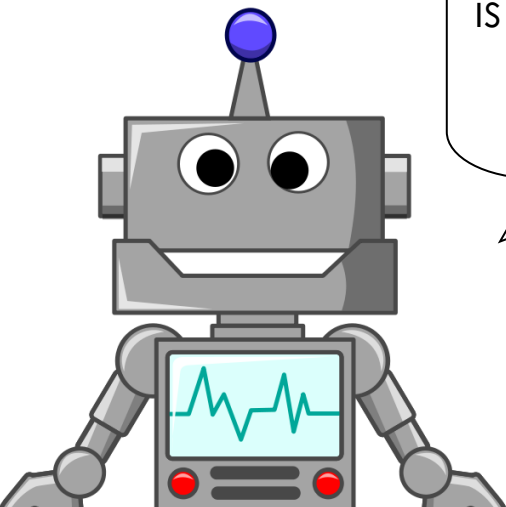
Ask Yourself

Use the example bar graph on page 10 to answer the following questions:

1. Which dinosaur was the most popular? _____
2. Which dinosaur was the least popular? _____
3. How many more people liked the T-Rex than the Pterodactyl?

Use the bar graph that you made in the Your Turn! Section of page 10 to answer the following questions:

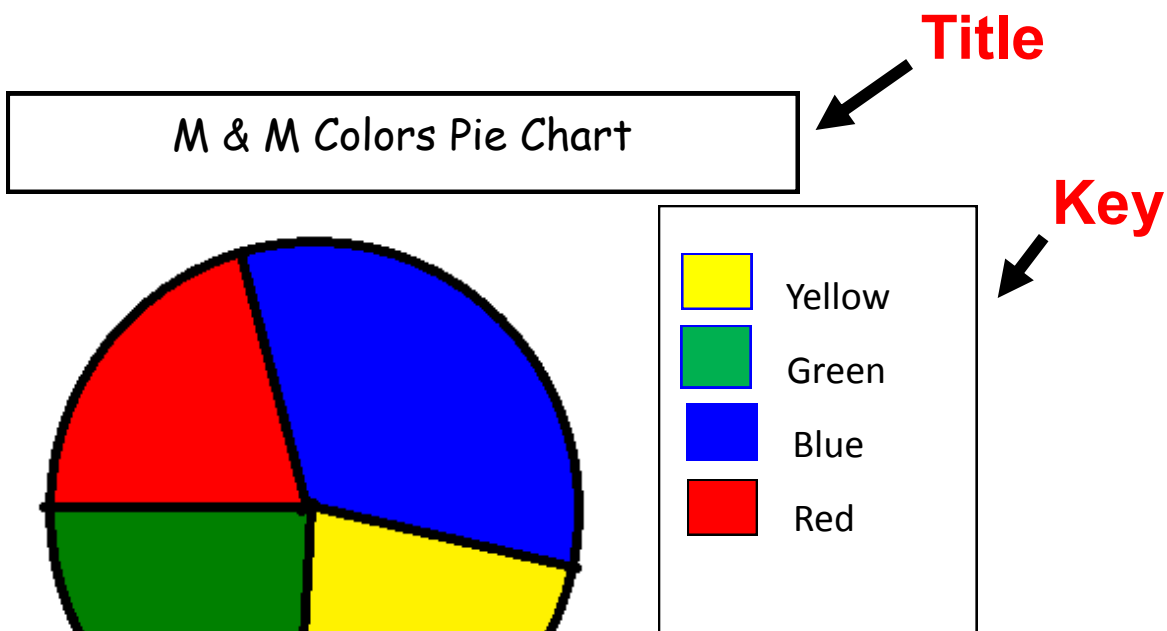
1. Which choice is the most popular? _____
2. Which choice is the least popular? _____
3. What is your graph's title? _____
4. What does the x axis show? _____



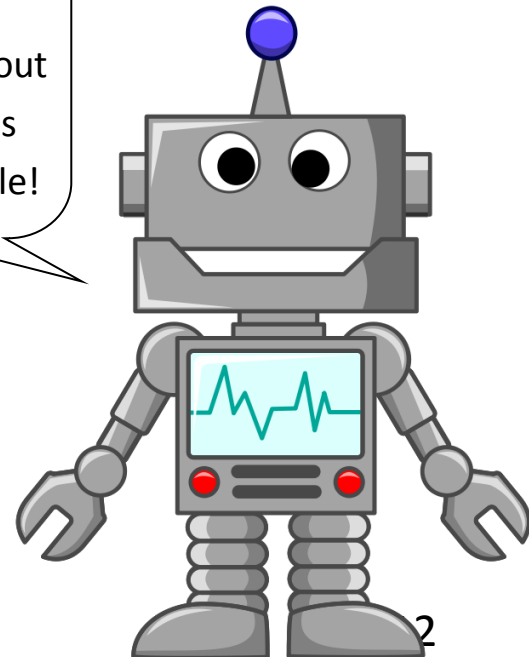
My favorite dinosaur is a Tricera-bot!

What Is A Pie Chart?

Pie charts show the **composition** of things. Use a pie chart when you are comparing parts of a whole, such as how many girls are in your classroom compared to boys. They look a little different than bar charts.



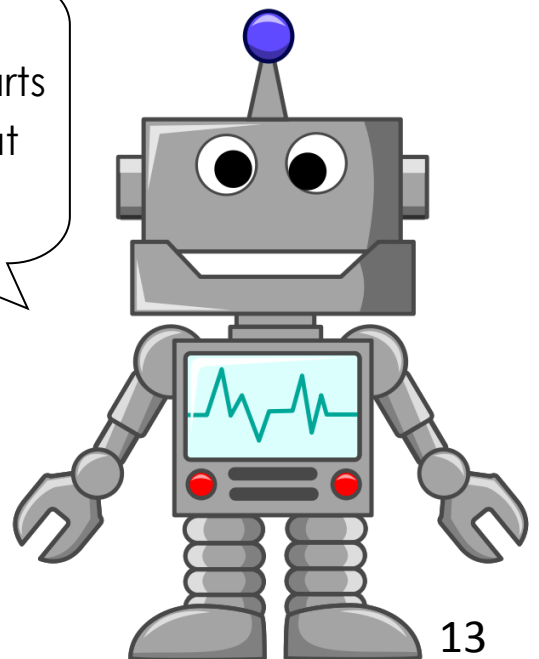
The key tells you what each color represents. Without a key, a pie chart is just a colorful circle!



How Do I Make A Pie Chart?

1. **Ask a question!** Think of a question about how many of one thing are in another. Form a group with ten of your friends. Today we will be making a pie graph showing how many boys and girls there are in your group.
2. **Create a tally chart for this question.** Fill in the blank tally chart on the next page. If you need help, use the instructions on page 4.
3. **Title your pie chart.** Write the title for your pie chart in the blue box.
4. **Color your slices!** Pick a color for each choice on your tally chart. Look at the number in the yellow total box for each choice and fill in that number of slices. Make sure that all slices that are the same color are touching.
5. **Create a key.** Use the box to the right of the circle to create a key. When you use a color for a slice, be sure to color in one small box with that color. In the green box next to the box you colored, write what choice that color represents from the green box in your tally chart.

Why are they called pie charts if you can't eat them?

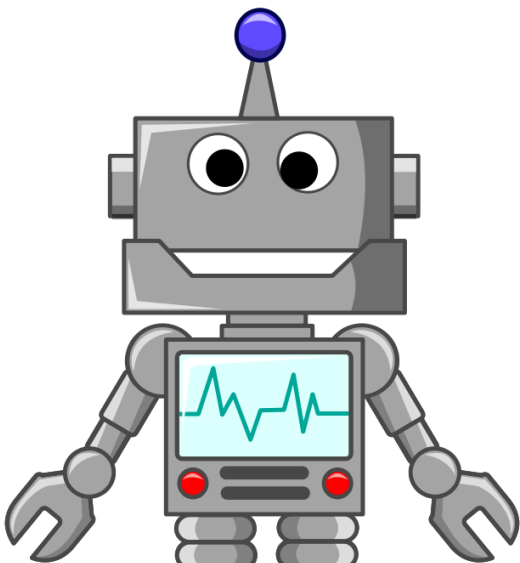


Make Your Own Pie Chart (Steps 1-2)

Example:

The Composition of My Group		TOTAL
Boys		6
Girls		4

Your Turn!

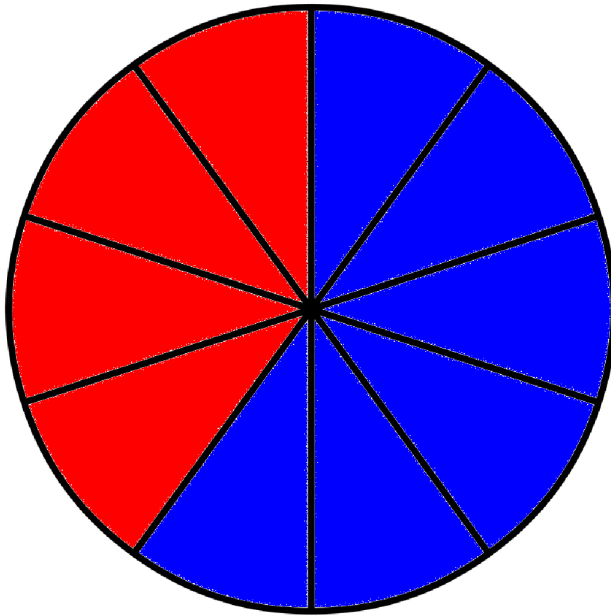


Why are robots great dancers?
Because we have Algo-Rhythm!

Make Your Own Pie Chart (Steps 3-5)

Example:

The Composition of My Group



Key:

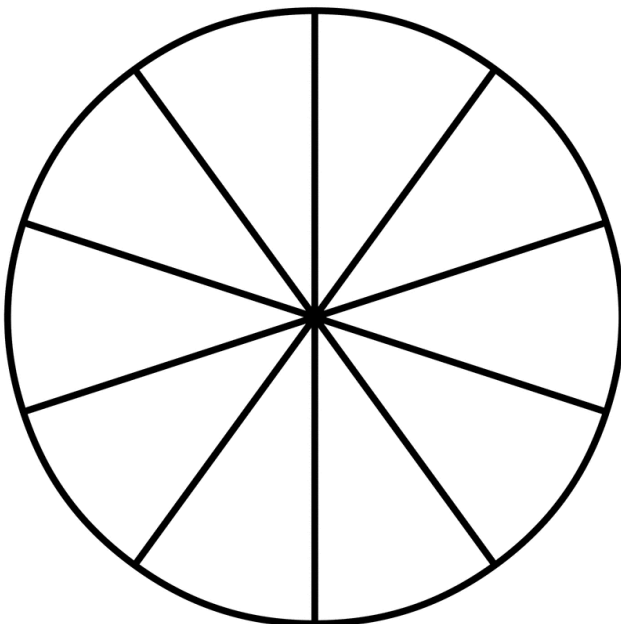


Boys



Girls

Your Turn!



Key:



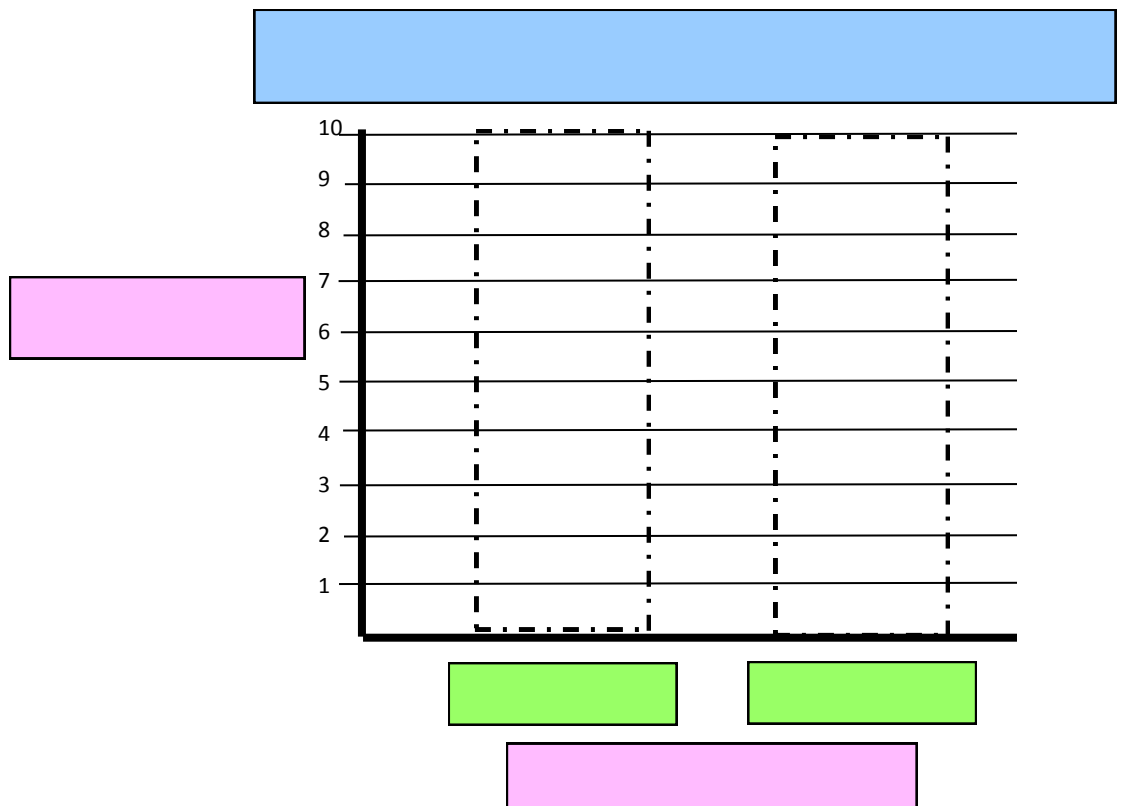
Ask Yourself

Use the example pie chart on page 15 to answer the following questions:

1. Were there more boys or girls in the example group? _____
2. Why do pie charts have keys? _____

Use the pie chart that you made in the Your Turn! Section of page 15 to answer the following questions:

1. Were there more boys or girls in your group? _____
2. What color did you use for girls? _____
3. Make a bar chart using your tally chart in the "Your Turn!" section of page 14. If you need help, follow the instructions on page 9.



Glossary

Bar Graph:	A graph that uses columns of different heights to show and compare different amounts.
Charts:	A table that organizes information.
Composition:	The combination of parts that make up something.
Data:	Facts or information
Data Labels:	The labels on a bar graph that show what piece of information each bar represents
Graphs:	A diagram that shows data.
Labels:	A description of what each axis represents on a bar graph.
Pie Chart:	A circular graph divided into parts that show the size of different amounts that are part of a whole amount.
Tally Chart:	A chart that uses vertical marks to organize data.
Title:	On a bar graph, a label that says what the graph is showing.
X-Axis:	The line on the bottom of a bar graph that goes from left to right.
Y-Axis:	The line on the left side of the bar graph that goes up and down.

* All definitions were based on information found in the Merriam-Webster Online Dictionary which can be found at www.merriam-webster.com.

Images Cited

Rusty the Robot	http://www.clipartlord.com/wp-content/uploads/2013/02/robot5.png
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Wormy Apple	http://www.spearfish.k12.sd.us/~tseyer/Images/Clipart/School%20Supplies/Misc/apple%2520w%2520worm%252001.jpg
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*All other illustrations in this guide were created by the authors.