

LessonTitle: Favorite Colors Etc. From Bar Charts to Pie Charts Pre Stats 3.1	
Utah State Core Standard and Indicators Pre-Algebra Standards 1.2, 5.1 Process Standards 1-5	
Summary	
In this lesson students collect data about favorite colors, tabulate the data, color in the data on color bars, roll and tape the color bars to create a circle, create circle graphs using the bars, then learn to create circle graphs on the TI73 graphing calculator.	
Enduring Understanding	Essential Questions
Statisticians collect data and then make choices about the best way to organize and communicate the information about that data.	How do samplings help us in real life? How do we compare samplings? Why are graphs useful?
Skill Focus	Vocabulary Focus
<ul style="list-style-type: none"> • Problem solving • Circle and bar graphs • Fraction, decimal, percentage equivalents 	
Assessment ideas:	
Use the two assessments found at the end of the student worksheets.	
<ol style="list-style-type: none"> 1) Figure out how to create an accurate circle graph comparison using color bars. 2) Write what you have learned about the following: <ul style="list-style-type: none"> Comparing data samplings Data represented using fractions, decimals, and percentages Different kinds of charts or graphs What you think about the class sampling compared to the total sampling. 	
Materials	
Launch	
Explore	
Summarize	
Apply	

Directions: Discuss the idea of poll-taking prior to elections and the idea of a sampling. Then talk about how the class will be a sampling of favorite colors or favorite sports. Talk about comparing samplings from different classes and whether or not students believe the samplings will be similar.

Discourse Suggestions: (Use at the appropriate time during the investigation.)

- Do you think that our class sampling for favorite colors would be a close estimate for the whole schools choices? How could we find out?
- Since different classes are different sizes, how can we compare the samplings? What if we did the whole school? How could we compare the samplings?

- Would it be easier to compare data from both classes if the bars had the same number of segments in them? Why?
- How do the two bars compare?

1. Collect data. Ask everyone in the class to select a favorite color. Write the data on the board and have students copy the information onto their data worksheet.

2. Make a color bar (see below). Students color in the 1st bar on the color bar page. Use the bar to show how many people like a certain color. For example, if seven people chose green as their favorite color, students color seven consecutive segments of the bar green. Do this for all of the colors chosen by the students in your class. Cut the strip out leaving 3 extra non-colored sections.

3. Make a pie chart or circle graph. Tape the end of the color bar together so that the tab (the end with the “extra” segments) is tucked behind the colored segments and the bar forms a ring with the colors on the inside. Place the ring on a sheet of paper and draw a circle by tracing around the rings outside edge. Mark on the inside of the circle where the different-colored segments begin and end. Move the ring away, estimate where the center of the circle is, and connect the marks made with the center of the circle. Finish the graph by filling in each section with the color it represents.

4.. Make a pie chart on the calculators. Make a list for colors and one for the # of students. Go to plots and make a circle graph. Have students compare to their hand drawn circle graphs. Change the display to show numbers and then to show percentages.

5. Fill in the total class data, data from all classes. Discussion about comparing samplings should lead to the need to change the data to use a common denominator (using 100 as a denominator, per-cent means out of- hundred.) If students do not know how to change a fraction to a decimal use $\frac{1}{4}$ of a dollar as an example—one dollar divided into 4 parts gives you .25 or 25 out of a 100—25%. So divide the top number by the bottom. Students use calculators to change fractions to decimals and percents.

4. Choose another survey topic and repeat the activity. For example, for sports you might give them the following choices: volleyball, basketball, softball, football, soccer, and baseball. Let students do this activity on their own. After they have completed the circle graph, they may wish to cut the color bar into pieces and glue onto the worksheet to make a bar graph. They can then create a bar graph on the calculator for comparison.

5. Compare samplings for a real life purpose. Students should do this on their own after the data is collected. For example, the media center specialist wants to know about ordering books for the library. He wants to find out student preferences so he can order appropriately. (You may choose a different context). Collect the data for each class you teach. Then students will compare the data for their own class compared to all the classes.

6. Have students complete the assessment portion. The second assessment could be given as homework.

7. Other possible topics for circle graphs are number of pets, favorite breakfast cereals, how you spend your time in a day, family budgets, etc.

Pre Stats 3.1

**Favorite Colors Etc.
From Bar Charts to Pie Charts**

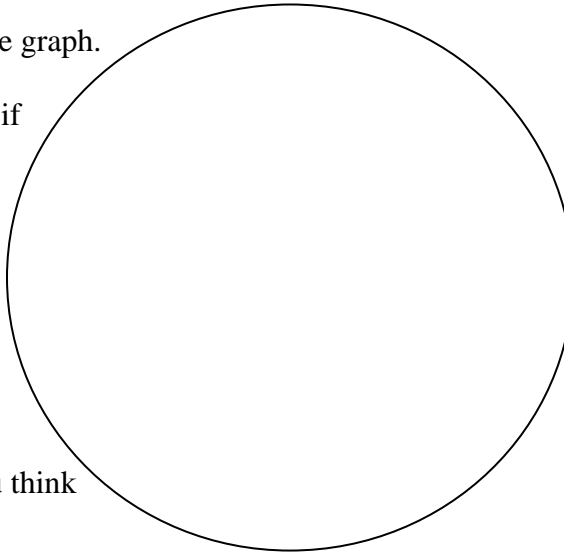
Name _____ **Period** _____ **Date** _____

Favorite Color Class Data

Color	# of students	Total students	Fraction	Decimal	Percentage

Use your color bar to create a circle graph.

What would you expect to happen if you used a 100 color bar and percentage to create the graph?



Test your hypothesis. What do you think about the results?

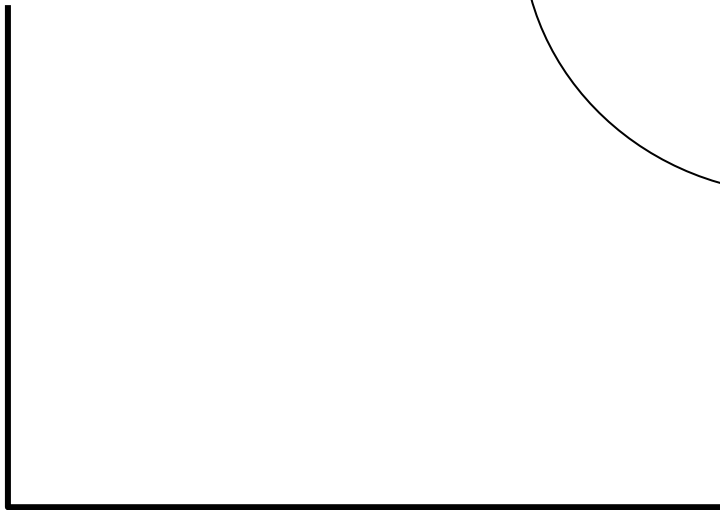
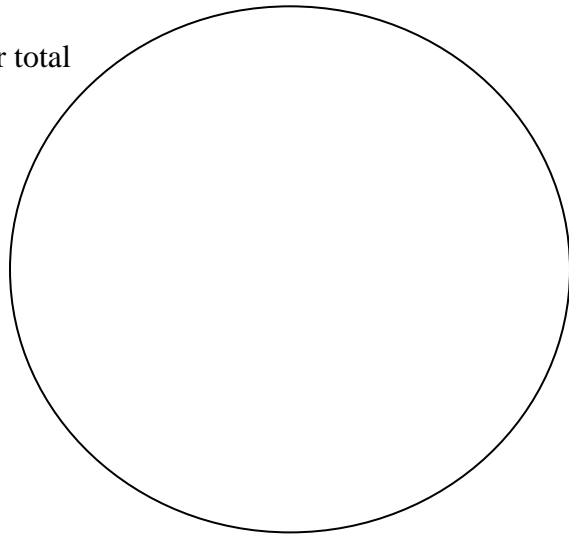
Follow the teacher's instructions to create a circle graph using the graphing calculator. Write a few sentences comparing your graph to the graph in the calculator.

Total Class Data for Favorite Colors

Color	# of students	Total students	Fraction	Decimal	Percentage

Use a color bar to create the circle graph for total class data. Which bar will you use? Why?

Then use the calculator to create circle and bar graphs (sketch below).



- Do you think that our class sampling for favorite colors would be a close estimate for the whole schools choices? Why or why not?
- Since different classes are different sizes, how can we compare the samplings?
- What if we did the whole school? How could we compare the samplings?

Assessment: Comparing Favorite Sports

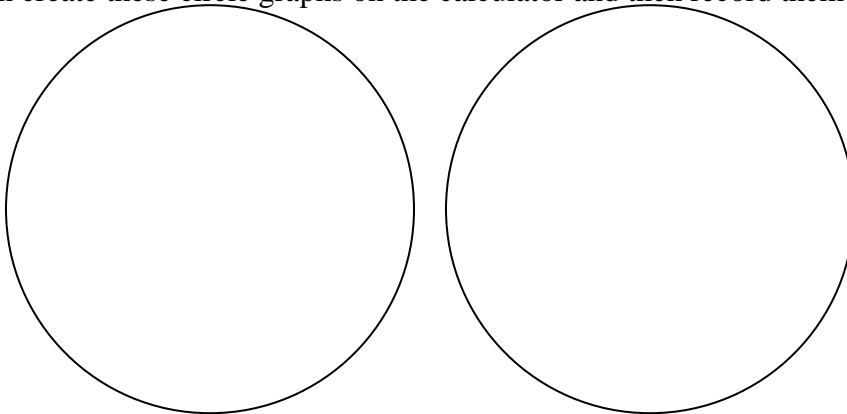
My class data

Color	# of students	Total students	Fraction	Decimal	Percentage

Total of all class' data

Color	# of students	Total students	Fraction	Decimal	Percentage

You can create these circle graphs on the calculator and then record them below.



Teacher signature(the teacher saw your calculator graphs)_____

Writing Assessment : (to be done by yourself)

Write what you have learned about the following:

- 1) Comparing data samplings
- 2) Data represented using fractions, decimals, and percentages
- 3) Different kinds of charts or graphs
- 4) What you think about the class sampling compared to the total sampling.

