



Probability and Statistics

Lesson: April 6

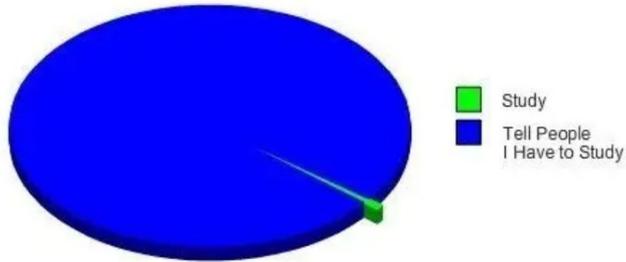
Students will be able to create a circle graph from a set of data or be able to interpret the data presented in a circle graph.



Bell Ringer: What does a circle graph tell you about a situation?

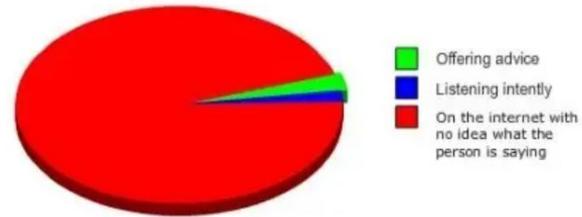
What does this circle graph tell you?

Things I Do When I Have to Study



What does this circle graph tell you?

When I'm on the phone.



A group of students were asked their favorite color from a set list of choices. The results are below:

Red	26
Purple	18
Orange	10
Blue	32
Green	14

There are 5 steps to converting the survey results into a circle graph:

- 1. Get the sum of your data points**
- 2. Calculate the percentage each number is of the whole.**
- 3. Convert each percentage into degrees of the whole circle.**
- 4. Measure each set of degrees in a circle to represent each data point.**
- 5. Label your Graph with a Title and a Legend.**

1. Before you can begin a circle graph, you must first calculate the sum of the data points of your survey.

Red	26
Purple	18
Orange	10
Blue	32
Green	14

$$26+18+10+32+14$$
$$= 100$$

2. Next you must calculate the percentage each color is of the whole:

Red	26	$26 \div 100 = .26$ or 26%
Purple	18	$18 \div 100 = .18$ or 18%
Orange	10	$10 \div 100 = .10$ or 10%
Blue	32	$32 \div 100 = .32$ or 32%
Green	14	$14 \div 100 = .14$ or 14%

It's always a good idea to sum up your %'s just to be sure that they equal 100%

Red 26%

Purple 18%

Orange 10%

Blue 32%

Green 14%

$$26+18+10+32+14 = 100\%$$

(100% of the data is present)

3. Convert each percentage into degree of the whole circle.

Recall: a full circle has 360° .

Each percentage is a “part” of the whole circle so we need to know how many degrees of the circle will represent each percentage.

$$.26 \bullet 360 = 93.6^\circ$$

$$.18 \bullet 360 = 64.8^\circ$$

$$.10 \bullet 360 = 36^\circ$$

$$.32 \bullet 360 = 115.2^\circ$$

$$.14 \bullet 360 = 50.4^\circ$$

Since graphs are estimates I will round these decimals to the nearest whole number to make creating the graph a little easier. (You don't have to do this step, but it makes creating easier)

$$.26 \cdot 360 = 93.6^\circ$$

$$93.6^\circ \approx 94^\circ$$

$$.18 \cdot 360 = 64.8^\circ$$

$$64.8^\circ \approx 65^\circ$$

$$.10 \cdot 360 = 36^\circ$$

$$36^\circ$$

$$.32 \cdot 360 = 115.2^\circ$$

$$115.2^\circ \approx 115^\circ$$

$$.14 \cdot 360 = 50.4^\circ$$

$$50.4^\circ \approx 50^\circ$$

Just as we summed up to %'s, you should also sum up the degrees to be sure that they total 360°

$$93.6^\circ \approx 94^\circ$$

$$64.8^\circ \approx 65^\circ$$

$$36^\circ$$

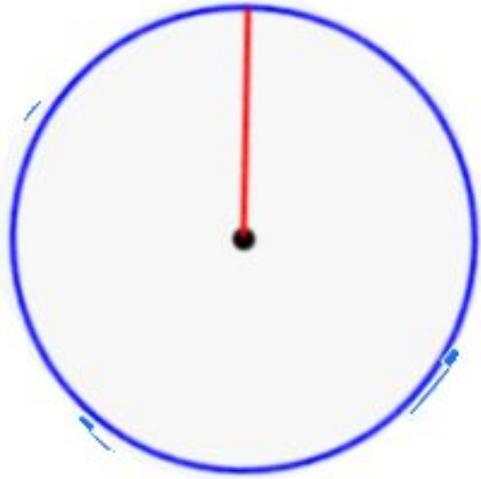
$$115.2^\circ \approx 115^\circ$$

$$50.4^\circ \approx 50^\circ$$

$$94+65+36+115+50 = 360^\circ$$

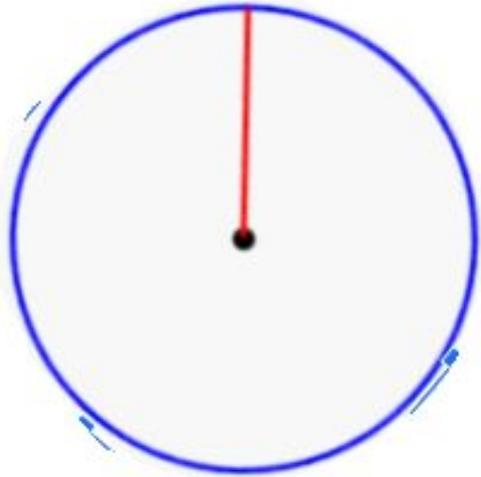
(our data will fill the whole circle)

Find something circular shaped and draw a circle on a piece of paper as shown below:



Mark a dot in the center and draw a straight line from the center dot to any point on the outer edge of your circle.

You will need a protractor (you can find one at this link and cut it out) [Printable Protractor](#)



If you cut it out of wax paper it will be more transparent but white paper will also work. Lay your protractor on the red line.

Watch this short video on how to measure with a protractor. [Drawing with a Protractor](#)

5. Remember to give your graph a title and to label your sections with the subtitles and %'s.

You are finished!

Congratulations on creating your own Circle Graph

The next slide will give you a chance to practice what you have learned. Read and calculate the answers for each of the 4 questions and try to create your own graph on scrap paper.

4 Practice Problems

Click on this link to take you to the practice problems.

[Plotting pie charts \(practice\) | Pie Charts](#)

You will need to use your own scrap paper to create the graphs.