Name _____ **Date** _____ **Class** _____
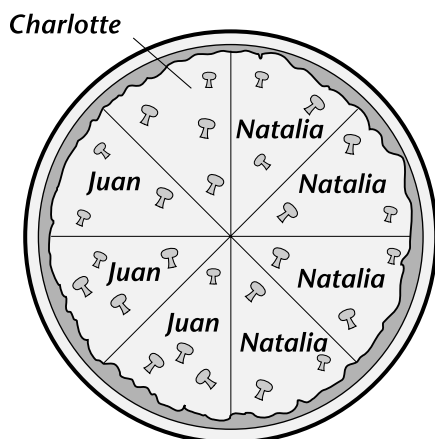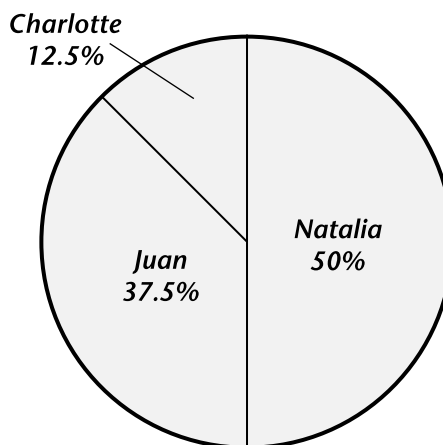
Creating Circle Graphs

Suppose that you order an eight-slice pizza for yourself and two friends. The illustration below shows how many pieces each person eats.

You can change this illustration into a circle graph. A **circle graph** shows data as parts of a whole. The circle represents the whole, or total. The wedges, or segments, represent the parts. Because it resembles a pie cut into slices, a circle graph is sometimes called a pie graph or pie chart.

If you change the pizza illustration into a circle graph, the whole circle will represent the complete pizza. The segments of the graph will show the part of the pizza that each person ate. Look at the data table to see how the number of pieces can be changed into percentages. In a circle graph, all of the parts add up to the total, or 100%.

Amount of Pizza Eaten		
Person	**Number of Pieces**	**Percent of Pizza**
Natalia	4	50%
Juan	3	37.5%
Charlotte	1	12.5%

Like bar graphs, circle graphs can be used to display data in a number of separate categories. Unlike bar graphs, however, circle graphs can be used only when you have data for all the categories that make up the whole.

Portion of Pizza Eaten

Creating Circle Graphs *(continued)*

▶ Tips for Making Circle Graphs

Kinds of Ads on Children's TV Shows	
Type of Product	**Number of Ads**
Toys	70
Breakfast foods	50
Fast food and drinks	50
Other products	30

1. Organize your data into a table or list. For example, the data table on the right shows information about 200 ads shown on children's TV shows.

2. To find the size of the wedge for each type of product, set up a proportion. Let *x* equal the number of degrees in that wedge. Then cross-multiply and solve for *x*. Since there are 360 degrees in a circle, each proportion will read as shown on the right:

$$\frac{\text{Number of ads for product type}}{\text{Total number of ads}} = \frac{x}{360°}$$

For toys: $\dfrac{70}{200} = \dfrac{x}{360°}$

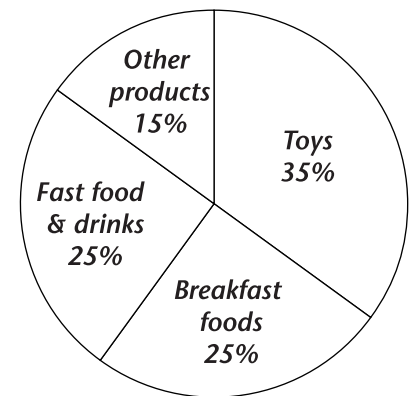$$70 \times 360° = x \times 200$$

$$\frac{70 \times 360°}{200} = x$$

$$126° = x$$

Number of Ads	70	50	50	30
Size of Wedge	126°	90°	90°	54°

3. Use a compass to draw a circle. Mark the center of the circle. Then use a straightedge to draw a line from the center point to the top of the circle.

4. Use a protractor to measure the angle of the first wedge, using the line you just drew as the 0° line. For example, the wedge for Toys is 126°. Draw a line from the center of the circle to the edge for the angle you measured.

5. Write a label on the wedge to show what it represents. If there is not enough space in the wedge, write the label outside the circle and draw a line to the wedge.

6. Continue around the circle, drawing in and labeling the other wedges. For each new wedge, use the edge of the last wedge as your 0° line.

7. Determine the percentage that each wedge represents by dividing the number of degrees in the wedge by 360°.

For toys: $\dfrac{126°}{360°} \times 100\% = 35\%$

Other products 15%
Toys 35%
Fast food & drinks 25%
Breakfast foods 25%

Kinds of Ads on Children's TV Shows

☑ ***Checkpoint*** If you add up the number of degrees in all the wedges of a circle graph, what is the total? If you add up all the percentages, what is the total?

🍎 TeacherVision

SKILLS PRACTICE

Creating Circle Graphs

To complete this activity, you will need a compass and a protractor. Use those tools to answer Question 1 on the back of this page or on a separate sheet of paper. Answer the remaining questions in the spaces below.

A middle school class surveyed 500 families who own pets. The data table below shows what kinds of pets the families own. Create a circle graph to display the data.

Kinds of Pets Owned by Families	
Pet	**Number of Families**
Dogs	180
Cats	160
Birds	25
Fish	25
*Other	110

* Includes gerbils, hamsters, rabbits,
  guinea pigs, and ferrets

1. Make a circle graph to display the data in this table. (*Hint:* You can round off numbers if you wish.)

2. What are some facts you can learn by examining the graph?

   _____

   _____

   _____

3. **Think About It** Think about the process of creating a circle graph. Why might circle graphs be a less exact way of displaying data than bar graphs?

   _____

   _____

   _____

   _____

   _____

   _____

TeacherVision®