

Name: _____ Date: _____

Around and around

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Circumference; diameter and π

Find a circular object, a soft drink can for example. Wrap a piece of string around the object, marking the string to represent the distance around the object.

Circumference: distance around a circle; "perimeter" of a circle

Record the circumference in your chart. Next, use the ruler or the string to find the diameter of the circle.

Diameter: longest chord in a circle, twice the radius, chord that goes through the center of the circle.

Record the diameter of the circular object in the chart with a description of the object. Use the calculator to find the ratio of the Circumference to the Diameter. Write the ratio as a fraction and use the fraction to decimal key to convert it to decimal form and record both in the chart.

Object	Circumference	Diameter	$\frac{C}{d}$
Pie plate	28"	9"	$\frac{28}{9} = 3.119$

Pick an additional 7 objects and complete the chart to answer the questions below.

1 . How does the Circumference compare to the diameter? Look at overall relationships - Which is larger? Always? Why?

2. How are the ratios of the circumference to the diameter of the different objects related? Is there a pattern? Are there some objects in your group that fall outside the pattern? Check your measurements again. Why might these be different from the pattern?

Object	Circumference	Diameter	$\frac{C}{d}$

Thinking Cap

Research how ancient mathematicians measured large circles and triangles.

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Circumference, diameter and π

Using this Activity:

Objective: Use the calculator to investigate the relationship between the circumference and diameter of a circle

NCTM Standards: Mathematics as Problem Solving; Geometry; Measurement

This activity could be tied into a history of mathematic lessons as well as a geometry lesson on π . The teacher may want to pair students to make the activity progress more quickly. Monitoring the students measuring throughout the activity may also be necessary. Be sure the students are measuring in a consistent manner. In other words, if the units circumference is measured in centimeters, then the diameter should be measured in centimeters. This also provides an opportunity to discuss whether the units of measurement will affect the final answer. Have the students measure different objects in different units to check the result.

Answers :

The individual objects and measurements will vary with each student's selections.

- 1 . Circumference is always larger than the diameter.
2. The ratio of the Circumference to the diameter should equal π .

The smaller the object, the harder it is to accurately measure as it is with extremely large objects. Therefore, slight errors are probably human measurement errors.