

# Practically Pi



## I. Topic Area

Interpreting Data

## II. Introductory Statement

Children will understand that "pi" is a constant relationship between the circumference and the diameter of any given circle.

## III. Math Skills

- Measuring
- Graphing
- Decimal computation

## Science Processes

- Organizing Data
- Interpreting Data

## IV. Materials (per group)

Assorted circular containers  
 1 lb. coffee can  
 2 lb. coffee can  
 Soup can  
 Juice can  
 Wheel  
 Waste basket  
 Metal bookends  
 Meter stick or tape  
 Chalk or marker  
 String  
 Student Worksheet, page 37

## V. Key Question

"How does the circumference of any circle compare with its diameter?"

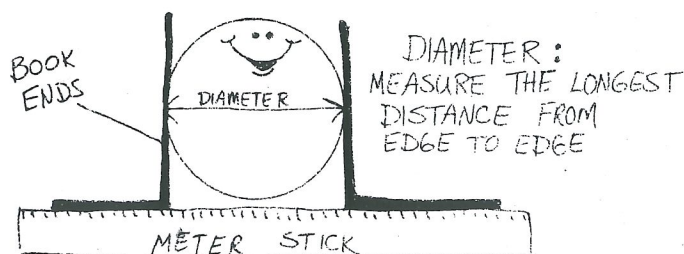
"Brent found that the distance around a circle was a little over 3 times the distance through the circle. Do you think it makes a difference what size circle he measured? Let's find out."

## VII. Management Suggestions

- For greatest degree of accuracy, measure to the nearest millimeter.
- Review correct reading and writing of decimal numbers to the tenths place.
- Estimated time: one 45 minute class period.

## VIII. Procedure

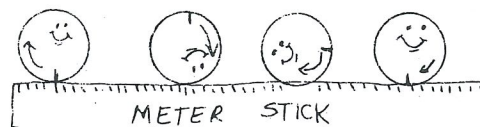
- Measure the diameter of each circular object (the longest distance from edge to edge).  
 One way to measure diameter:



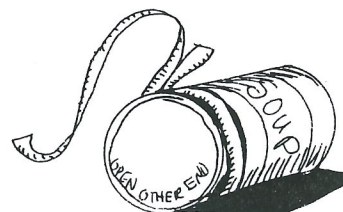
- Record the diameter of each object in appropriate table on Student Worksheet.
- Measure the circumference of each circular object. The circumference is the distance around the circle.

One way to measure circumference is:

- Wrap a tape measure or string around the cylinder near the base. Then measure the string or tape.



- Or you may roll the cylinder one complete revolution along a meter stick or meter tape.



- Record the circumference for each object in the table on the Student Worksheet.
- Complete the Table:  
 Column C—Express each ratio as a fraction or decimal ratio.

Example:  $\frac{C}{D}$  or C:D

Column D—Divide each circumference by its diameter and record the answer in Column D.

## IX. What the Students Will Do

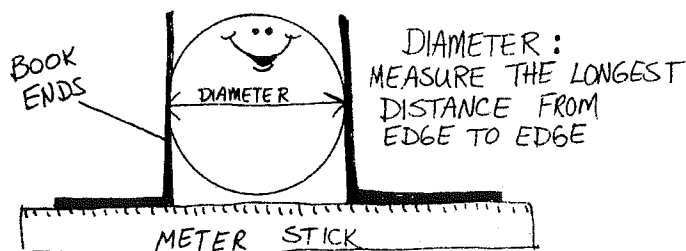
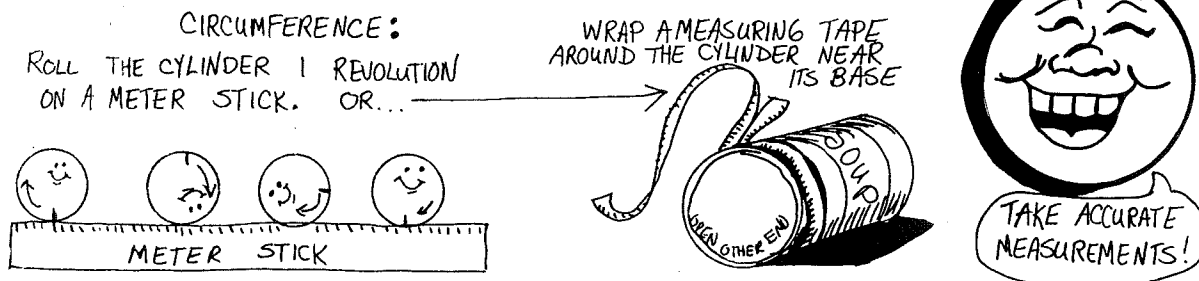
- Measure and record the circumference and diameter of various objects according to the above procedure.
- Record the relationship of circumference to diameter and compute the decimal equivalents.
- Discover the "constancy" of the relationship of circumference to diameter.

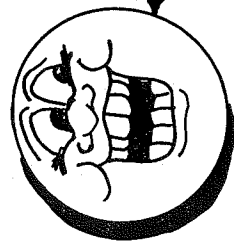
## X. Discussion

1. *Observe:* What did you notice about the relationship between circumference and diameter in Column D? If you know the circumference of a circle, can you find the diameter? How? Can you find the circumference if you know the diameter? how?
2. What if you put the diameters and the circumferences measured into a graph? What would it look like? Use centimeter graph paper and try it!

## XI. Extension

1. Introduce 3 unknown cylinders: A, B, and C. Give the diameters of A and B and the circumference of C. Can you find the missing figures?
2. Organize and record your data into a table. You may wish to draw a picture or cartoon also.



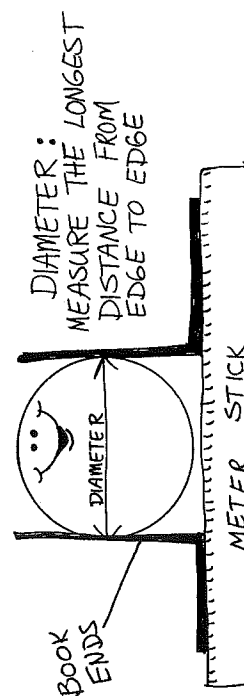


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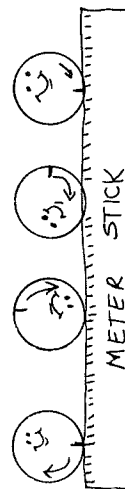
NAME \_\_\_\_\_

HOW DOES THE CIRCUMFERENCE OF ANY CIRCLE COMPARE WITH ITS DIAMETER?

CYLINDER	DIAMETER	CIRCUMFERENCE	RATIO = $\frac{\text{CIRCUMFERENCE}}{\text{DIAMETER}}$	DECIMAL CIRCUMFERENCE $\div$ DIAMETER
1 lb. COFFEE CAN				
2 lb. COFFEE CAN				
JUICE CAN				
SOUP CAN				
WHEEL				
WASTE BASKET				



CIRCUMFERENCE:  
ROLL THE CYLINDER 1 REVOLUTION  
ON A METER STICK. OR...



WRAP A MEASURING TAPE  
AROUND THE CYLINDER NEAR  
ITS BASE

