

Math Magic: Exploring Circles via Measurement

Issue #19: March 2020 multi-concept activity-worksheet for 5-8 graders [An Index of All Math Magic Activities](#)

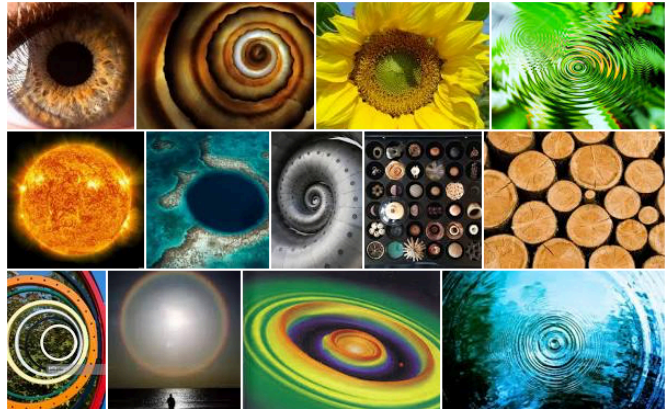
ACTIVITY SYNOPSIS: Students will be given a worksheet and data record sheet directing them to measure, record, and compare diameters and circumferences of various physical circular shapes, such as a penny, the lid of a jar, etc.

VOCABULARY USED by teacher varies with age and ability of the individual or group: circle, sphere, diameter (d), radius (r), ratio, circumference (C), centimeter (cm), millimeter (mm) ratio, inch, pi (π) (option-p on a mac), numerator, denominator, algorithm, data

SKILLS USED AND CONCEPTS TO BE INTRODUCED OR REVIEWED:

- measurement of length in mm, and in cm
- OPTIONAL:** measurement of length in inch measure to demonstrate why metric is easier.
- discovering methods to measure the circumference of a circle given the materials presented in the worksheet or available in the classroom
- ratio as a division problem of the numerator (top) divided by the denominator (bottom)
- and how c) above is done with one algorithm (method) and how it is entered into a calculator
- how to round to nearest tenths, hundredths
- recording data of d, C, and C/d on a chart
- analyzing data and drawing conclusions of about the constant value which is true of all ratios of $C/d = \text{approx. } 3$
- hypothesizing why there is some variance in the results...ie., measurement is not exact
- MORE ADVANCED:** have students plot their results on a graph

Circles in nature



Designs made with a compass and straightedge



The formula behind the Exploration Activity.

$$\pi = \frac{C}{D}$$



<—Qué está?

[LINK TO pdf of WORK/DATA RECORD SHEET TO BE USED BY STUDENTS.](#)