RAFT IDEAS

Topics: Geometry, Circles, Irrational Numbers

Materials List

- ✓ A variety of circular objects of varying diameters
- ✓ Cord, nylon string, coated wire, or other non-stretchy measuring device
- ✓ Metric ruler
- ✓ Optional: metric measuring tapes (if available)

This activity can be used to teach:
Common Core Math Standards:

- Area & Circumference of Circle (Grade 7, Geometry, 4)
- Irrational numbers (Grade 8, Number System, 1 & 2)
- Problem Solving and Reasoning (Mathematical Practices Grades 4-12)

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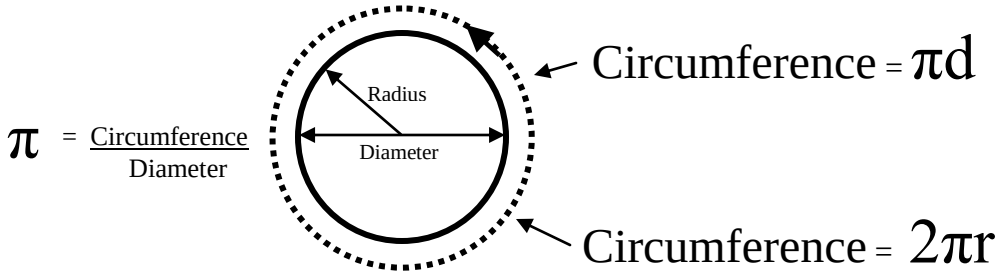
Finding Pi

Discovering a Famous Ratio by Measuring Circles



What better way of understanding Pi (π) than discovering it for yourself? In this activity students measure a variety of circular objects, derive the ratio for themselves, and then own the concept.

To Do and Notice

1. Review the terms "diameter" and "circumference" with students and model how to find these measurements using cord and ruler or measuring tape. Remind students that their measurements should be as accurate as possible.
2. Review metric measurement, if required.
3. Provide students with a variety of circular objects and measuring materials.
4. Allow students time to measure circumference and diameter of at least 10 objects.
5. Next, instruct students to calculate Pi (π) by dividing circumference by diameter, and record and compare results. Allow time for classroom discussion and sharing of findings.

The Math Behind the Activity

Any perfect circle's circumference divided by its diameter is a constant ratio represented by the Greek letter Pi (π). As an irrational number, Pi (π) continues ad infinitum (forever) and has no pattern. Many ancient civilizations (Greeks, Egyptians, Babylonians, Chinese) knew of Pi (π), but had only derived the first few digits. Pi has now been calculated to billions of decimal places.
The first 141 digits of Pi (π) are: **3.**1415926535 8979323846 2643383279 5028841971 6939937510 5820974944 5923078164 0628620899 8628034825 3421170679 8214808651 3282306647 0938446095 5058223172

Taking it Further

For a fun representation of the number Pi (π), have students create a Pi necklace. Directions are available in the RAFT Idea Sheet ***Wearable Pi***.

Web Resources (Visit www.raft.net/raft-idea?isid=150 for more resources!)

- For more on the history of Pi (π), the first 10,000 digits, and more information visit: http://www.joyofpi.com/ and http://mathworld.wolfram.com/Pi.html
- Teacher designed math courses from the New Jersey Center for Teaching & Learning – https://njctl.org/courses/math

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