

STEM Kit!

Compliments of Fairport Robotics!

This month's kit:

Pi Day!



In this kit, you will learn about the number pi.

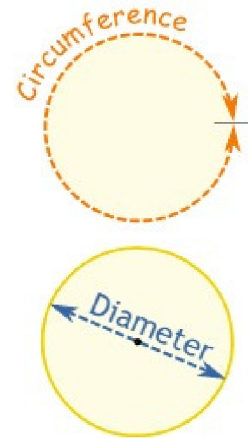
Materials:

- Glow stick
- Pipe cleaner
- Yarn

Have you ever heard of *pi*? No, not the food *pie*, but the number pi. Pi is one of the most famous numbers in math. Its symbol looks like this:

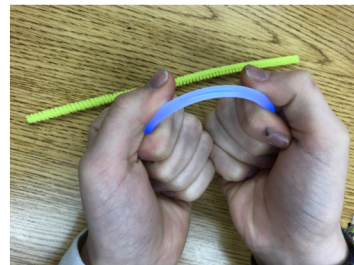
π .

Pi is something called a ratio. A ratio is a way of comparing two different numbers by dividing them. Pi compares the distance around the outside of a circle (called the circumference) with the distance across the middle of the same circle (called the diameter).

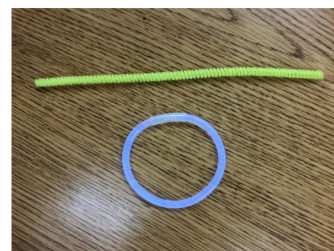


Directions:

1. First, lay your pipe cleaner next to 2. Bend your glow stick until your glow stick. See how they are you hear snapping sounds and then the same length? shake it up so it glows.

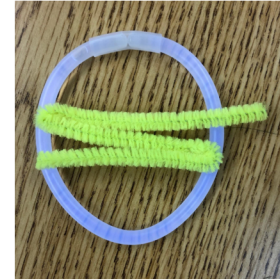


3. Turn your glow stick into a circle by attaching both ends together using your connector.



4. Your glow stick is now the circumference of a circle! Since your pipe cleaner is the same length as your circle's circumference, let's try to figure out the ratio of the circumference to the diameter. How many times do you think your pipe cleaner will fit across the middle of your circle? Make a guess, then measure to find out!

5. Your pipe cleaner reaches across your circle a bit more than three times. That's because the ratio of the circumference of a circle to its diameter is about 3.14 – pi! The circumference fits across the diameter a bit more than three times.



6. Now, using your yarn, try the same thing on other circles you find around your house, like cups or food cans. What did you find? They all have the same ratio! The length around the circle can always go across the middle three times, plus a little extra.

Something else is special about the number pi. This might sound crazy, but pi never ends! It goes on forever and ever to the right of its decimal point! The first few digits of pi are:

$$\pi = 3.1415926535897932\dots$$

And then it keeps going! In math, there are actually a lot of numbers that never end to the right of their decimal points. These numbers are called *irrational*.

Why is pi always the same?

Pi is always the same because circles always look the same, so the ratio of their circumference to their diameter is always the same.

Where is pi used?

Pi is used in tons of math equations, which are applied to engineering, physics, and even astronomy (the science of outer space)! Pi is everywhere!

If you enjoyed this STEM activity and love to be creative, consider joining a Fairport FIRST Lego League team or Fairport Robotics Team 578, Red Raider Robotics! For more information, email us at info@fairportrobotics.org!



Check out more Pi Day activities at fairportrobotics.org