

Pi Day Celebration – March 15

As some of you are aware, March 14 is Pi Day (3.14) and Albert Einstein's Birthday. Since Pi day falls on a satellite home day, we will be celebrating Pi Day at lunch on March 15. I will have a few pi activities available for the students to explore during lunch. Also, **the Rhetoric students will be presenting their Conics Sculpture at 12:00**. Please plan to join us for their quick presentation.

You might want to encourage your parents to help their students celebrate by sending a round item in their lunch. If you would like to incorporate pi day into your lesson plans here are a few ideas.

- As a class or grade, create a pi chain with loops of construction paper, using a different color for each of the ten digits. One school created a chain of 75,000 loops!
- Jewelry (Beads) - Make a chain of beads, where each number is represented by a different color. Students can make personal bracelets, or work on one ultra-long strand as a class.,



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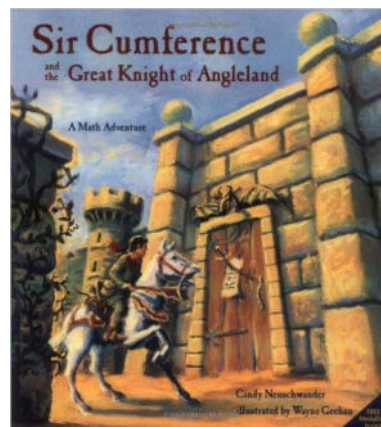
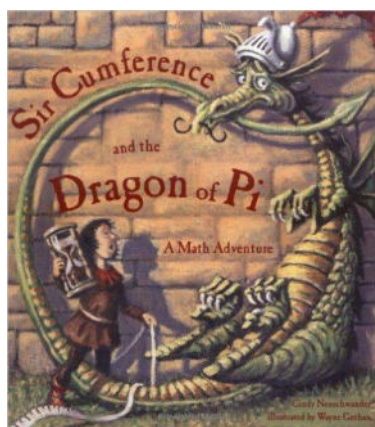
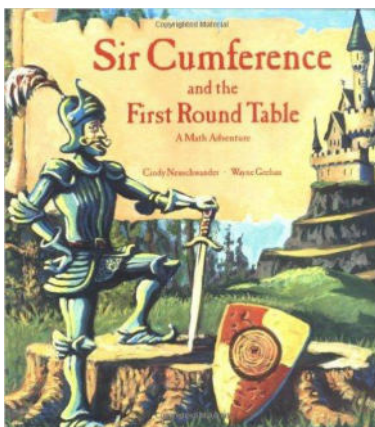
- Use the first 20 digits in pi and write a story using the numbers to determine word length, so you will use a 3-letter word then a 1-letter word then a 4 letter word and keep going. In the illustration in the top right, students wrote the poem on

their paper chain.

- Visualize pi by creating a bar graph or city scape art work
- Read a "Sir Cumference" story. I have the three pictured and they will be available for the teachers to borrow. Please coordinate times with me so every class may have a chance to read them. OR we can do a group reading at lunch.



Looking forward to celebrating with you. Hope these ideas bring some ins π ration! ~Mrs. Siddall



Visualizing Pi

The decimal representation of Pi has been computed to more than a trillion digits (10^{12}).

3.14

Pi can be estimated by dividing the circumference of any circle by its diameter.



6.4 billion digits

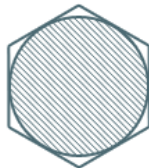
3.1415926535897932384626433832
79502884197169399375105820974
9445923078164062862089986280
Pi has about 6.4 billion known digits which would take a person roughly 133 years to recite without stopping. The world record holder for the most memorized digits of Pi took nine hours to recite over 44,000 digits of Pi.

Ancient Egyptian, Babylonian, Indian, and Greek mathematicians all knew the ratio of circumference to diameter of a circle was slightly more than 3.

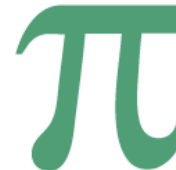
The ratio of the Great Pyramid of Giza's height to perimeter comes out to approximately 2π .



The earliest known reference to Pi occurs in an Egyptian papyrus scroll, written around 1650 BC by a scribe named Ahmes.



Pi (which is a letter in the Greek alphabet) was discovered by a Greek mathematician named Archimedes. He stated the Pi is a number between $3 \frac{10}{71}$ and $3 \frac{1}{7}$. He found it by taking a polygon with 96 sides and inscribing a circle inside the polygon. That was Archimedes' concept of pi.



All the digits of Pi can never be fully known.



It took Yasumasa Kanada, a professor at the University of Tokyo, approximately 116 hours to compute **6,442,450,000** decimal places of Pi on a computer.

The decimal rep of Pi truncated to 11 digits is accurate enough to estimate the circumference of any circle that fits inside the earth within an error of less than one millimeter.

There is no zero in the first 31 digits of Pi.

At 39 digits Pi can estimate the circumference of any circle within the observable universe with precision comparable to the radius of a hydrogen atom.

3.1415926535 8 9793238462643383279 5 0288419 7 16939937510582097494459230781
 64062862089986280348253421170679821480865132823066470938446095505822317
 2535940812848111745028410270193852110555964462294895493038196442881097566
 593344612847564823378678316527120190914564856692346034861045432664821339
 360726024914127372458700660631558817488152092096282925409171536436789259
 03600113305305488204665213841469519415116094330572703657595919530921861173
 819326117931051185480744623799627495673518857527248912279381830119491298336
 733624406566430860213949463952247371907021798609437027705392171762931767
 5238467481846766940513200056812714526356082778577134275778960917363717872
 1468440901224953430146549585371050792279689258923542019956112129021960864
 03441815981362977477130996051870721134 9 9999983729780499510597317328160963
 1859502445945534690830264252230825334468503526193118817101000313783875288

At position 763 there are six nines in a row. This is known as the Feynman Point.

No simple base-10 pattern in the digits of Pi has ever been found.

3/14

Pi day is celebrated on March 14 at the Exploratorium in San Francisco.



Circumference Area

$$\pi d \quad \pi r^2$$

or

$$2\pi r$$

Surface Area

$$2\pi rh + 2\pi r^2$$

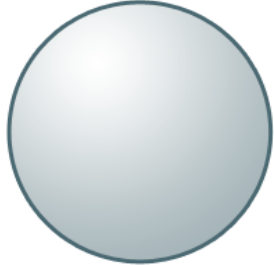
Volume

$$\pi r^2 h$$

The first to use Pi definitely to stand for the ratio of circumference to diameter was an English writer William Jones. He used it to symbolize the word "periphery." Euler adopted the symbol in 1737, and since that time it has been in general use.

2 Pi in radians form is 360 degrees.

Therefore Pi radians is 180 degrees and 1/2 Pi radians is 90 degrees.



Surface Area

$$4\pi r^2$$

Volume

$$(4/3)\pi r^3$$

Surface Area

$$\pi r \sqrt{(r^2 + h^2)} + \pi r^2$$

Volume

$$(1/3)\pi r^2 h$$



Sources:
http://facts.randomhistory.com/2009/07/03_pi.html
<http://ualr.edu/lasmoller/pi.html>
<http://www.roma.unisa.edu.au/07305/symbols.htm#Pi>
<http://mathforum.org/library/drmath/view/57543.html>