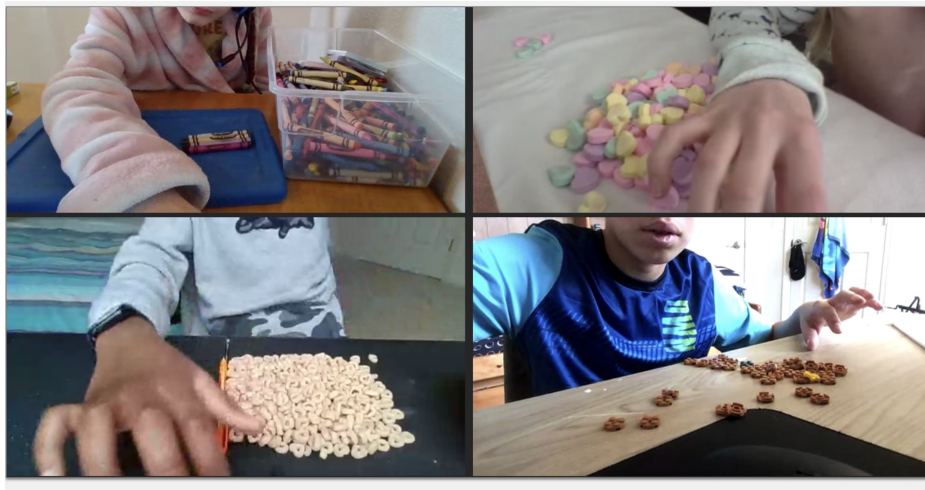


OUTREACH

SPRING 2021

Harry Bray
Susan Tarabnisi
Aidan Donahue



students reached: 1,114 (compares to Fall 2019)

total events: 35

activities run: You can count on Monsters
Really Big Numbers
Playground of the Infinite
Your teachers are lying
* New * Irrational Thinking

grade levels: 31 activities 3-6th grade!

tweets about MEGIL: at least 2!

They learned:

- $\infty - \infty = 0$ or ∞ or 1 or anything!!

- 1 bagel can become
2 bagels
(if you're careful)



- π is absolutely not equal to 3.14

We learned:

- Water Bears (Tardigrades)
can live in space

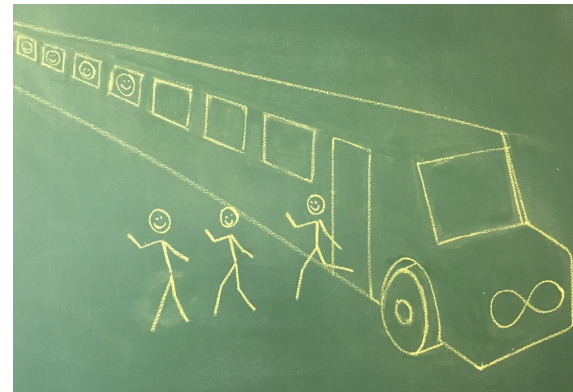


- The Sloan Great Wall
is a wall of galaxies



- On Wednesday March 10, lunch did not happen
when it was supposed to.

- Kids remember us!



Here's how we presented $\sqrt{2}$ is irrational

Warm-up

Can $\sqrt{2} = \frac{4}{3}$?

If it did, then $\frac{4}{3} \times \frac{4}{3} = \frac{16}{9} = 2$

NOPE

What about $\sqrt{2} = \frac{7}{5}$?

then $\frac{7}{5} \times \frac{7}{5} = \frac{49}{25} = 2$

ALSO NO

$\sqrt{2}$ is irrational

To show $\sqrt{2}$ is irrational, we would have to check every fraction.

Wait, we don't have to check $\frac{8}{6}$ because it equals $\frac{4}{3}$.

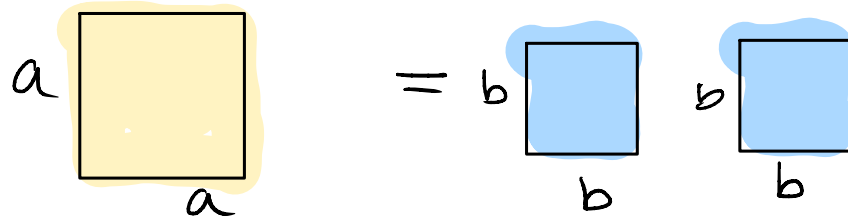
So we focus on reduced fractions.

This can be done, with a proof.

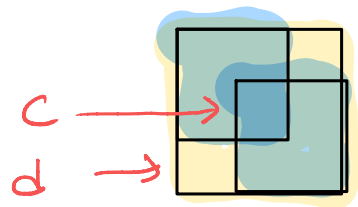
$\sqrt{2}$ is irrational

Proof * $\sqrt{2} = \frac{a}{b}$ reduced $\Rightarrow 2b^2 = a^2$

\Rightarrow



\Rightarrow



$$2d^2 = c^2$$

\Rightarrow

$$\sqrt{2} = \frac{c}{d}$$

so $\frac{a}{b}$ was not reduced,
a contradiction. \square

* we did not ultimately have time

Thank you!