Creating the Opportunity for ALL Students to Become Confident Mathematicians

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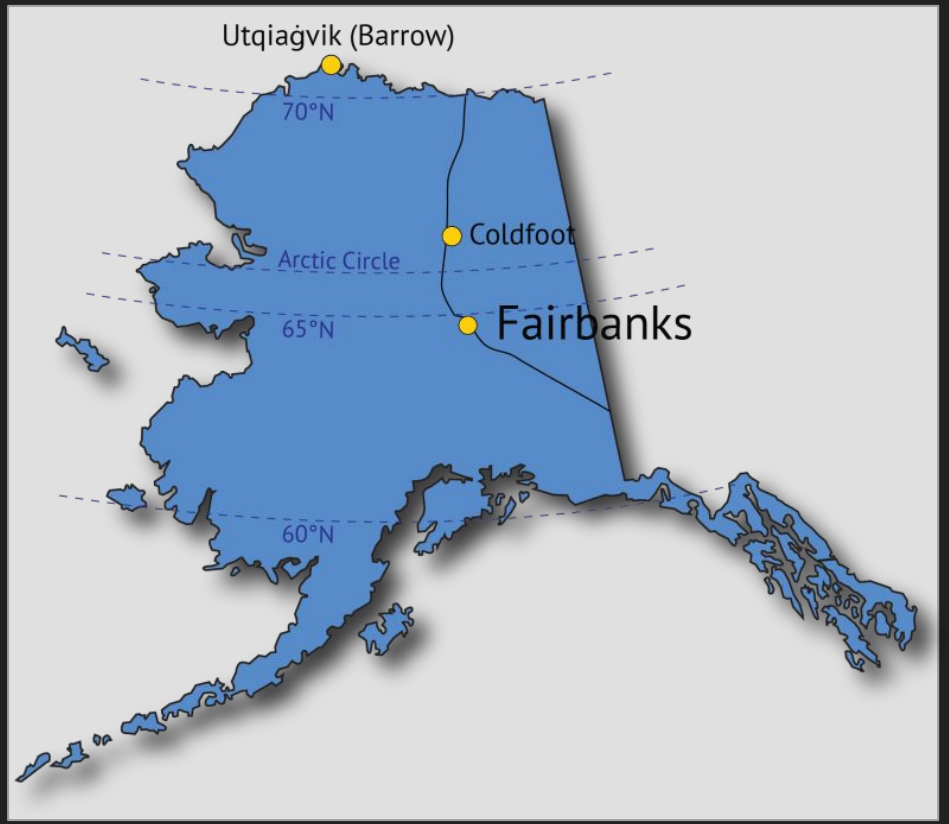
Where Are We From

Summer Math Camp

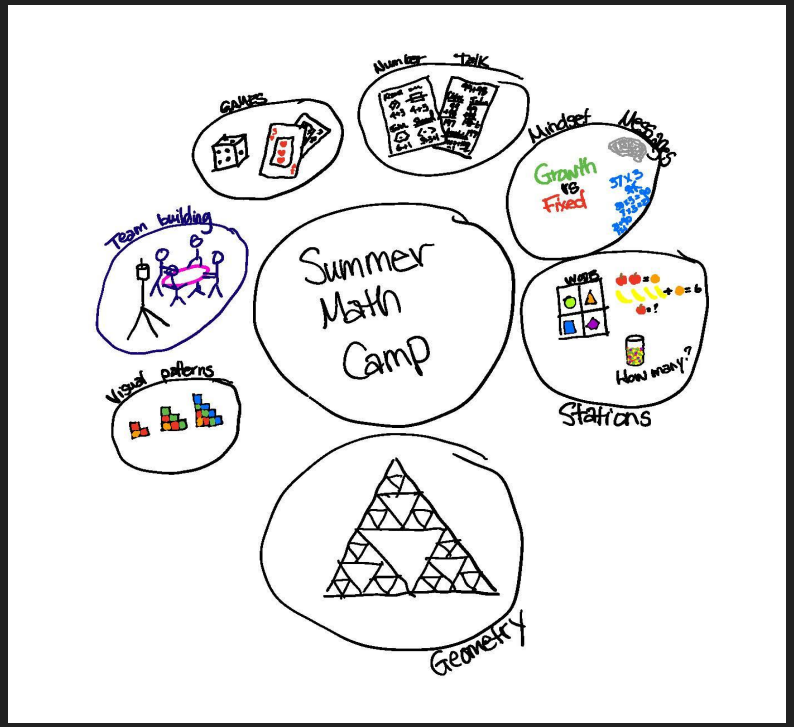
Instructional Routines & Activities

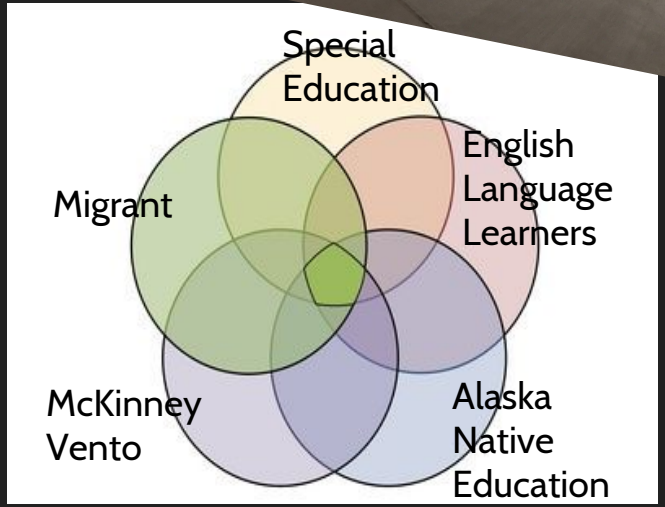
Q & A

Where Are We From?



Summer Math Camp (2016-2019)





Structure

Routine

Do the routine as a group

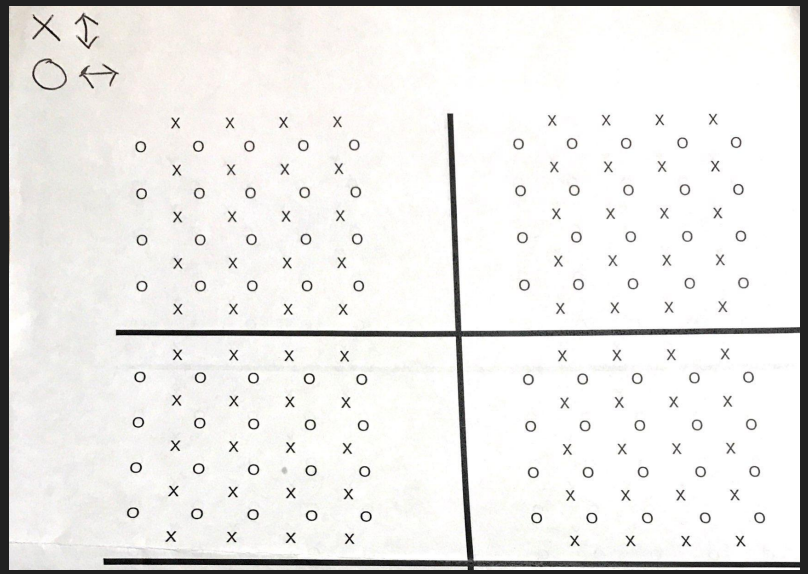
Debrief the routine

Share resources of where to find the routine

Share hashtags & people to follow on Twitter for this routine

Games

Games - Bridges



One player is O and one player is X.

Objective: To make a bridge that connects the left side to right side (O) or top to bottom (X).

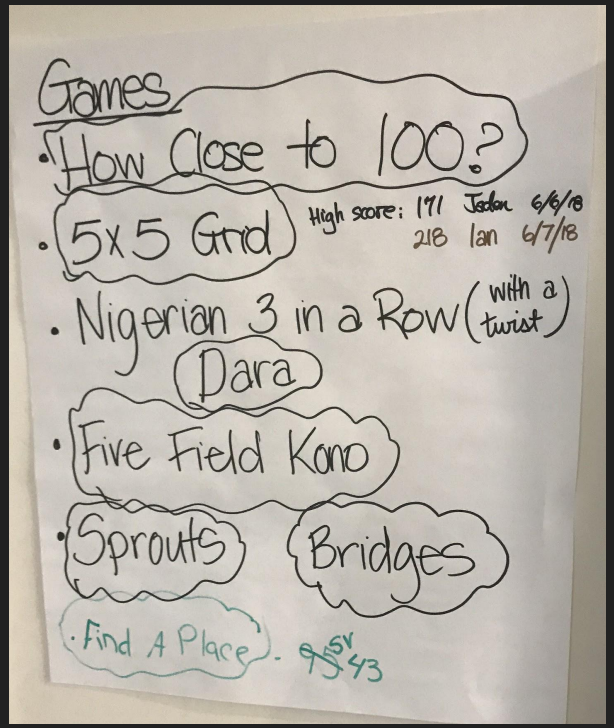
Rules:

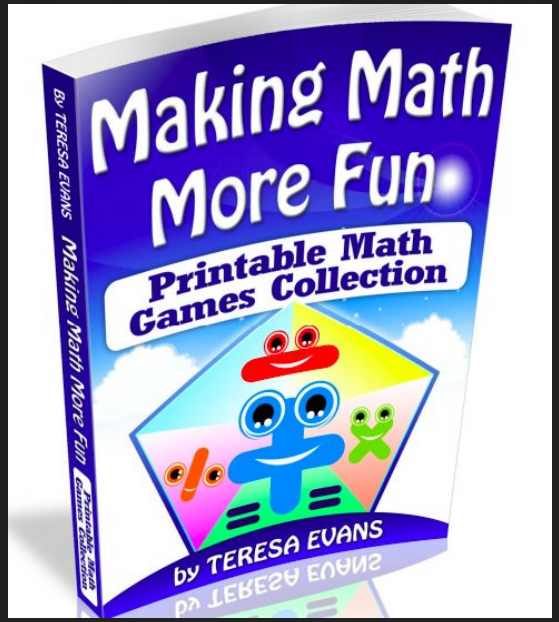
- O can only connect to O vertically or horizontally and X can only connect to X vertically or horizontally.
- You cannot cross each other's paths.

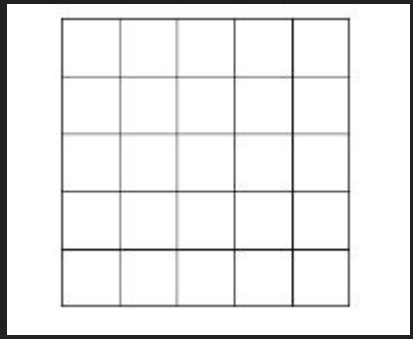
How do Games help develop a growth mindset?

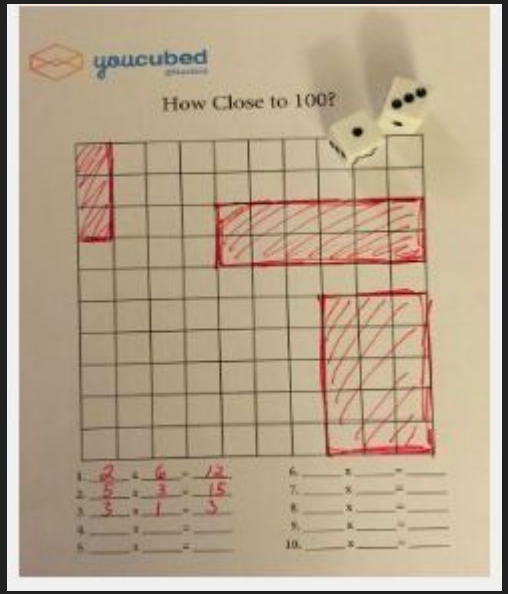
How do Games help develop mathematicians who are confident?

Where can you find more?





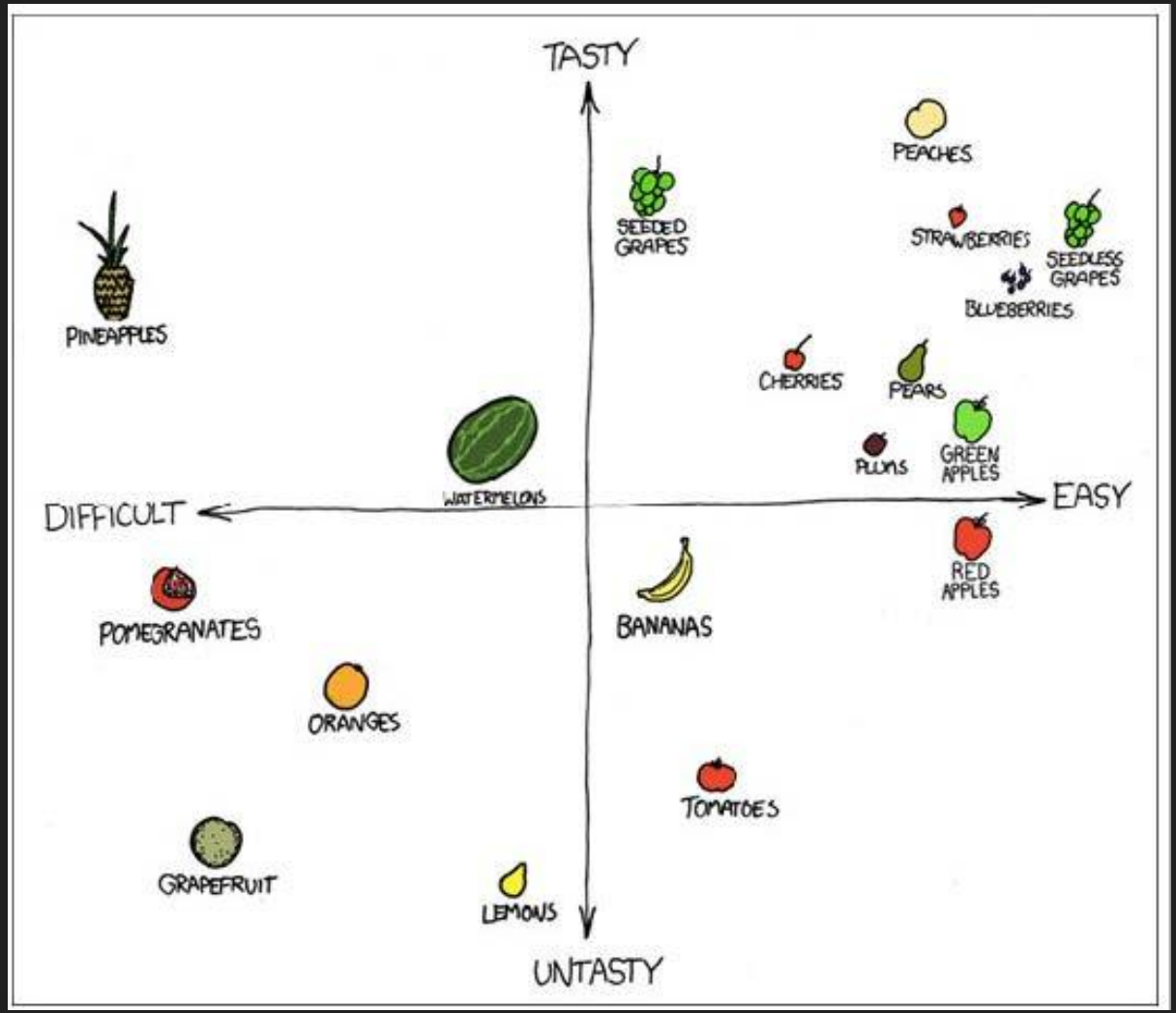




Notice & Wonder

What do you notice?

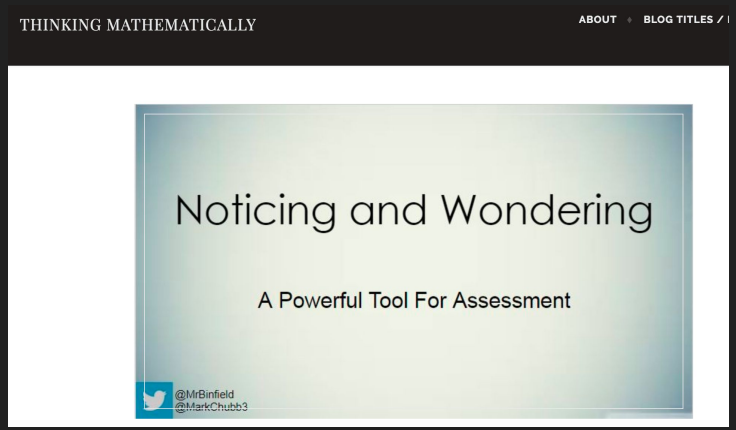
What do you wonder?

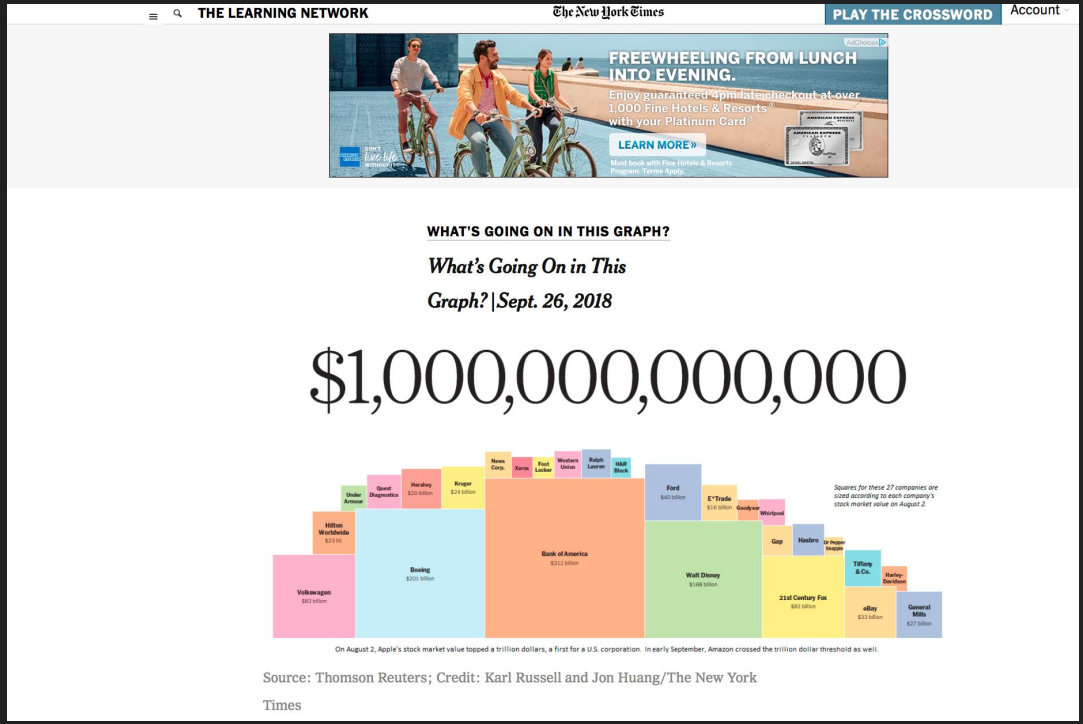


How does Notice & Wonder help develop a growth mindset?

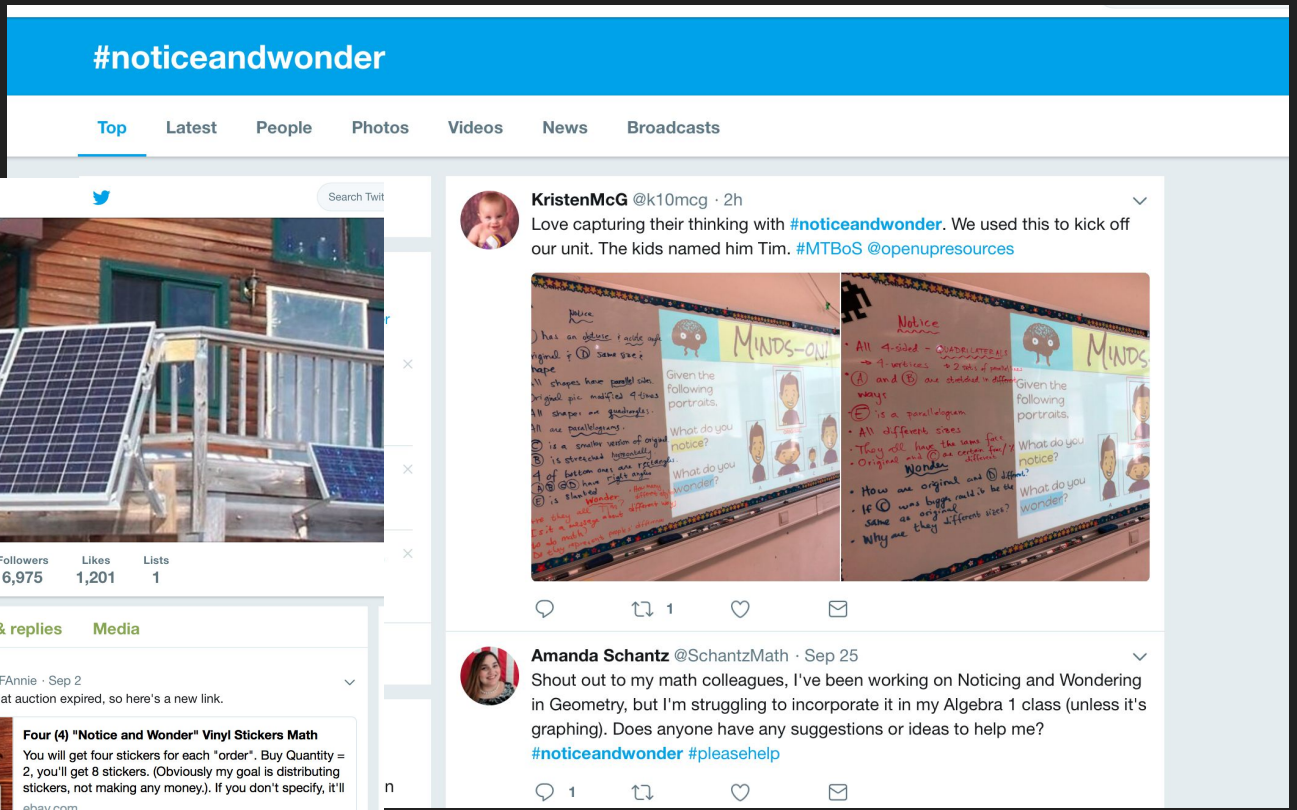
How does Notice & Wonder help develop mathematicians who are confident?

Where can you find more?



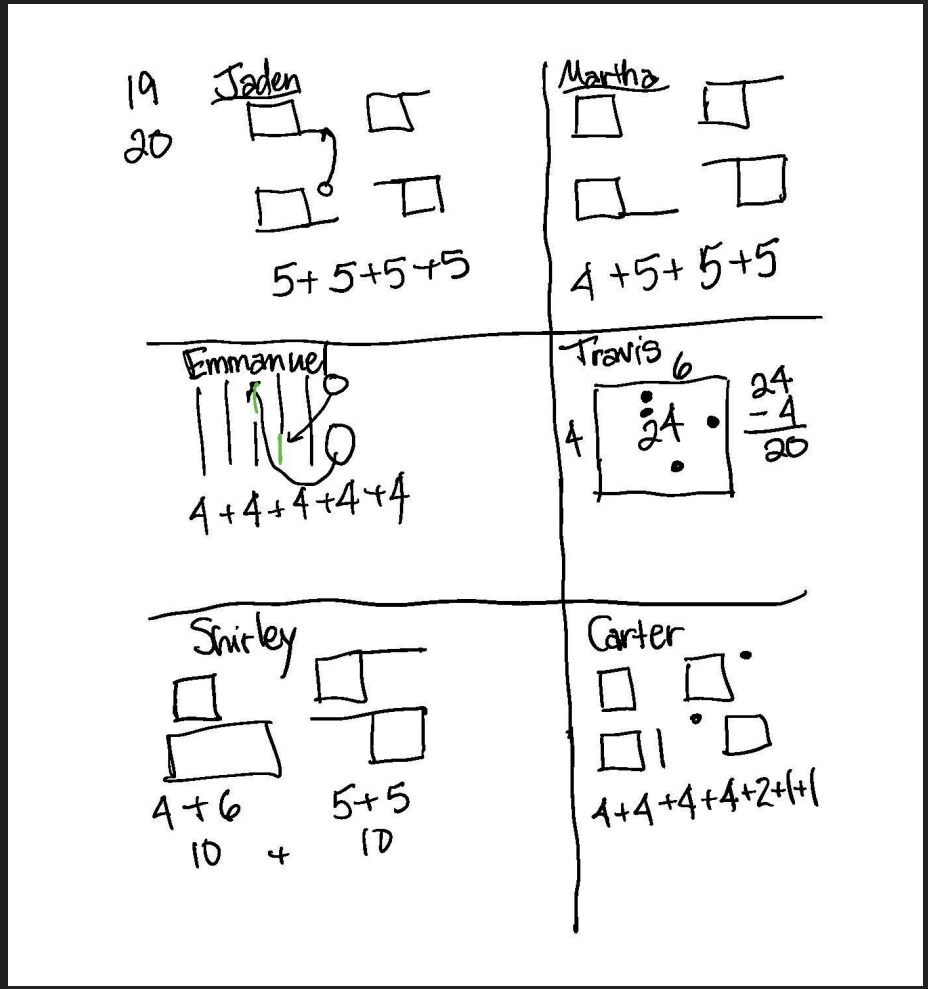


Where can you find more?



Number Talk Images/How Many?

Number Talk


19
20
Jaden
5+5+5+5
Martha
4+5+5+5
Emmanuel
4+4+4+4+4
Travis
6
4
24
24
-4
20
Shirley
4+6
10
+
5+5
10
Carter
4+4+4+4+2+1+1

How does Number Talk Images help develop a growth mindset?

How does Number Talk Images help develop mathematicians who are confident?

Where can you find more?

Where can you find more?

Team Building

Team Building - Create the Figure

Rules

1. Everyone in the group must have at least one hand on the rope at all times.

2. You cannot untie the rope.

3. You must use all of the rope for each shape.

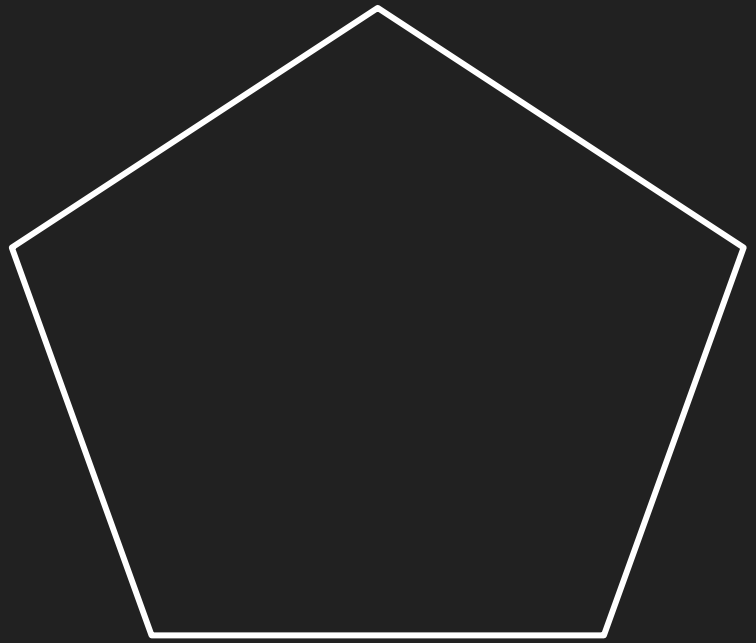
4. Convince the teacher that your shape is accurate.

Team Building - Create the Figure

Figure 1

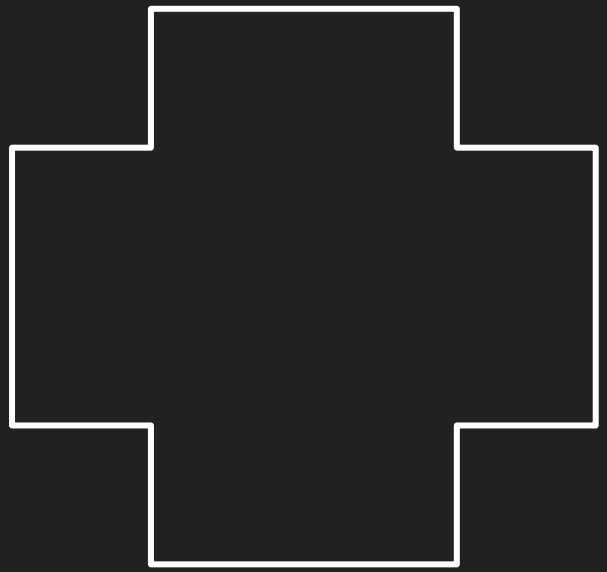
Team Building - Create the Figure

Figure 2



Team Building - Create the Figure

Figure 3



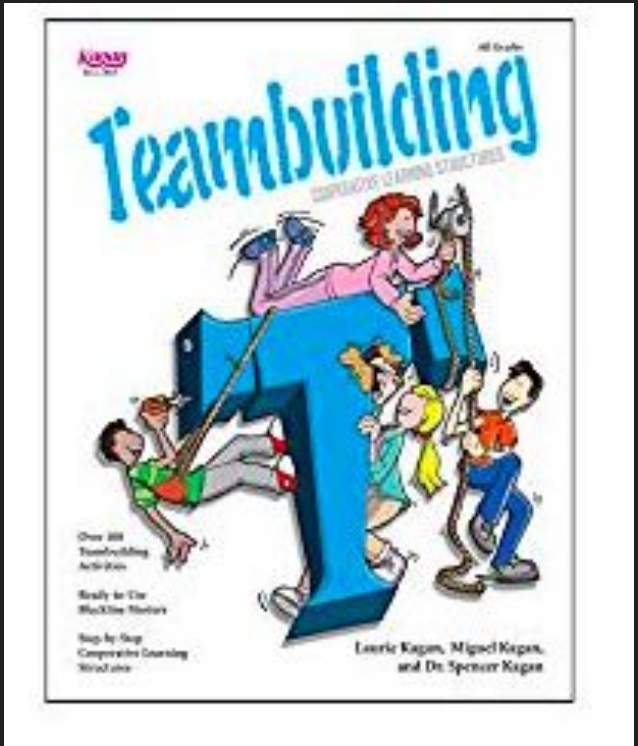
Team Building - Create the Figure

Figure 4

How does Team Building help develop a growth mindset?

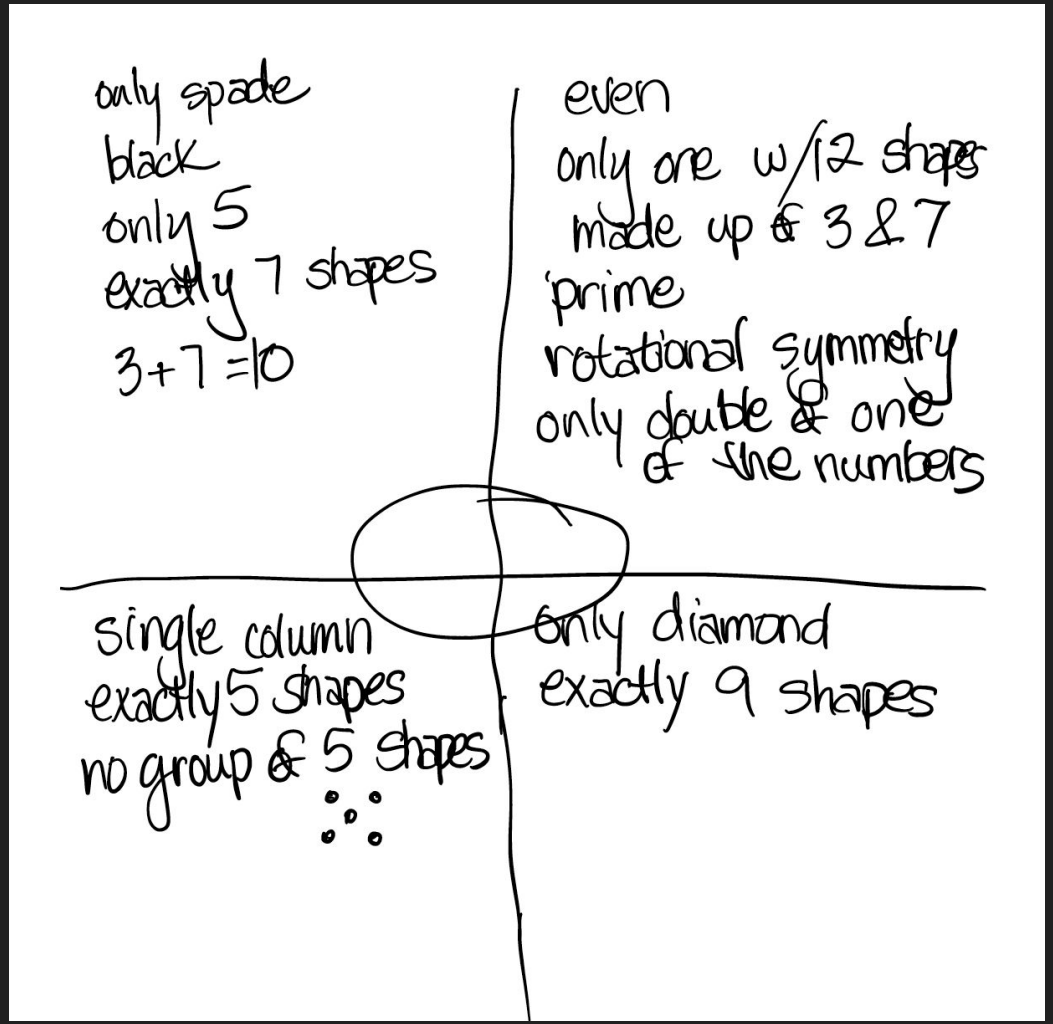
How does Team Building help develop mathematicians who are confident?

Where can you find more?



Which One Doesn't Belong

5
10
3
7


only spade
black
only 5
exactly 7 shapes
3+7=10
even
only one w/12 shapes
made up of 3 & 7
'prime
rotational symmetry
only double & one
of the numbers
single column
exactly 5 shapes
no group of 5 shapes
only diamond
exactly 9 shapes

How does Which One Doesn't Belong help develop a growth mindset?

How does Which One Doesn't Belong help develop mathematicians who are confident?

Where can you find more?

HOMEPAGE SHAPES NUMBERS GRAPHS INCOMPLETE SETS ABOUT

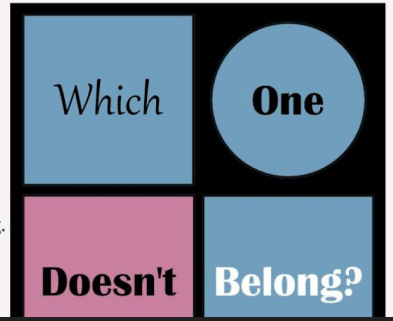
WHICH ONE DOESN'T BELONG?

THIS WEBSITE WAS INSPIRED BY THE MTBOS

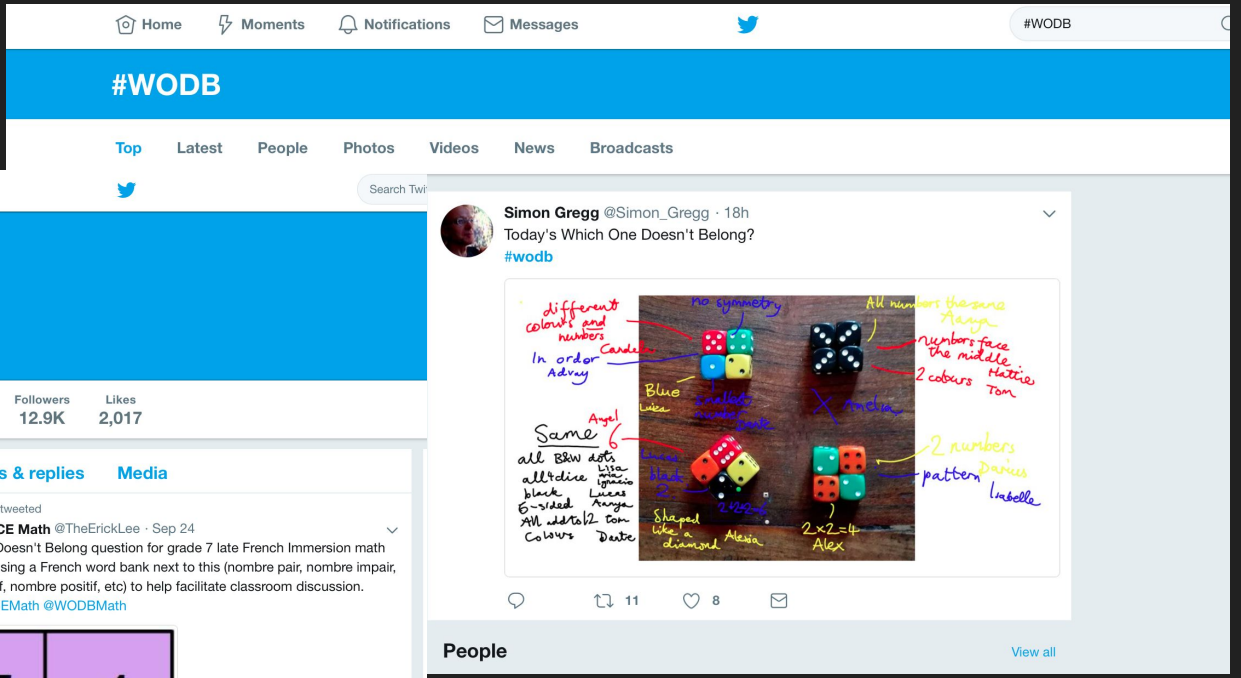
with special thanks to Christopher Danielson and his Which One Doesn't Belong - A Shapes Book.

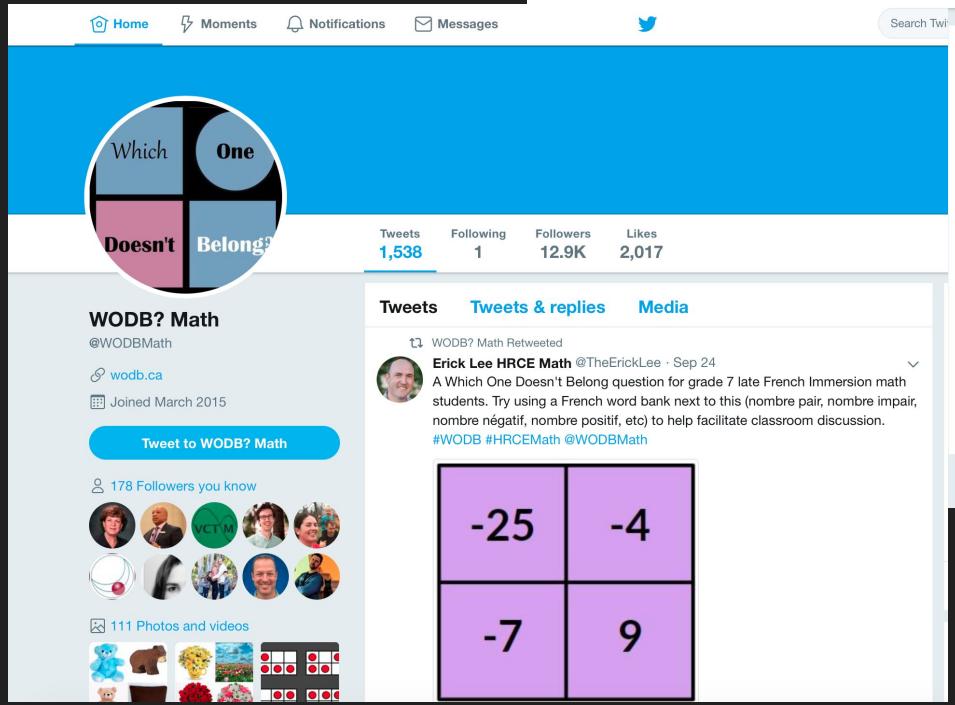
This is **Which One Doesn't Belong?**, a website dedicated to providing thought-provoking puzzles for math teachers and students alike. There are no answers provided as there are many different, correct ways of choosing which one doesn't belong.

Enjoy!



Where can you find more?





Desmos Polygraph

Polygraph: Shape Bucket

by Melissa Paletta | 30-45 minutes | Introduction

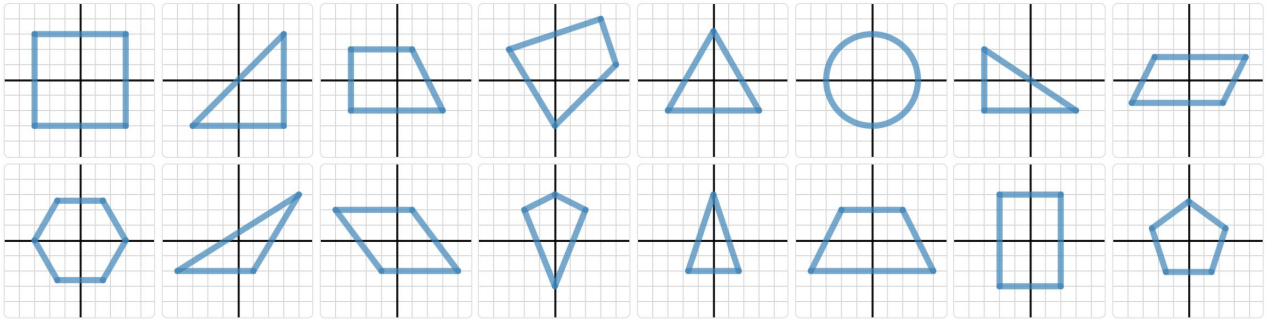
Edited with love by Desmos

Mobile Tablet Laptop

This Custom Polygraph is designed to spark vocabulary-rich conversations about geometric figures, including polygons and a circle. Key vocabulary that may appear in student questions includes: side, vertex/vertices, angle, scalene, regular, isosceles, equilateral, acute, right, obtuse, parallel, congruent, opposite, triangle, quadrilateral, square, rectangle, parallelogram, trapezoid, kite, pentagon, hexagon, and circle.

In the early rounds of the game, students may notice shapes from the list above, even though they may not use those words to describe them. That's where you can step in. After most students have played 2-3 games, consider taking a short break to discuss strategy, highlight effective questions, and encourage students in their use of increasingly precise academic language. Depending on their readiness, you might encourage your students to use the grid system to determine the length/slope of line segments in order to verify claims about congruent, parallel, and/or perpendicular sides. Then ask them to play several more games, putting that precise language to work.

The Cards



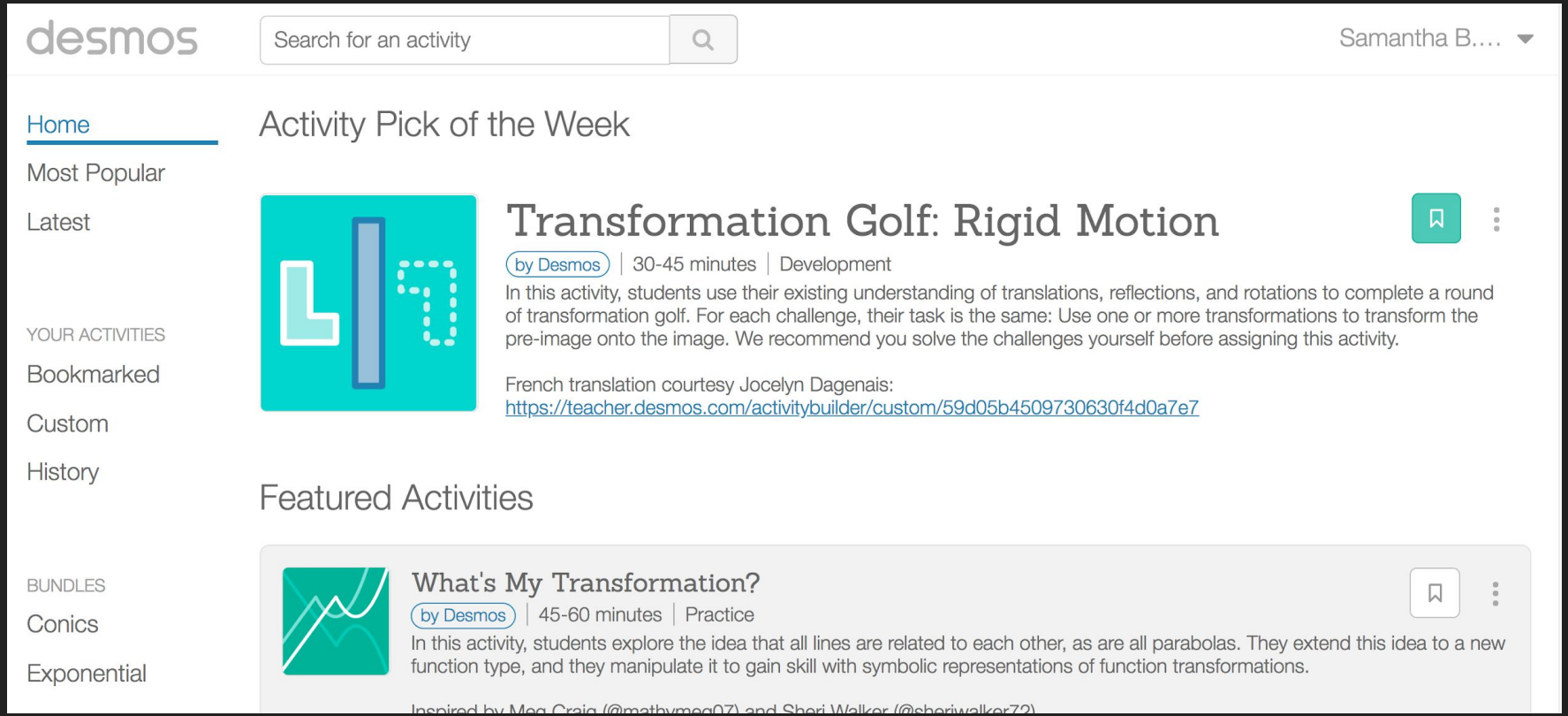
Polygraph code

Debrief

Growth mindset

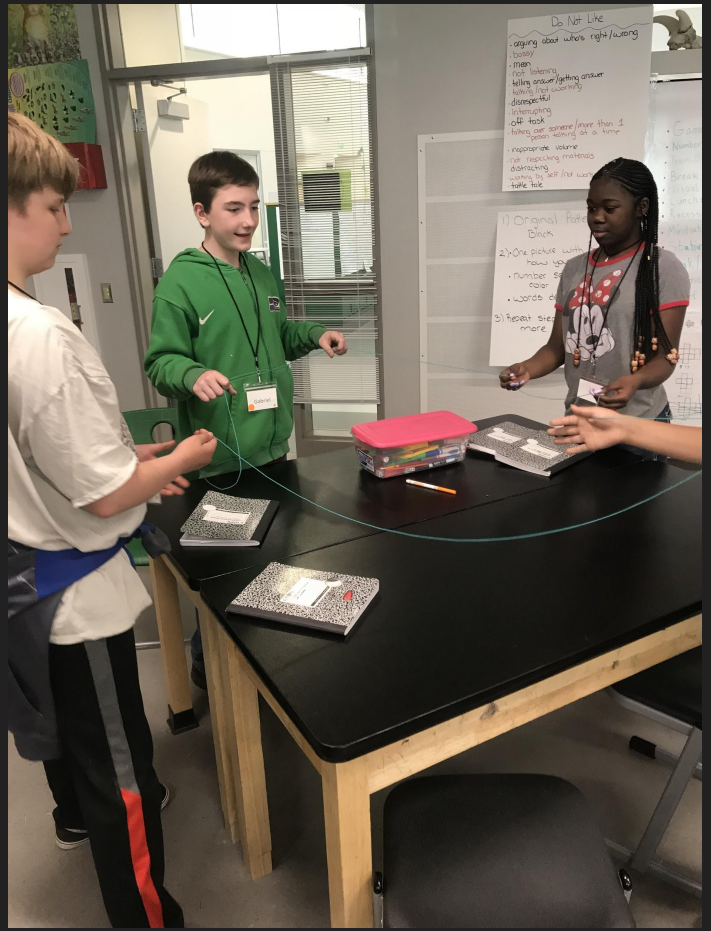
Developing confidence

Where can you find more?



Where can you find more?

What We Learned



Mindset Messages

You Can Learn Anything

Patterns

Believe in Yourself

Making Mistakes

Speed

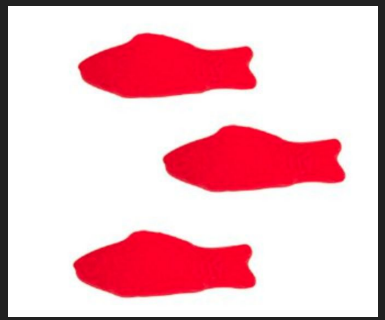
Perseverance

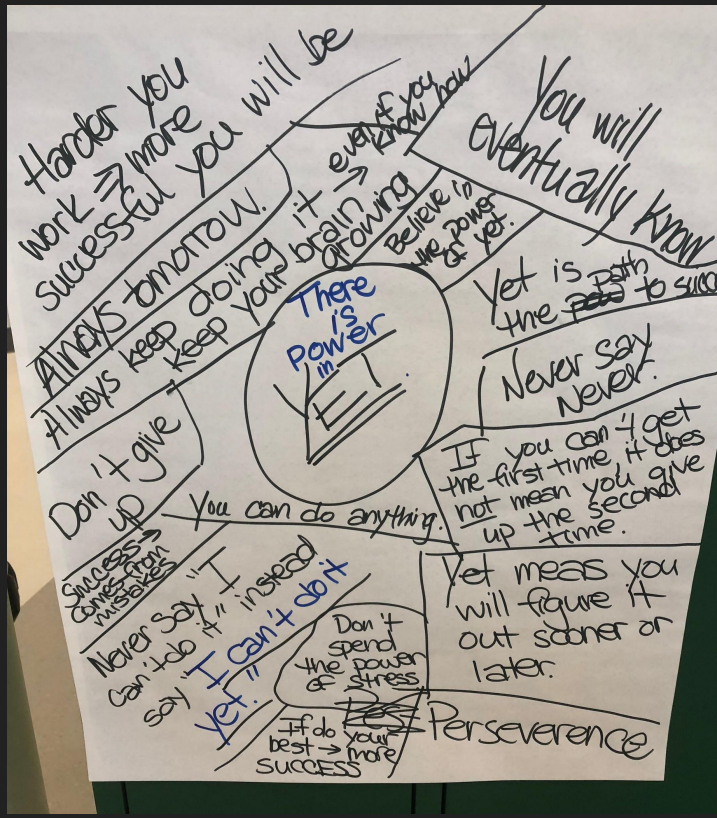
The Power of Yet

Try Everything

Get Back Up Again

Disney Mash Up





Questions??

Feedback for us & slides for you:

http://bit.ly/2019NCTMSanDiego

Thank you

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