Illustrative Math K-5

Version 1

Elementary Math Specialists

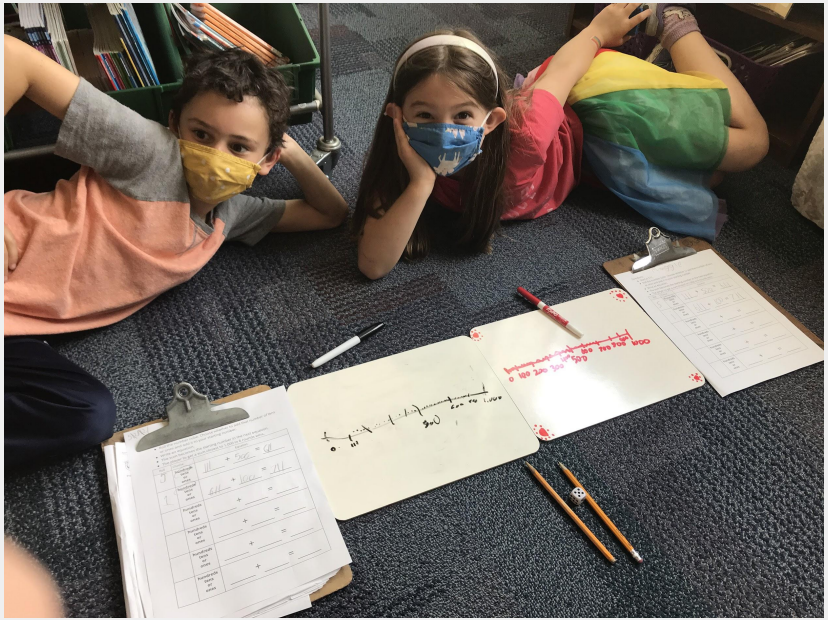
Lina Lopez-Ryan

Jen Spencer

Collaborators and thought partners empowering teachers and students in both schools

Why did we change math programs?

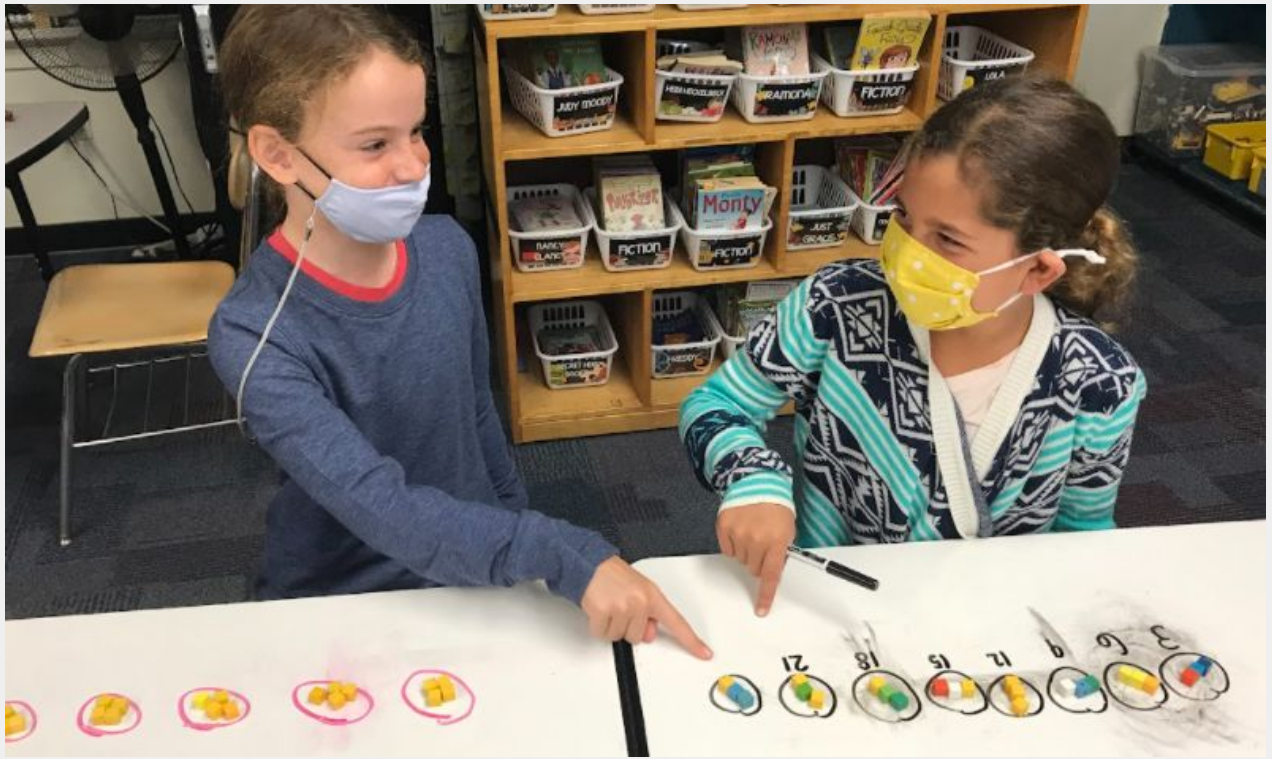
Why did we choose Illustrative Mathematics?



What core beliefs drive the program?

All students are capable learners of mathematics with worthwhile ideas and perspectives.

Students learn by doing, rather than by watching or being told what needs to be done.

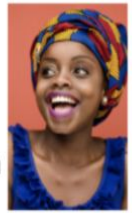


Instructional design supports equity and inclusion.

What do you notice? What do you wonder?

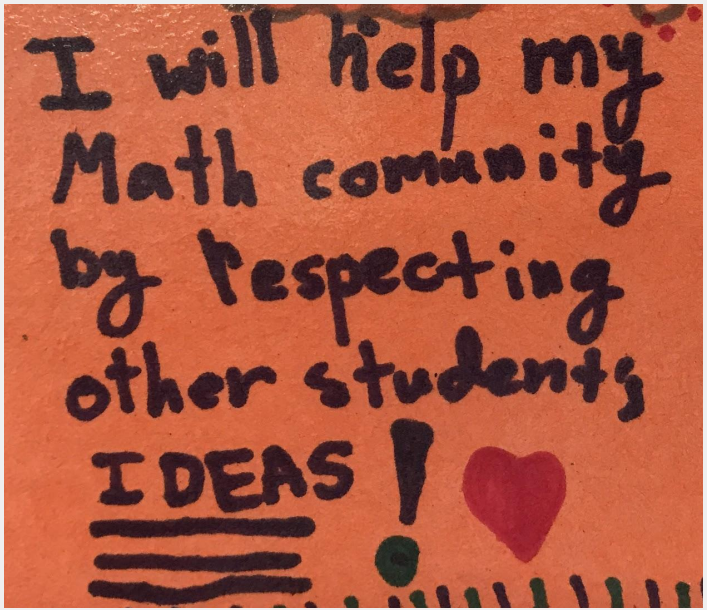
Grade 3 Unit 7, Activity: Using a Bundle

1. A bundle of African wax print fabric is 18 feet by 4 feet. How many square feet of cloth are on the bundle?
2. After buying a bundle of fabric, a 2 foot by 6 foot section is used to make a head wrap and a 7 foot by 4 foot section to make a lapa. The rest of the fabric is going to a tailor to make a top.

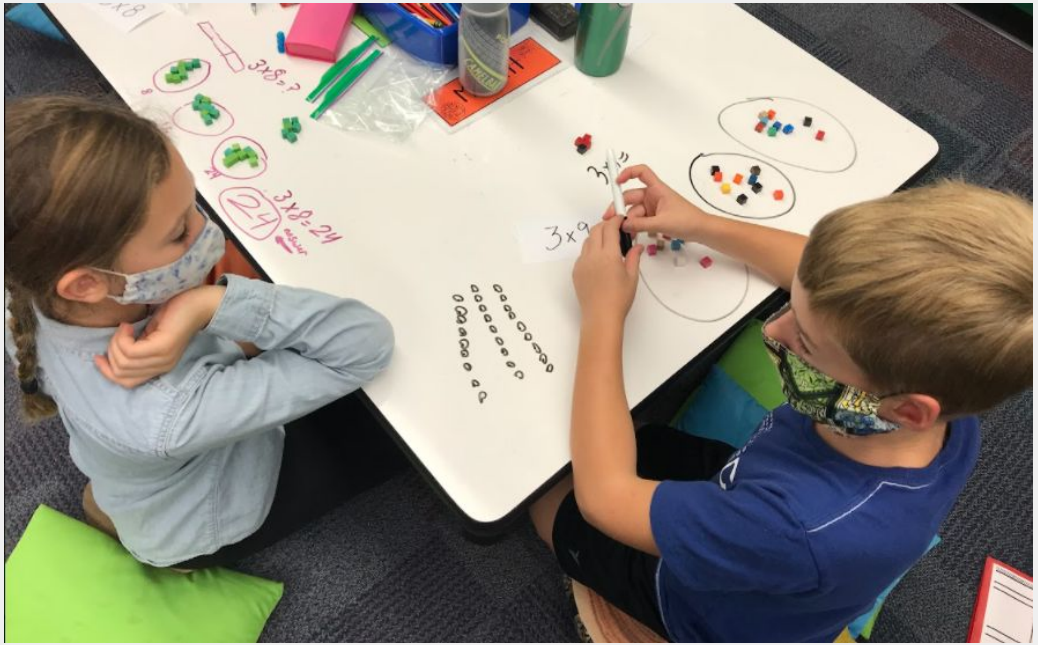


   a. How many square feet of fabric are going to the tailor for the top?
   b. How many feet of ribbon are needed to sew a ribbon around the edge of the fabric for the lapa?

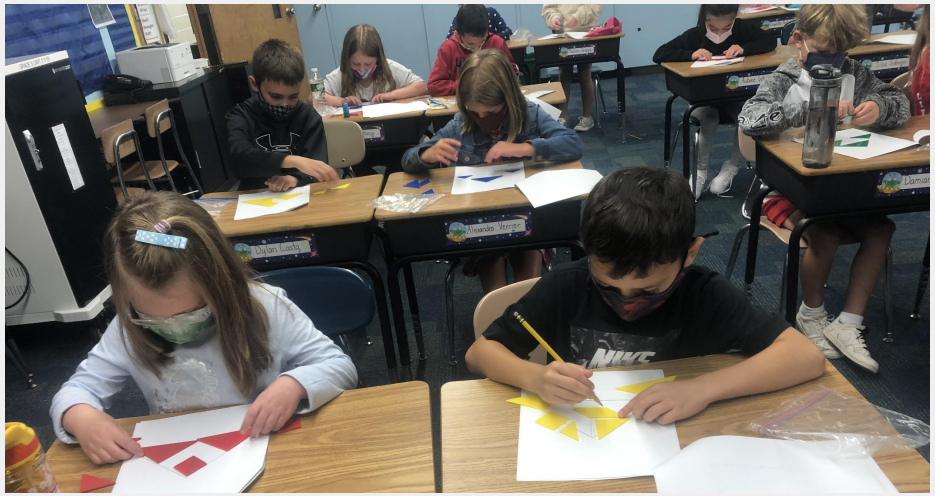
Students belong to productive math communities.



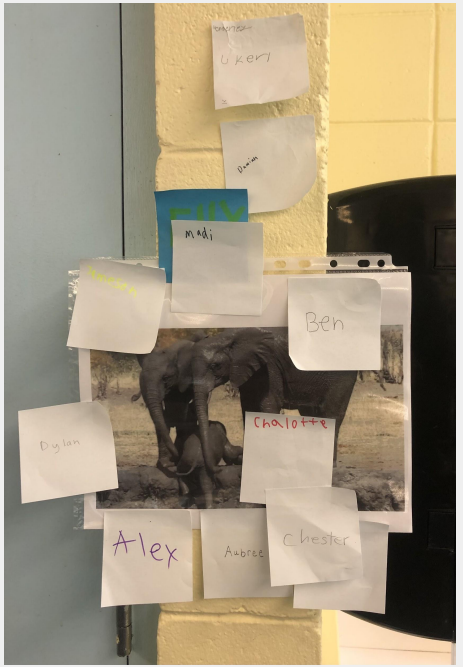
They engage in meaningful discussions.



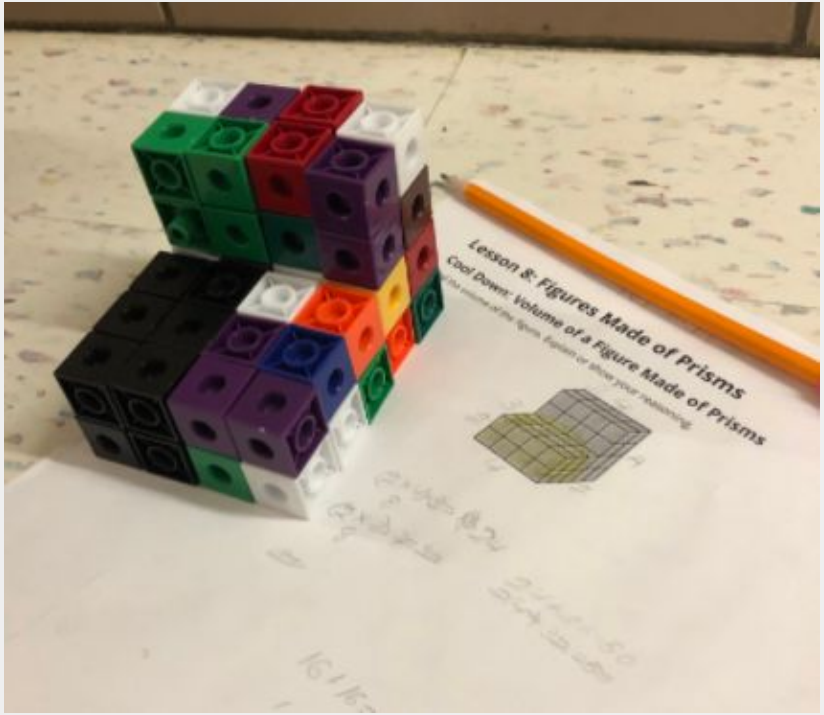
Mathematicians productively struggle.

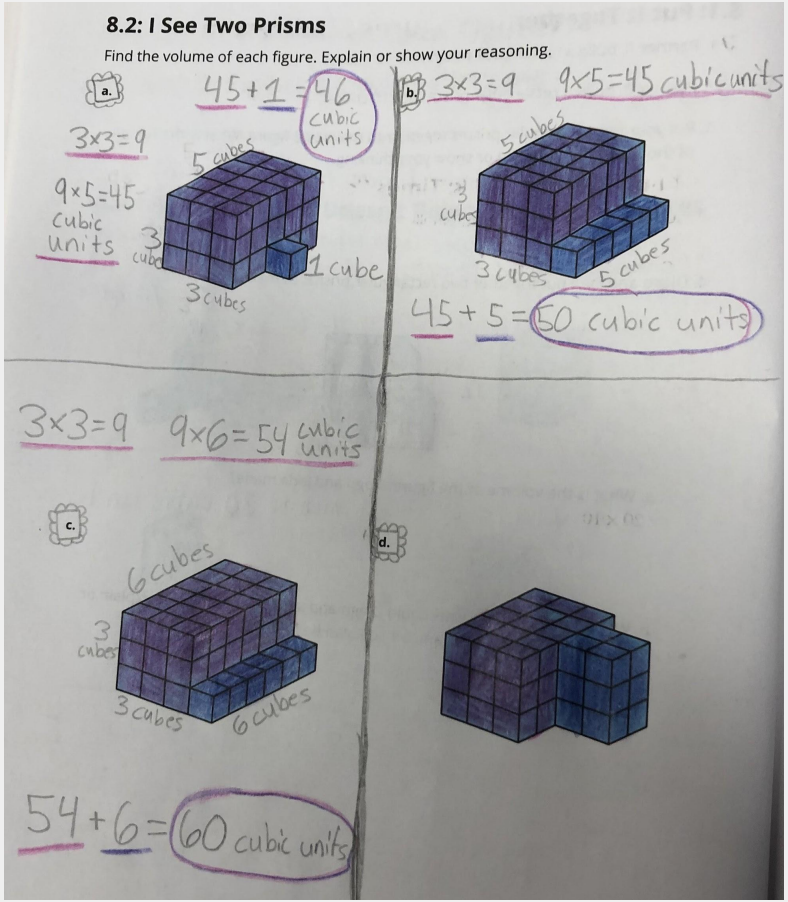


“I thought this would be easy but it didn’t work.”
“I already tried that. I’m starting over.”
“This is not easy. I have a plan.”



They make ideas visible.

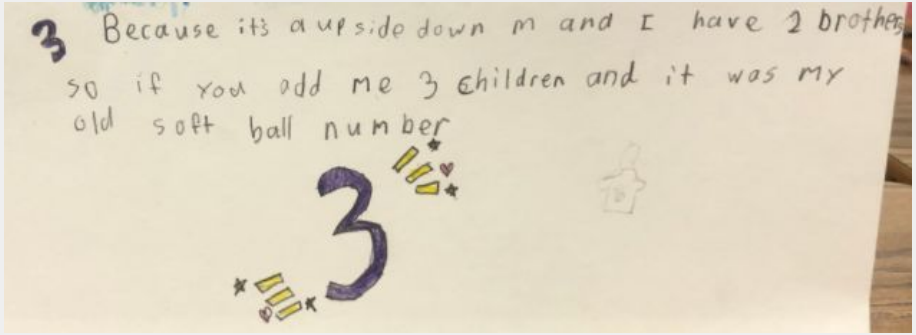


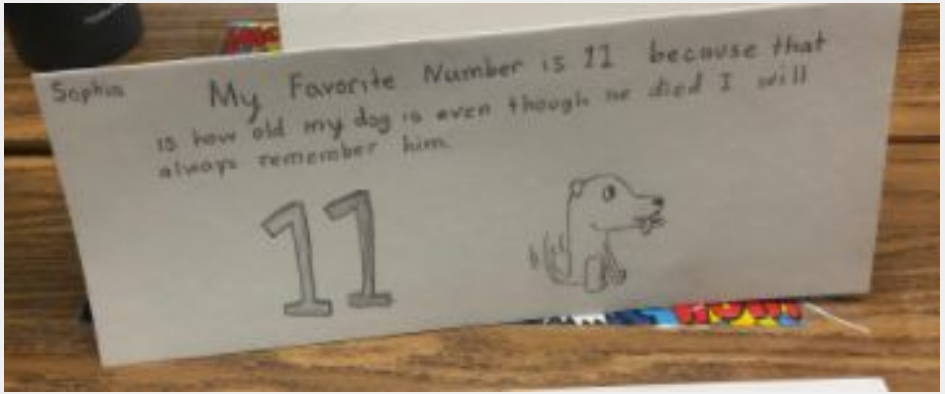


Students explore their math identity.

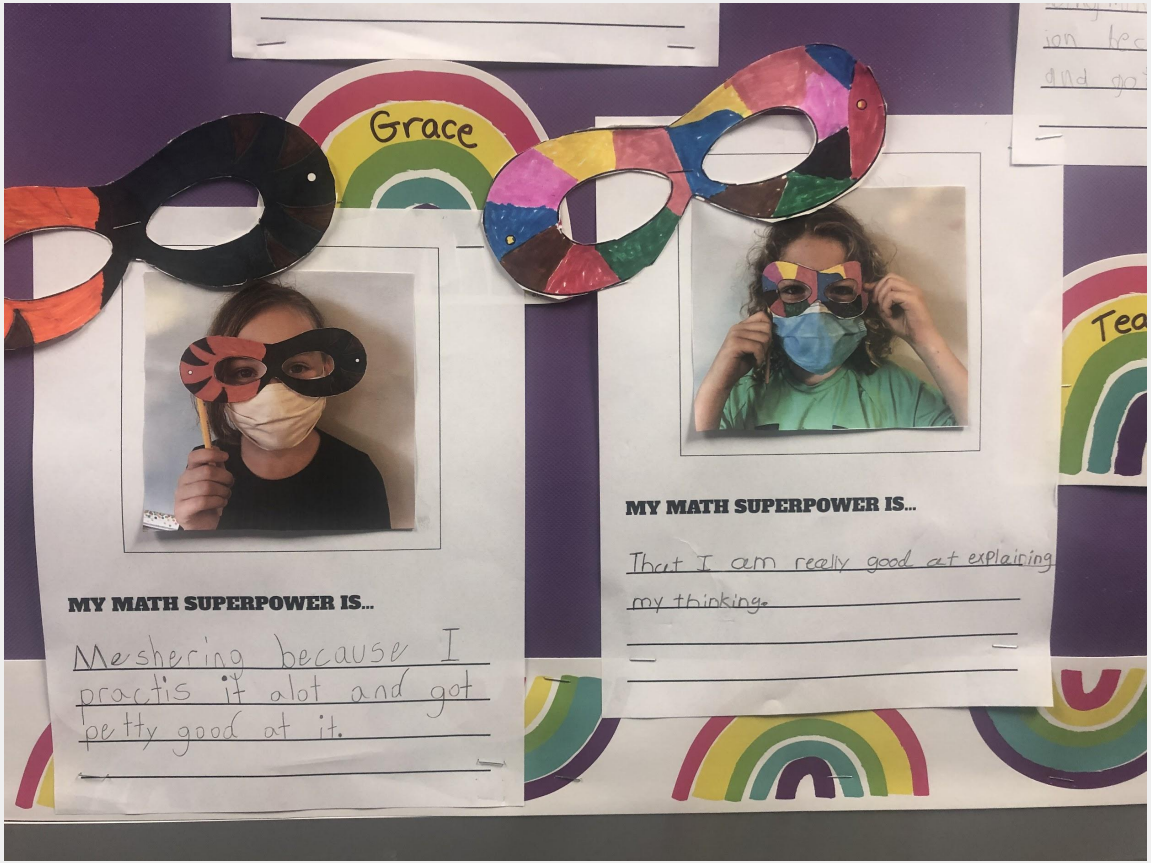
Fourth Grade Math Quilt

Name Tents and Favorite Number

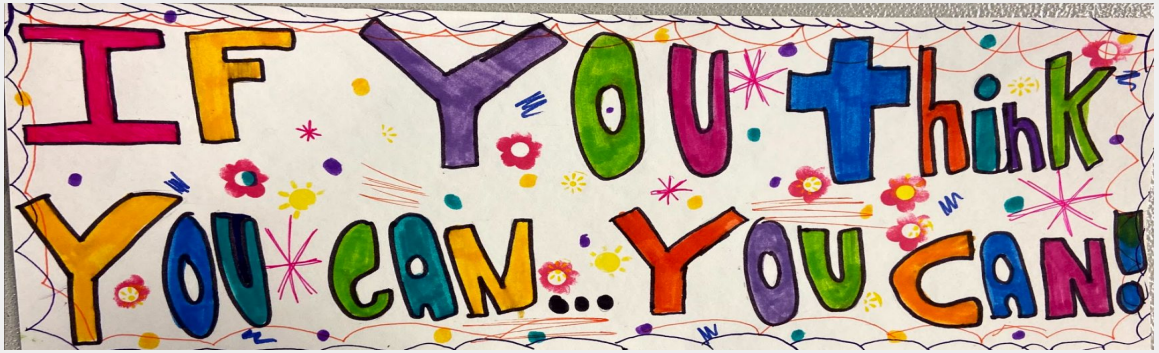


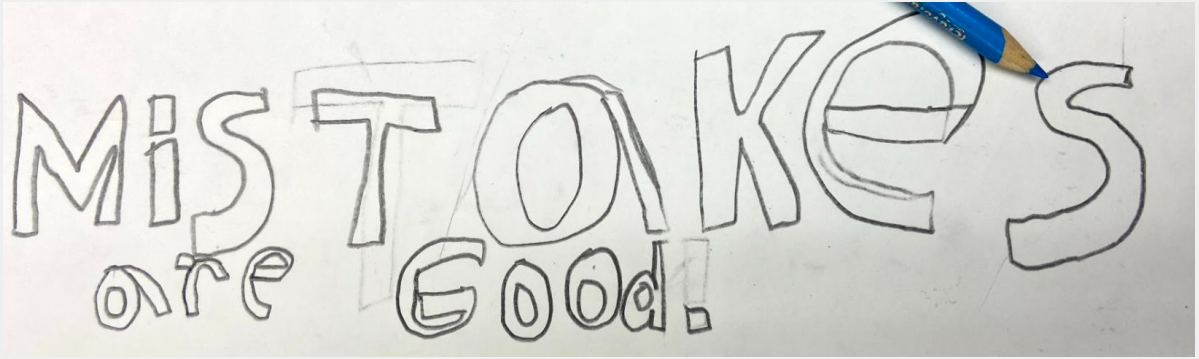


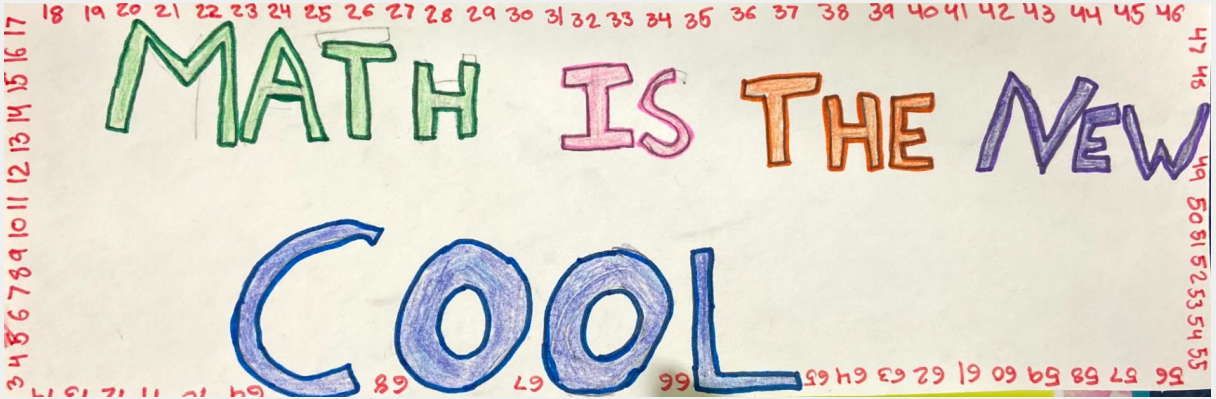
They view themselves as capable learners.



What do students have to say?




MiSTAKES
are Good!


MATH IS THE NEW
COOL

What do teachers have to say?

We plan to start the year engaging students in thinking about their **math identities**.

All students deserve the right to experience **productive struggle**.

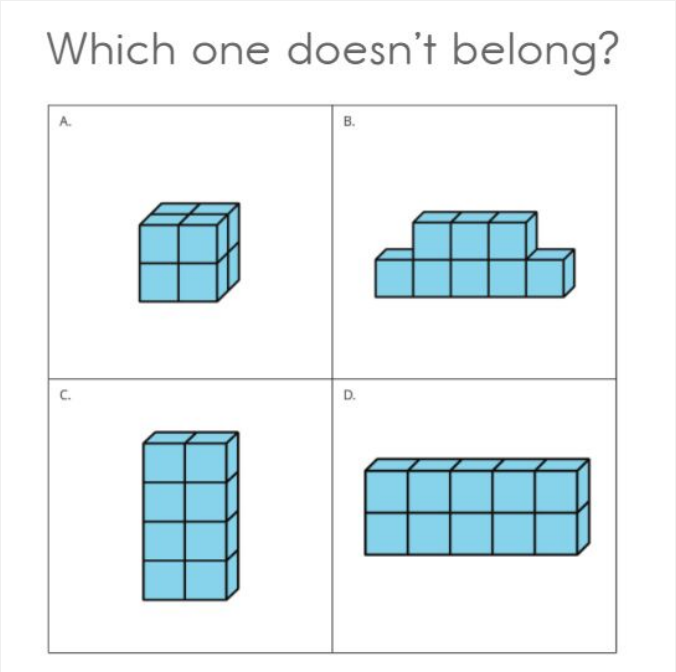
A strong math community sets the stage for productive struggle and a **growth mindset**.

Activities for **building math community** will establish trust. Students need to feel safe working together and taking risks.

Equity is at the heart of IM.

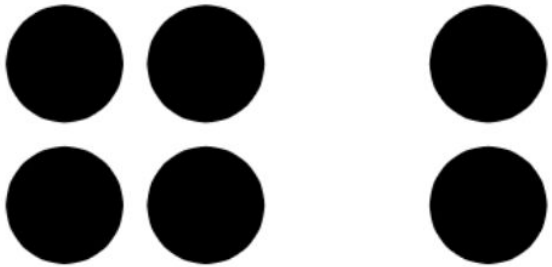
What does a typical IM lesson look like?

Students are invited to the math with a warm up.



Grade 5, Unit 1,
Finding Volume

How many do you see?
How do you see them?



Kindergarten
Dot Images

Find the value of each expression mentally.

10×6

3×6

13×6

12×4

Grade 4,
Number Strings

They construct their own understandings through a deep study of concepts.

Your teacher will assign 2 numbers to your group. Each number represents the area of a rectangle.

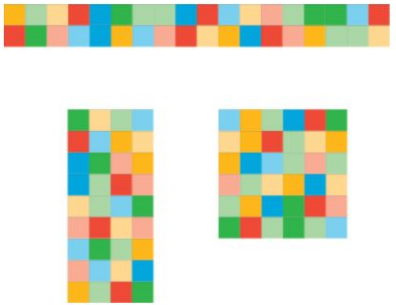
1) On grid paper:

- Draw all the possible rectangles that have the given area.
- Label the area and the side lengths.
- Use each pair of side lengths only once.

(For example, if you draw a rectangle with 4 units across by 6 units down, you don't need to also draw a rectangle with 6 units across and 4 units down because they have the same pair of side lengths.)

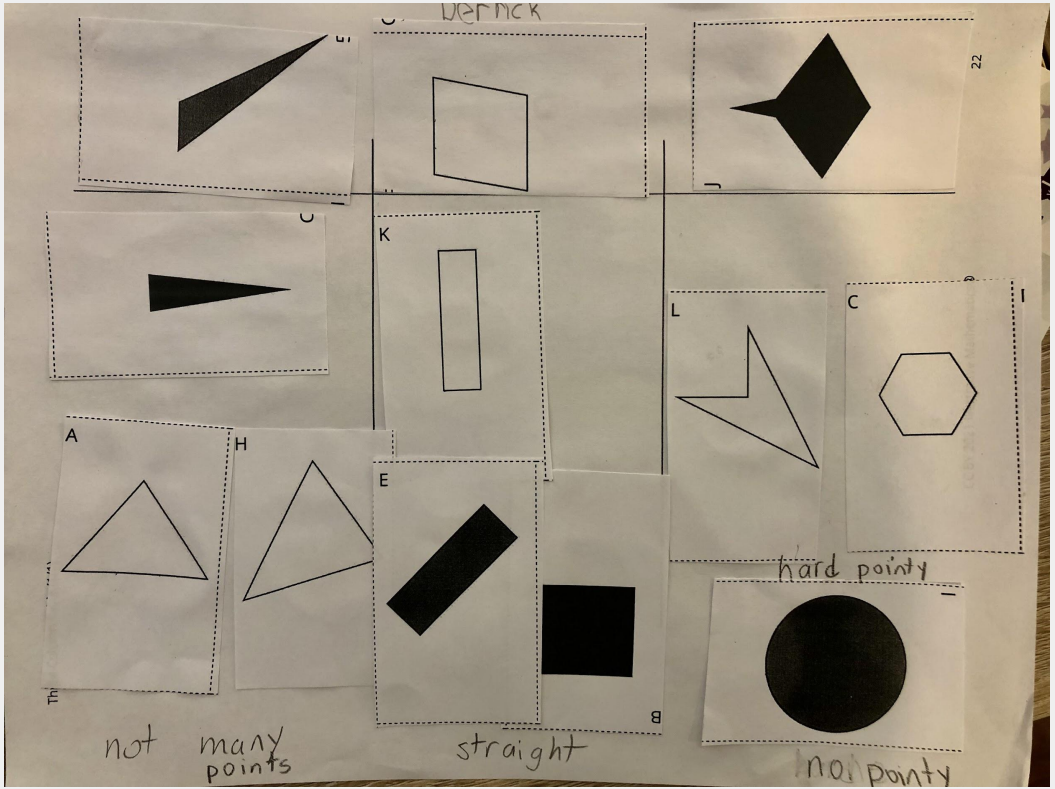
2) When you think you've drawn all the possible rectangles for both areas, cut out your rectangles and put them on a poster for each area you were assigned.

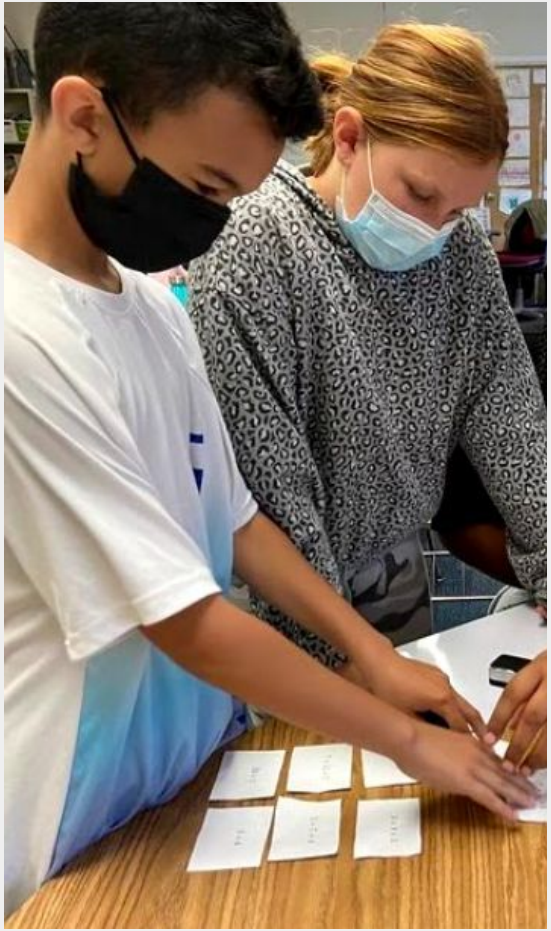
3) Display your poster for all to see.



Grade 4, Unit 1, Factors and Multiples

Grade 1, Unit 1,
Sorting Shapes






3x8
3x8=?
8
16
24
3x8=24

Students analyze and consolidate their understandings.

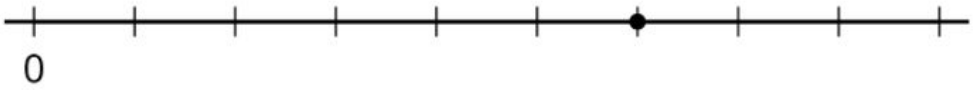
Lin's expanded form subtraction of 428 – 156 is shown.

$$\begin{array}{r} 400 + 20 + 8 \\ 100 + 50 + 6 \\ \hline 300 + 30 + 2 \end{array}$$

1. What is Lin's error?
2. How would you fix her mistake in the expanded form subtraction?
3. When might you make this error?

Today we identified fractions on a number line and compared them to $\frac{1}{2}$ and 1.

Label one of the tick marks with $\frac{1}{2}$.



Lesson Synthesis
Grade 4, Fraction and Equivalence, Lesson 6

Suppose a classmate is absent today, and you are asked to explain how to figure out the fraction that the point represents and how far away it is from $\frac{1}{2}$. What would you say?

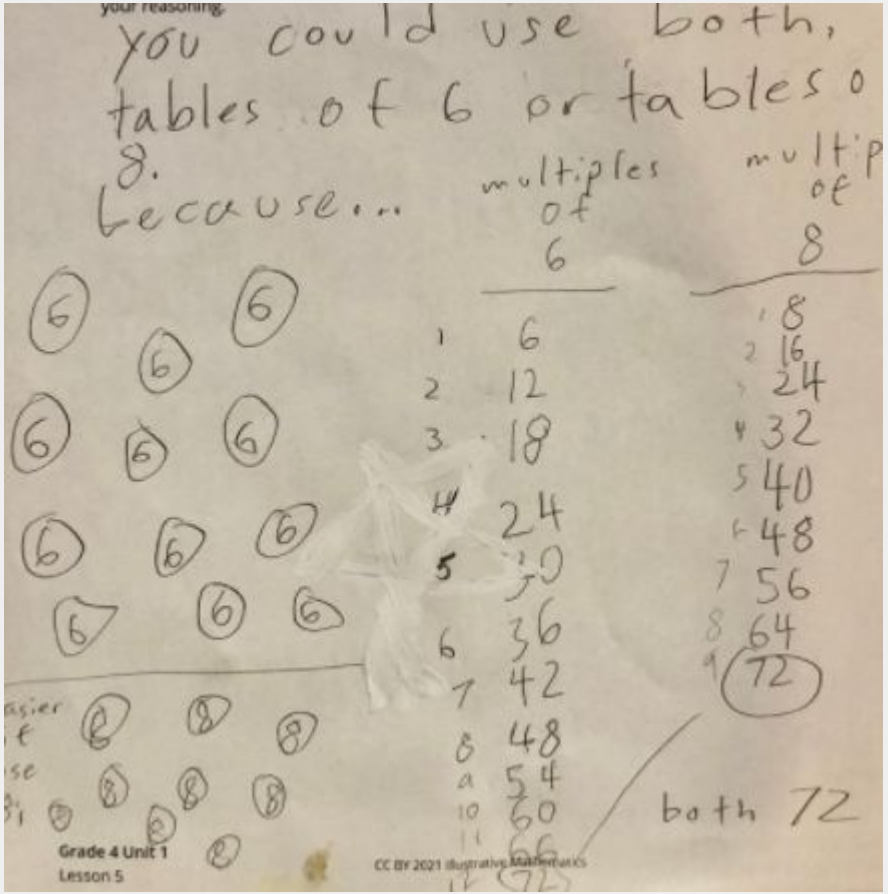
How do we assess student progress?

Daily Formative Assessments

Unit 1: Factors and Multiples/ Gr. 4/ Lesson 5

All of the fourth grade classes are getting together for an end of year party. They have tables where 6 people can sit and tables were 8 people can sit. There will be 72 students that need seats.

If you could only use one type of table, which type would you choose?

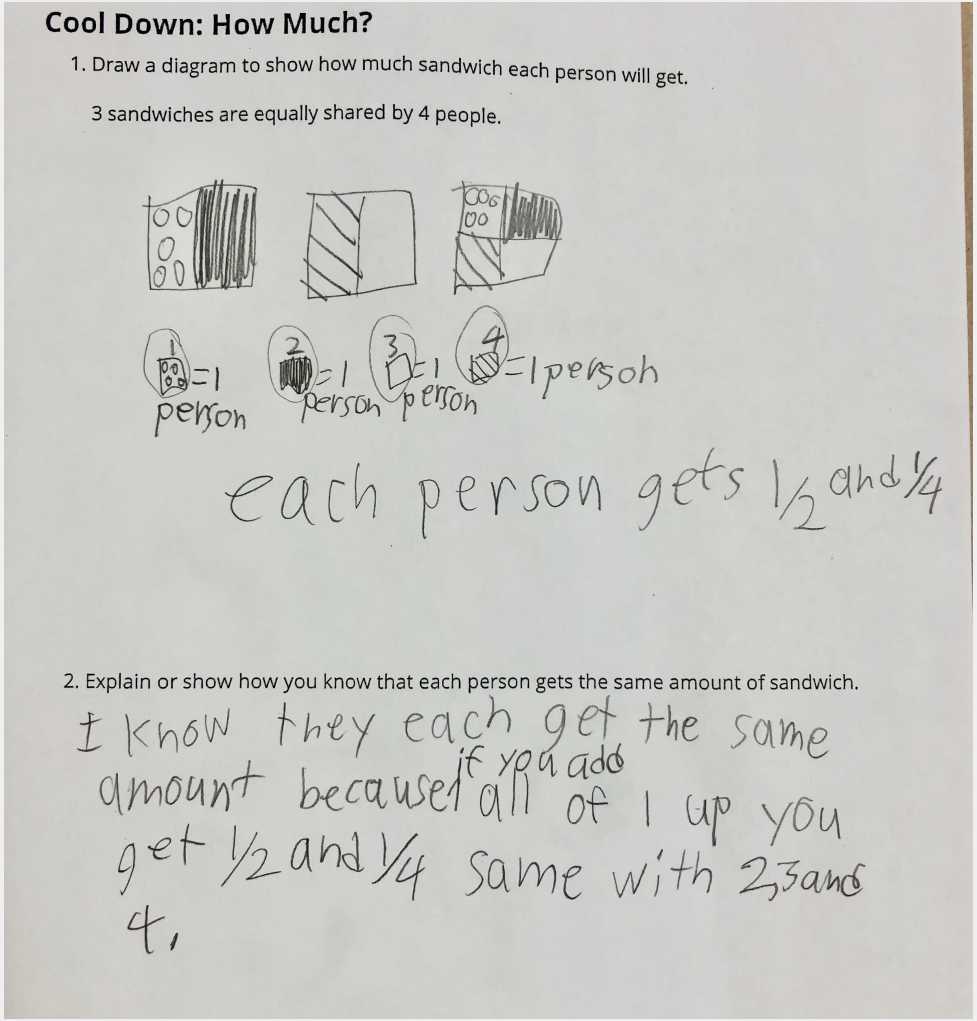


Unit 2: Fractions and Decimals/ Gr. 5/ Lesson 1

Draw a diagram to show how much sandwich each person gets.

3 sandwiches are equally shared by 4 people.

Explain or who how you know each person gets the same amount of sandwich.



Cool Down: How Much?

1. Draw a diagram to show how much sandwich each person will get.

3 sandwiches are equally shared by 4 people.

1 = 1 person
2 = 1 person
3 = 1 person
4 = 1 person

each person gets 1/2 and 1/4

2. Explain or show how you know that each person gets the same amount of sandwich.

I know they each get the same amount because if you add all of 1 up you get 1/2 and 1/4 same with 2, 3 and 4.

Section and End of the Unit Assessments

First Grade End of Unit 1 Assessment

3. The table shows the different shapes on Jada's desk.

Jada's Shapes

triangles	circles	squares
𝍸 |	|||	𝍸

a. How many squares are on Jada's desk? _____

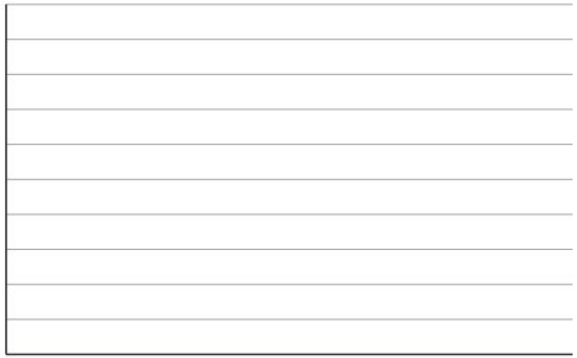
b. How many shapes are on Jada's desk? _____

Third Grade End of Unit 1 Assessment

1. The table shows the favorite seasons of some students.

favorite season	number of students
fall	36
winter	23
spring	29
summer	48

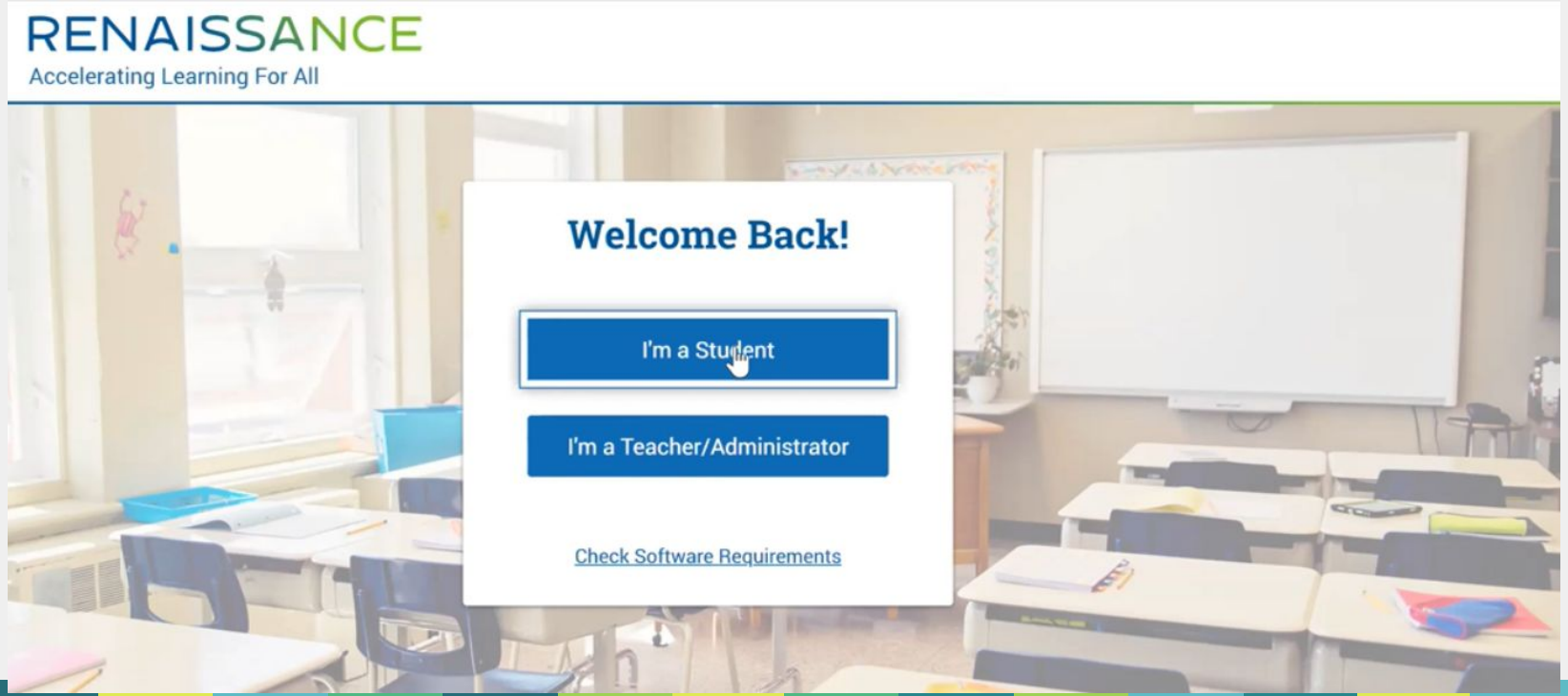
a. Create a scaled bar graph to represent the data. Use 2, 5, or 10 for your scale.

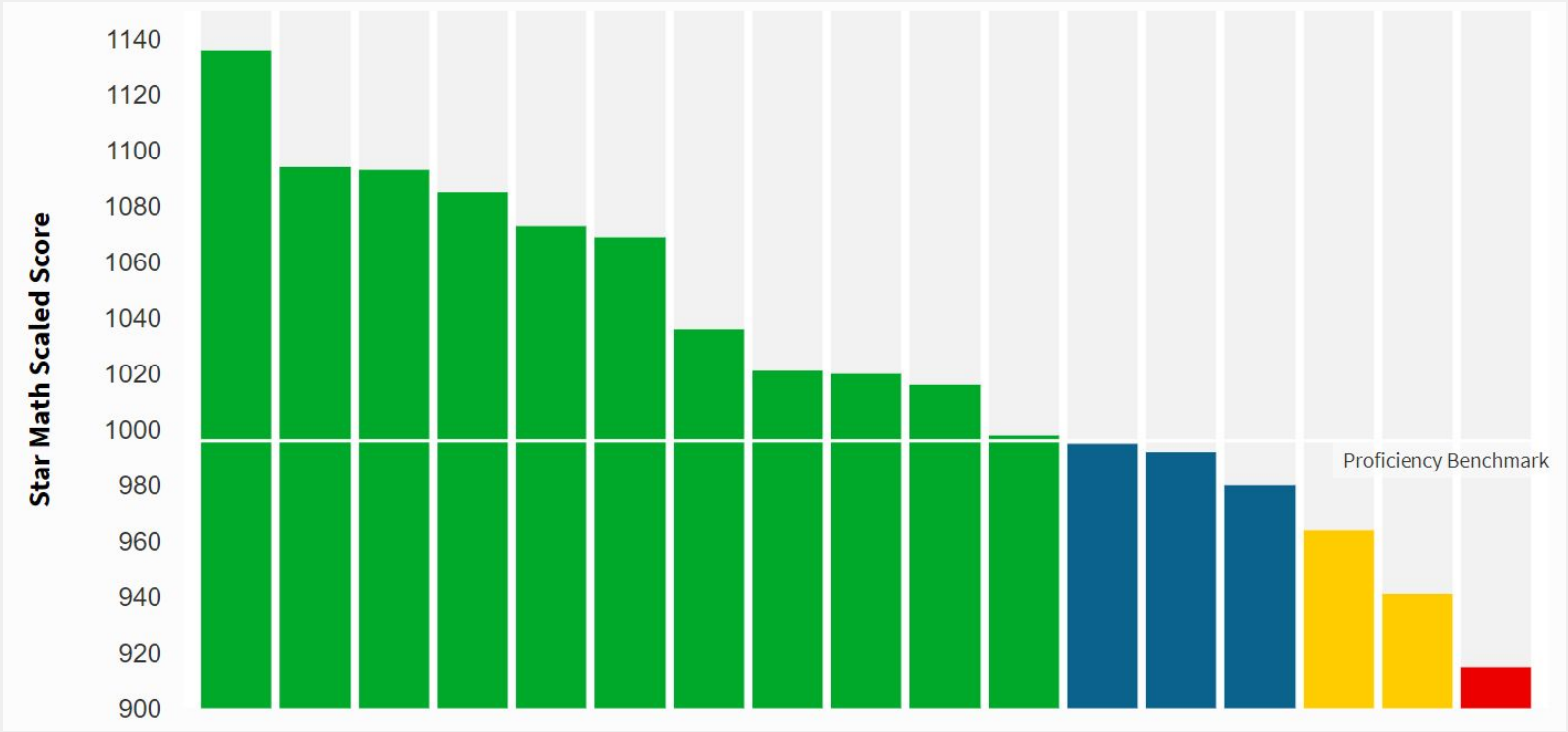


b. Which of the scales, 2, 5, or 10, will work to make a scaled bar graph on the grid?

c. Explain how you chose your scale.

Universal Screeners - STAR Assessments




Star Math Scaled Score
1140
1120
1100
1080
1060
1040
1020
1000
980
960
940
920
900
Proficiency Benchmark

Which

One

Doesn't

Belong?

A

B

C

D

Illustrative Math at IMS

- 2019-2020
  - Began staff discussions about value and implementation of program
  - Ed Reports and CURATE
  - Observed Doyon math class
- 2020-2021
  - Participated in professional development through LearnZillion
  - Used Wednesday meeting times for PD and to plan implementation
  - Piloted IM lessons at each grade level
- 2021-2022
  - Grade 6
    - Full implementation of IM curriculum
    - Met with experienced Ham/Wen teachers
  - Grade 7 - Thoughtful implementation of IM curriculum for students who have not experienced the program
  - Grade 8
    - Integration of specific lessons from IM curriculum
    - Planning process to collaborate with IHS for Algebra curriculum