

Becoming an Agent of Change!

Learning to Teach Math with, for, and about Social Justice

Joel Amidon, University of Mississippi
Anne Marie Marshall, Lehman College
Becky Nance, University of Mississippi

NCTM 2018
Washington, D.C.

MathHistory

Create a bulleted list of historical markers on your journey with mathematics.

(eg. experiences, people, subjects, etc.)

MathHistory

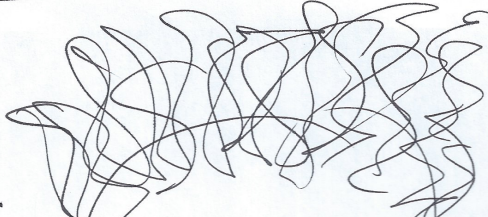
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(eg. experiences, people, subjects, etc.)

Imagine - a - Mathematician

Imagine a mathematician and the tools and contexts where that mathematician works

$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$
 $y = \sum_{i=1}^n y_i$
 $\sigma^2 = \frac{1}{n} \sum_{i=1}^n x_i^2 - \bar{x}^2$
 $\sqrt{a^2 + b^2} = \sqrt{a^2 + b^2}$
 $\frac{1}{\sqrt{a^2 + b^2}}$



$\sqrt{a^2 + b^2} = \sqrt{a^2 + b^2}$
 $\frac{1}{\sqrt{a^2 + b^2}}$
 $\sum_{i=1}^n x_i^2 = \sum_{i=1}^n x_i^2$
 $\frac{1}{\sqrt{a^2 + b^2}}$
 $xyz = \sqrt{abc}$



Professor Hugo Calculissimo

Today's Session

MathHistory & Imagine-a-Mathematician

Project History

Fill the Grids Activity

Teaching with, for, & about Social Justice

Roundtable Discussions

Wrap Up & Questions

Project History

Project History

Stance

A socio-political perspective to teaching elementary mathematics methods and understand that teaching mathematics is a political act and notions of mathematics neutrality need to be challenged.

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Inspiration

“A Possessive Investment in Whiteness”: Access to Mathematics (Battey, 2013)

Project History

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A socio-political perspective to teaching elementary mathematics methods and understand that teaching mathematics is a political act and notions of mathematics neutrality need to be challenged.



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The Outcome

Development of social justice mathematics learning module for elementary mathematics teachers

Fill the Grids

We are Smarter Together

Abilities Needed

Logical reasoning

Visual reasoning

Making sense of pictures

Making sense of different representations of parts of whole

Thinking creatively

Finding connections

Communicating ideas both verbally and in written form

Relying on others

Facilitator

Gets the team off to quick start
Makes sure everyone understands the information on the task card.
Organizes the team so they can complete the task
Keeps track of time
Substitutes for absent roles
"Who knows how to start?"
"I can't get it yet... can someone help?"
"We need to keep moving so we can..."
"Let's find a way to work this out."

Resource Manager

Makes sure the team is using all resources well, especially people.
Calls the teacher over for a team question
Collects supplies for the team
Cares for and returns supplies
Organizes clean up
"I think we need more information here."
"I'll call the teacher over"
"We need to clean up. Can you... while I...?"
"Do we all have the same question?"

Recorder / Reporter

Gives update statements on team's progress
Makes sure each member of the team records the data
Organizes and introduces report
"We need to keep moving so we can..."
"I'll introduce the report, then..."
"Did everyone get that in your notes?"

Reflection Leader

Helps the group reflect on their work during the task and at the end.
Asks questions about the group's activity:
"What strategies have we used?"
"What worked?"
"What isn't working/didn't work?"

Norms

Explore until time is up.

Everyone takes turns.

Everyone records.

Only group questions will be answered.

Group 1 Coloring Guide

Color the grid the identified number of squares with the indicated colors in the table

Red	Blue	Orange	Green	Grey
2 squares	9 squares	13 squares	28 squares	48 squares

Group 2 Coloring Guide

Color the grid the identified number of squares with the indicated colors in the table

Red	Blue	Orange	Green	Grey
15 squares	38 squares	19 squares	17 squares	11 squares

Group 3 Coloring Guide

Color the grid the identified number of squares with the indicated colors in the table

Red	Blue	Orange	Green	Grey
2 squares	11 squares	19 squares	28 squares	40 squares

Group 4 Coloring Guide

Color the grid the identified number of squares with the indicated colors in the table

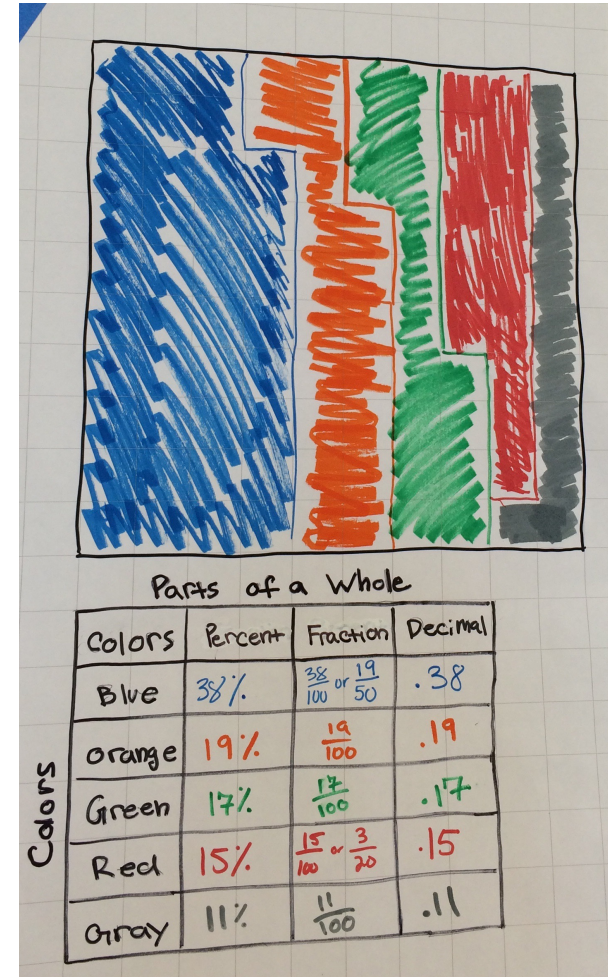
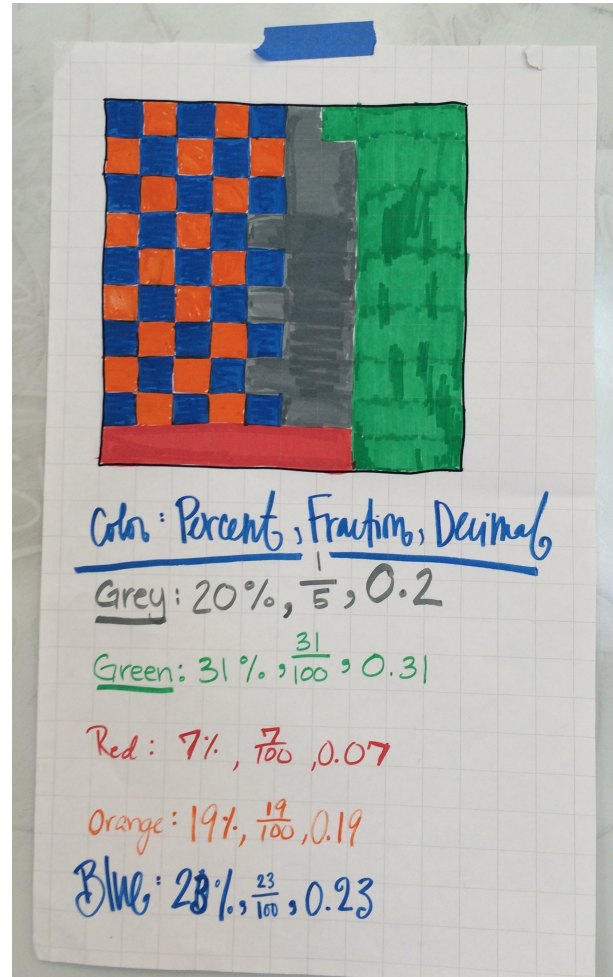
Red	Blue	Orange	Green	Grey
3 squares	11 squares	14 squares	33 squares	39 squares

Group 5 Coloring Guide

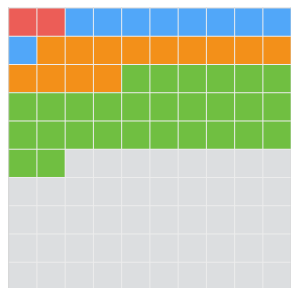
Color the grid the identified number of squares with the indicated colors in the table

Red	Blue	Orange	Green	Grey
7 squares	23 squares	19 squares	31 squares	20 squares

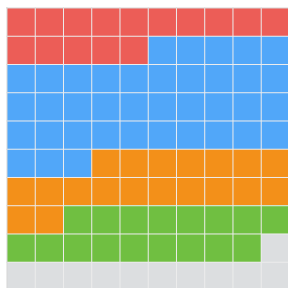
Colored Grids



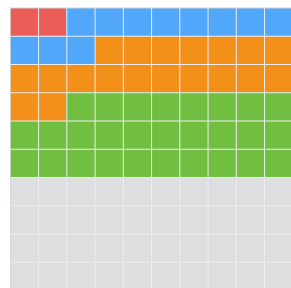
Group 1



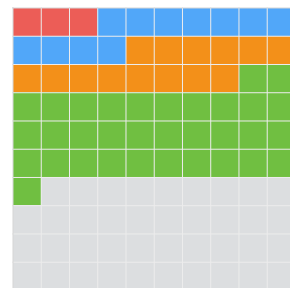
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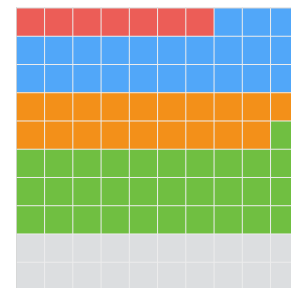
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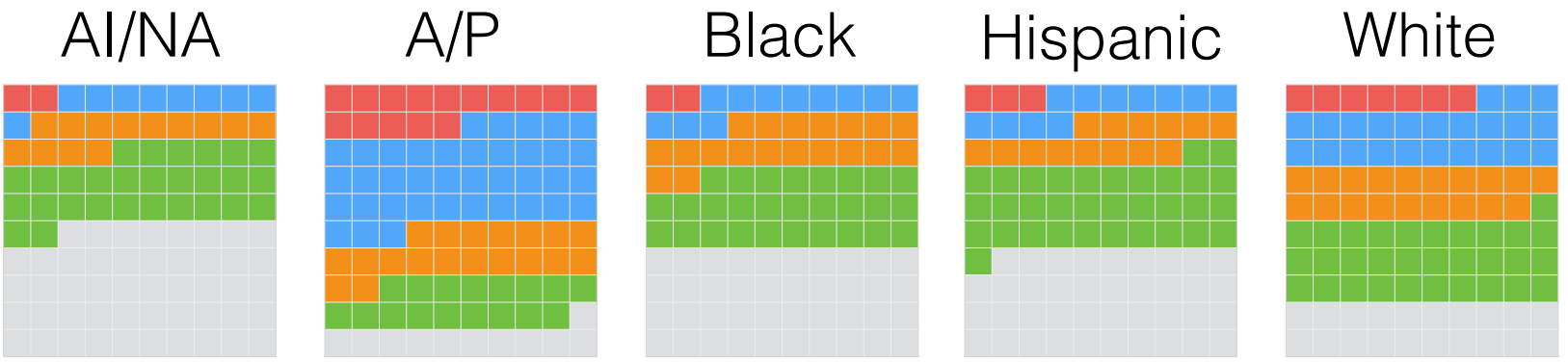
Group 4



Group 5

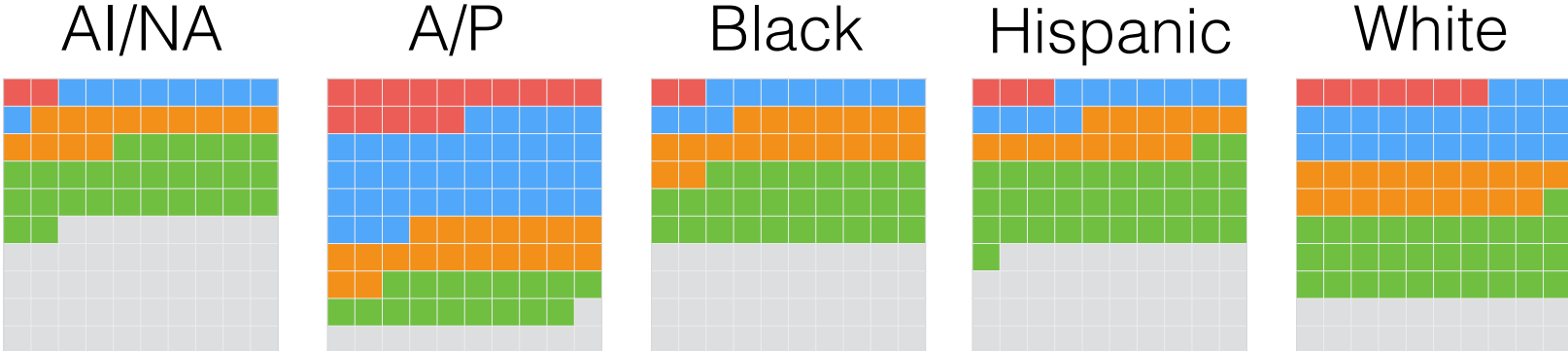


1982





1982





AI/NA

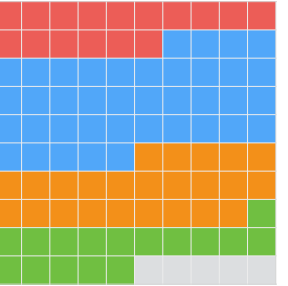
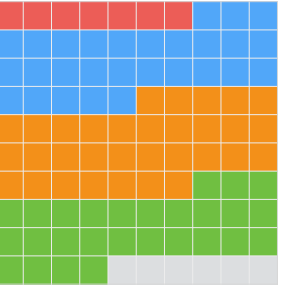
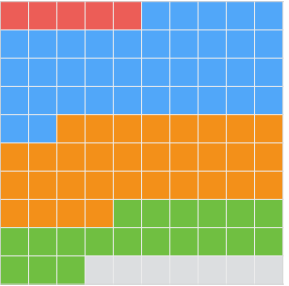
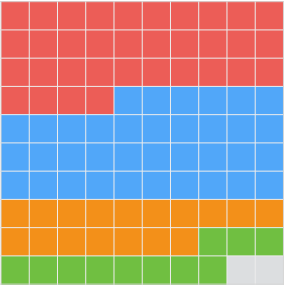
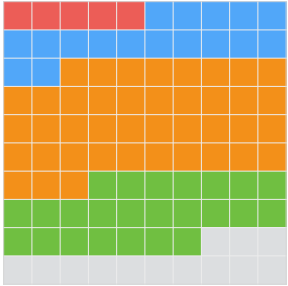
A/P

Black

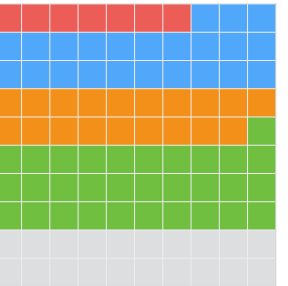
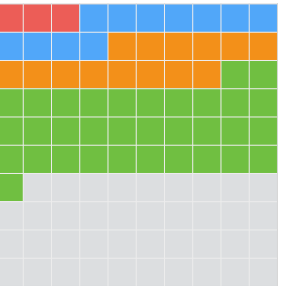
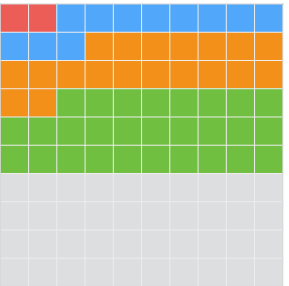
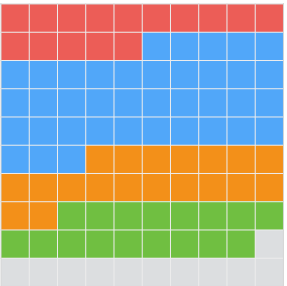
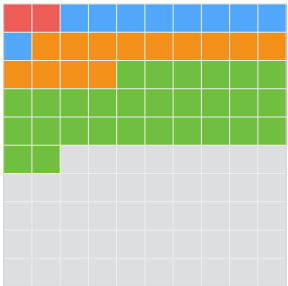
Hispanic

White

2004



1982



Equity is...

“...being unable to predict student patterns (e.g., achievement, participation, ability to critically analyze data/society) based solely upon characteristics such as race, class, ethnicity, gender, beliefs, and proficiency in the dominant language.”

-Rochelle Gutierrez



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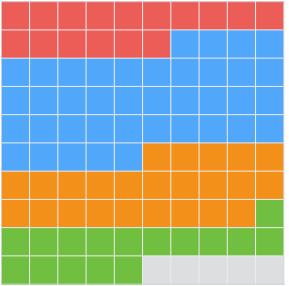
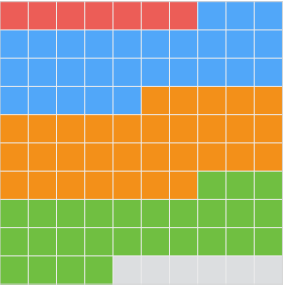
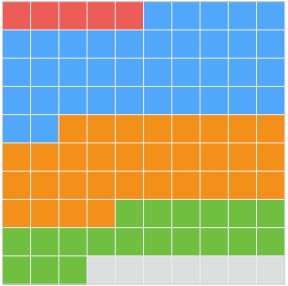
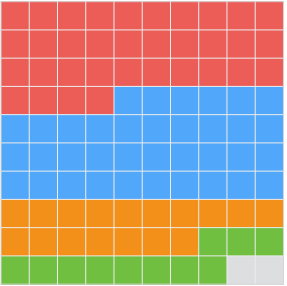
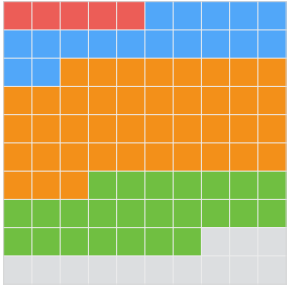
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Black

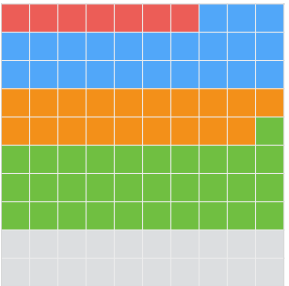
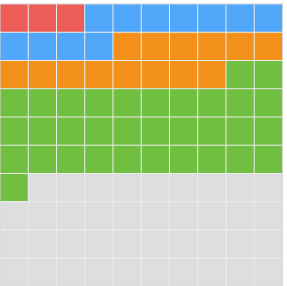
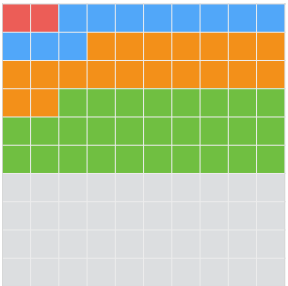
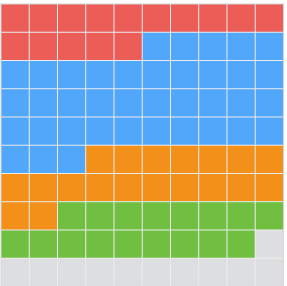
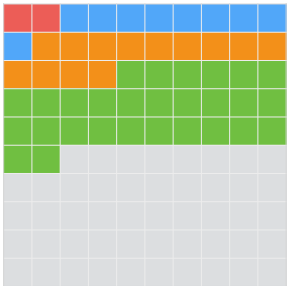
Hispanic

White

2004



1982



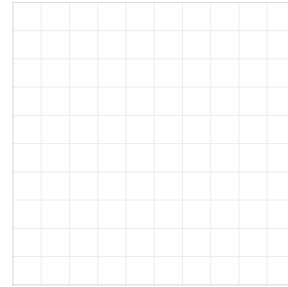
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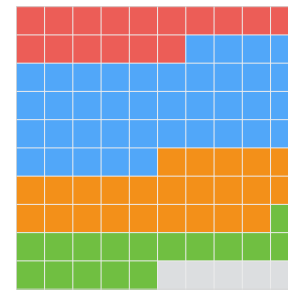
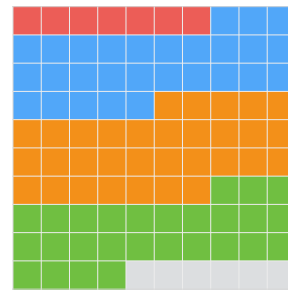
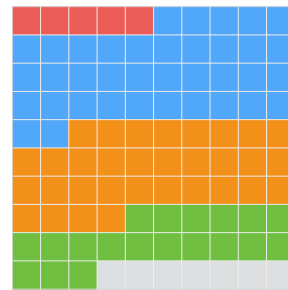
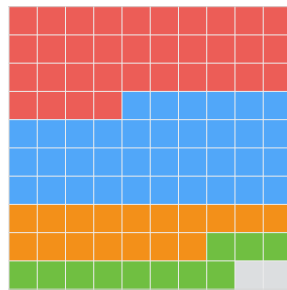
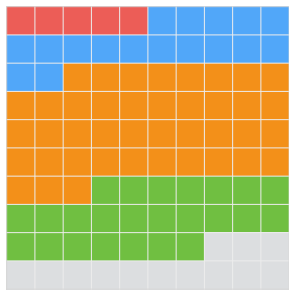
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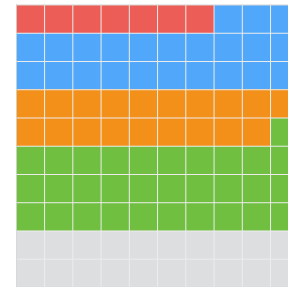
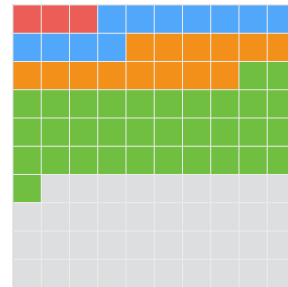
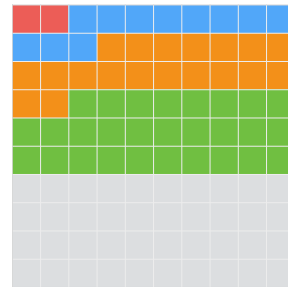
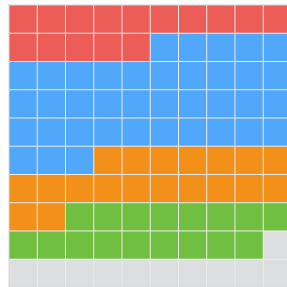
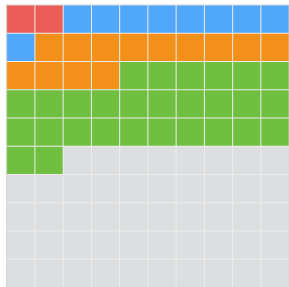
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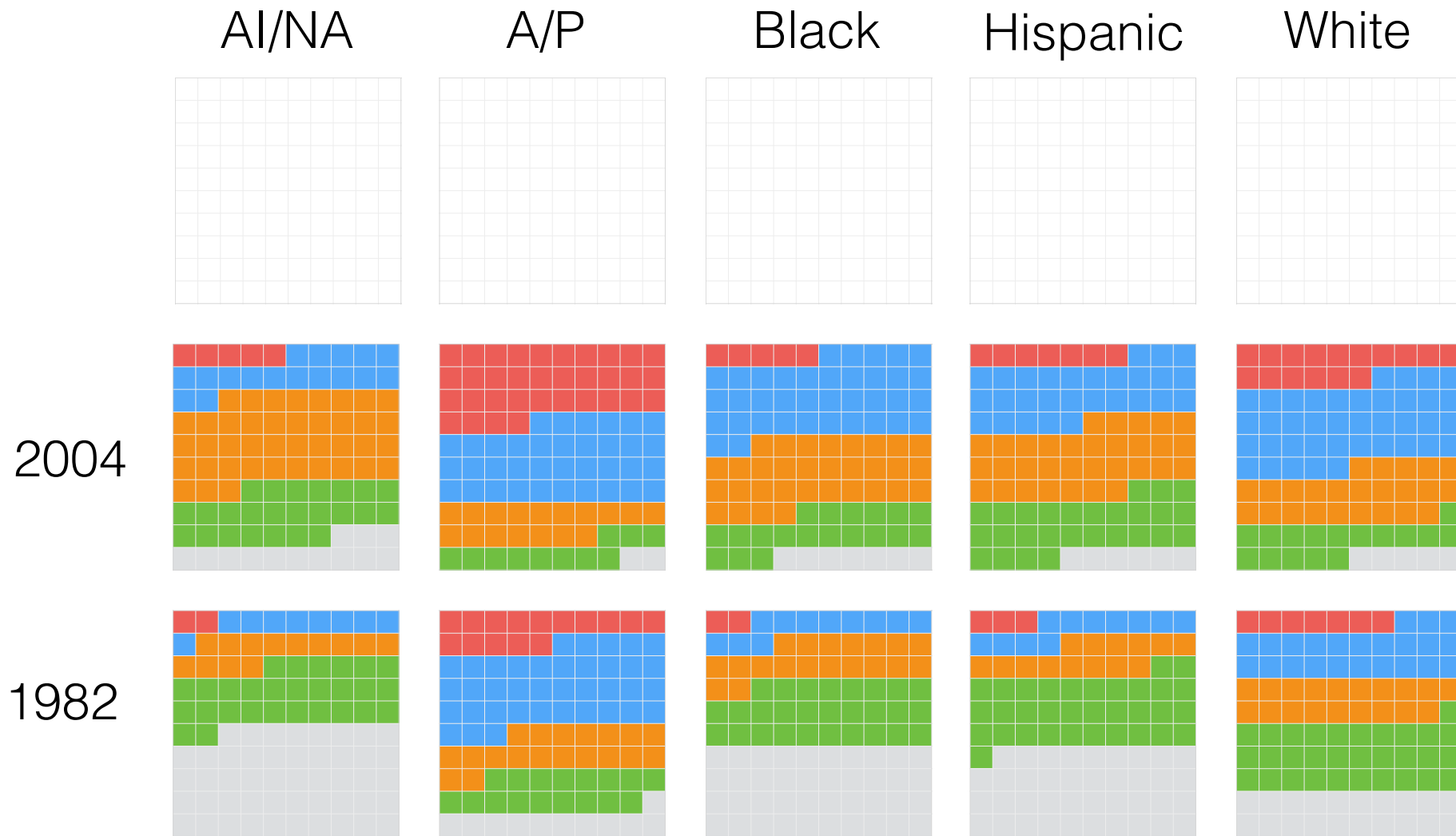


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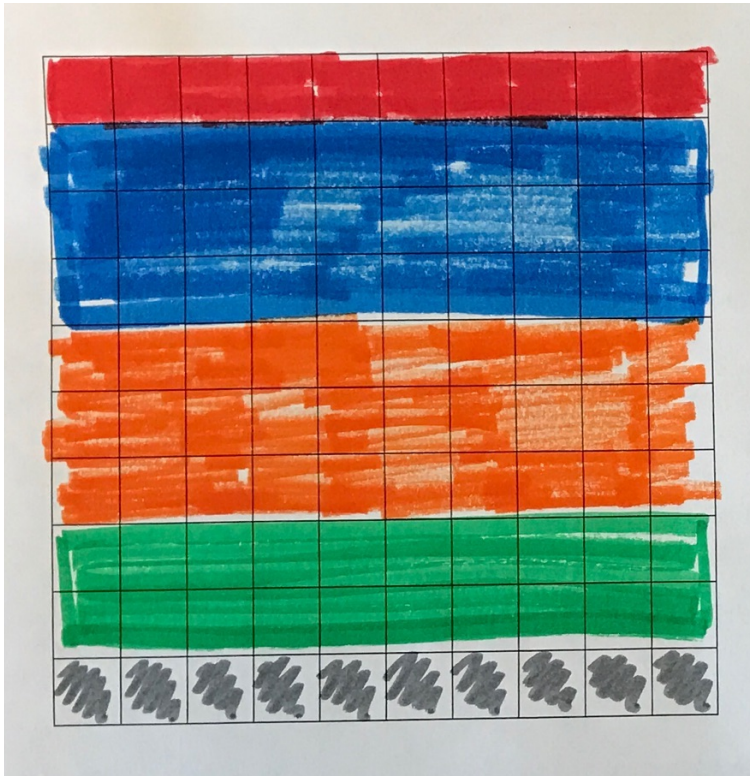




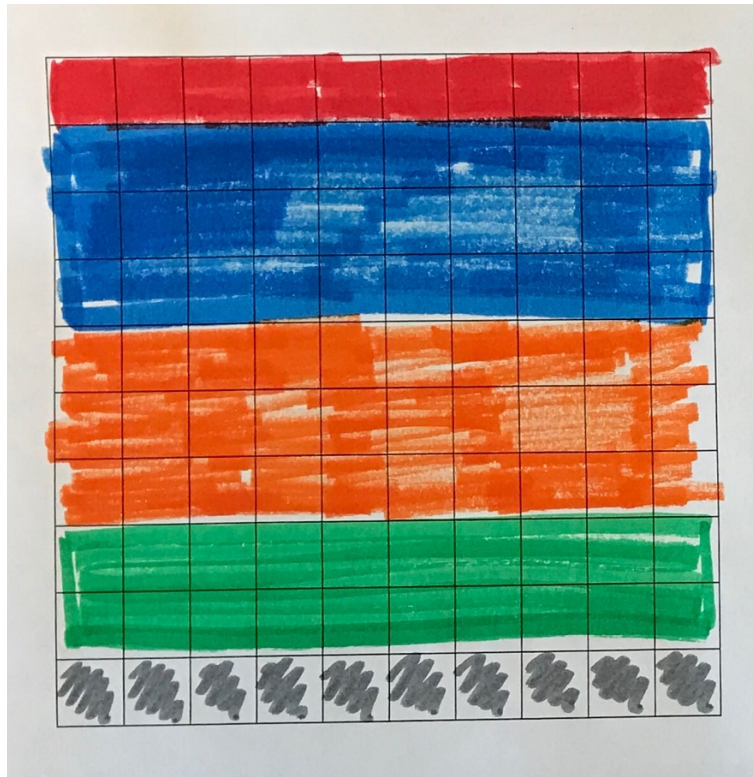
“...being unable to predict student patterns (e.g., achievement, participation, ability to critically analyze data/society) based solely upon characteristics such as race, class, ethnicity, gender, beliefs, and proficiency in the dominant language.”

Pictures of grid coloring

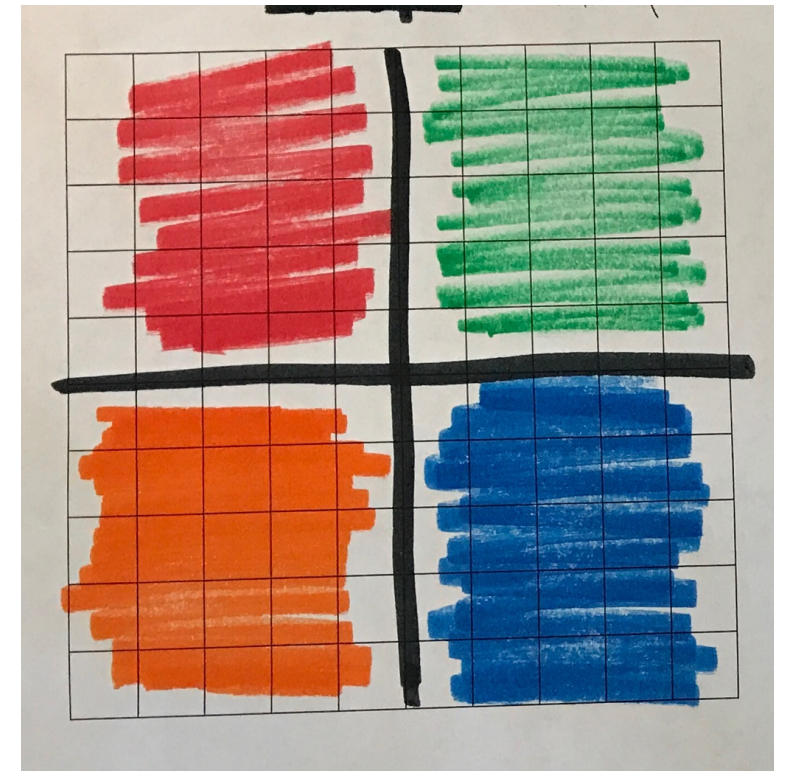
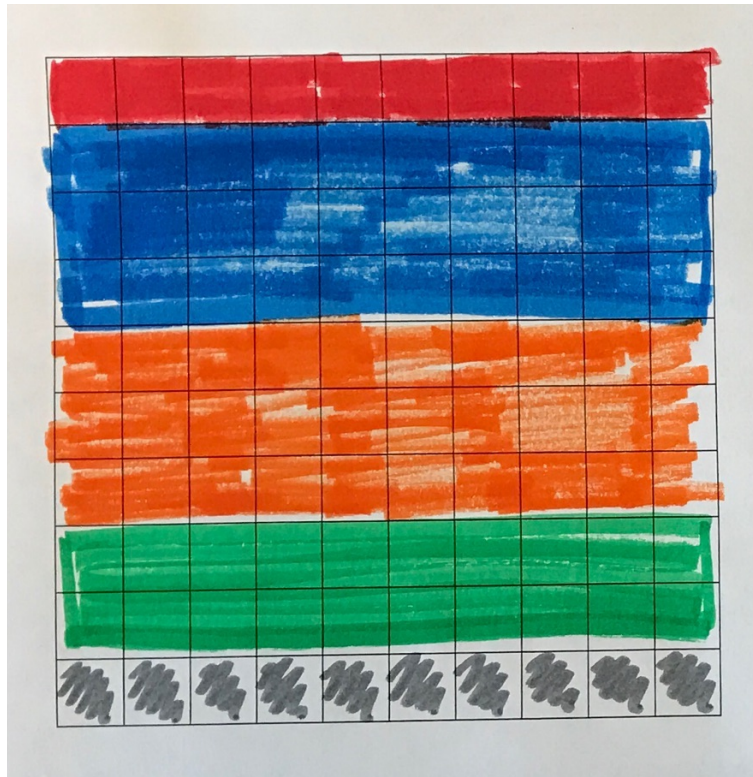
Pictures of grid coloring



Pictures of grid coloring



Pictures of grid coloring



Teachers Matter

What Now?

Teaching Mathematics with Social Justice

teaching using norms and practices in the classroom that foster equal status and participation

Teaching Mathematics with Social Justice

teaching using norms and practices in the classroom that foster equal status and participation

Teaching Mathematics about Social Justice

using a problem context that addresses a social justice issue

Teaching Mathematics with Social Justice

teaching using norms and practices in the classroom that foster equal status and participation

Teaching Mathematics about Social Justice

using a problem context that addresses a social justice issue

Teaching Mathematics for Social Justice

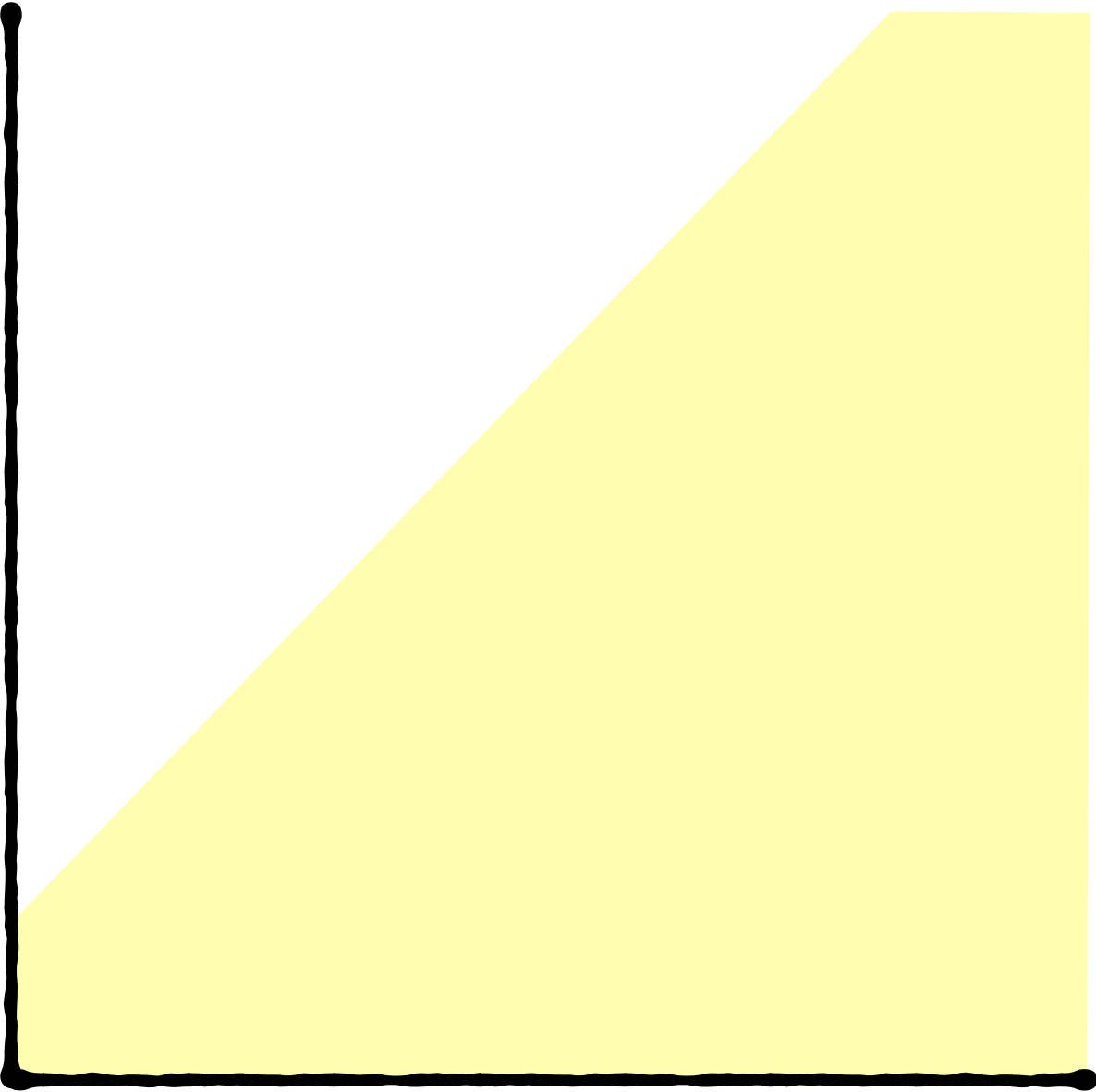
learning how math could be used to question and change inequities



Stance

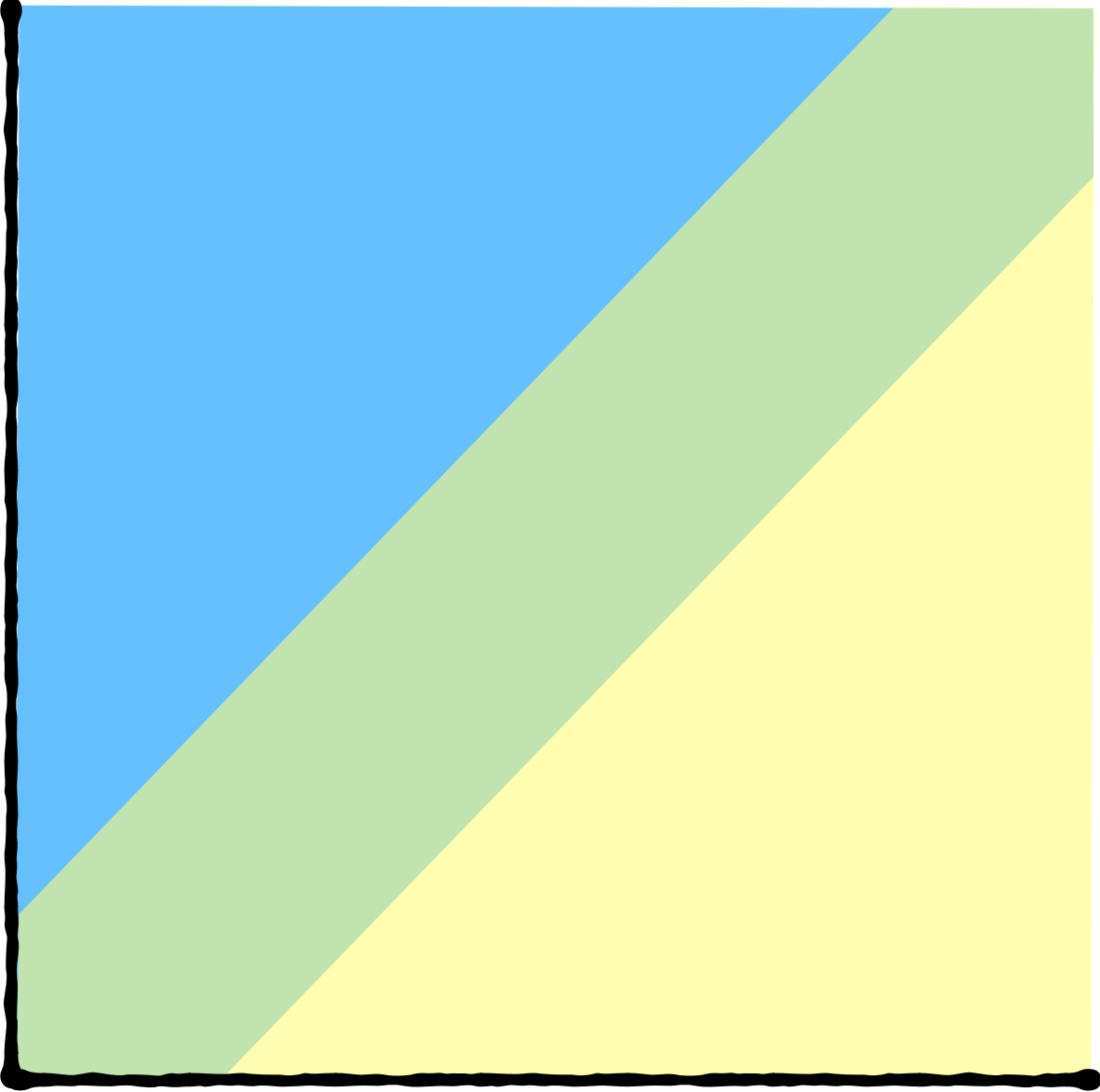
Strategy

Stance



Strategy

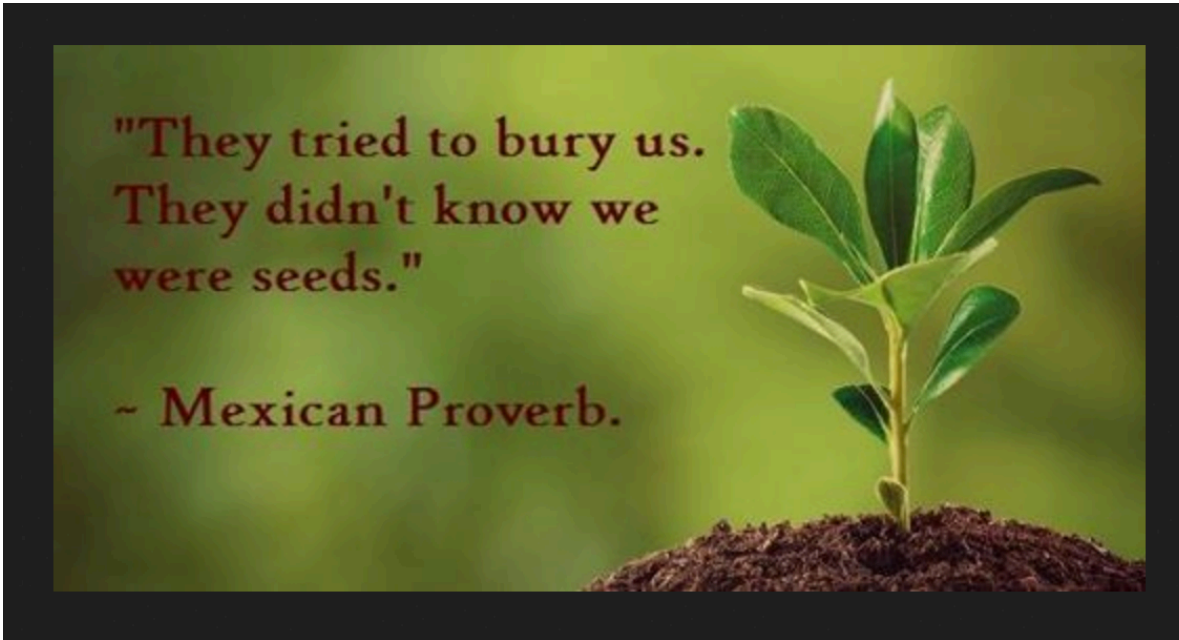
Stance



Strategy

We stand in solidarity at NCTM with our colleagues under attack:

Luis Leyva, TODOS, NCSM, Rochelle Gutiérrez, Laurie Rubel . . .



#NCTM18

#mathedcollective

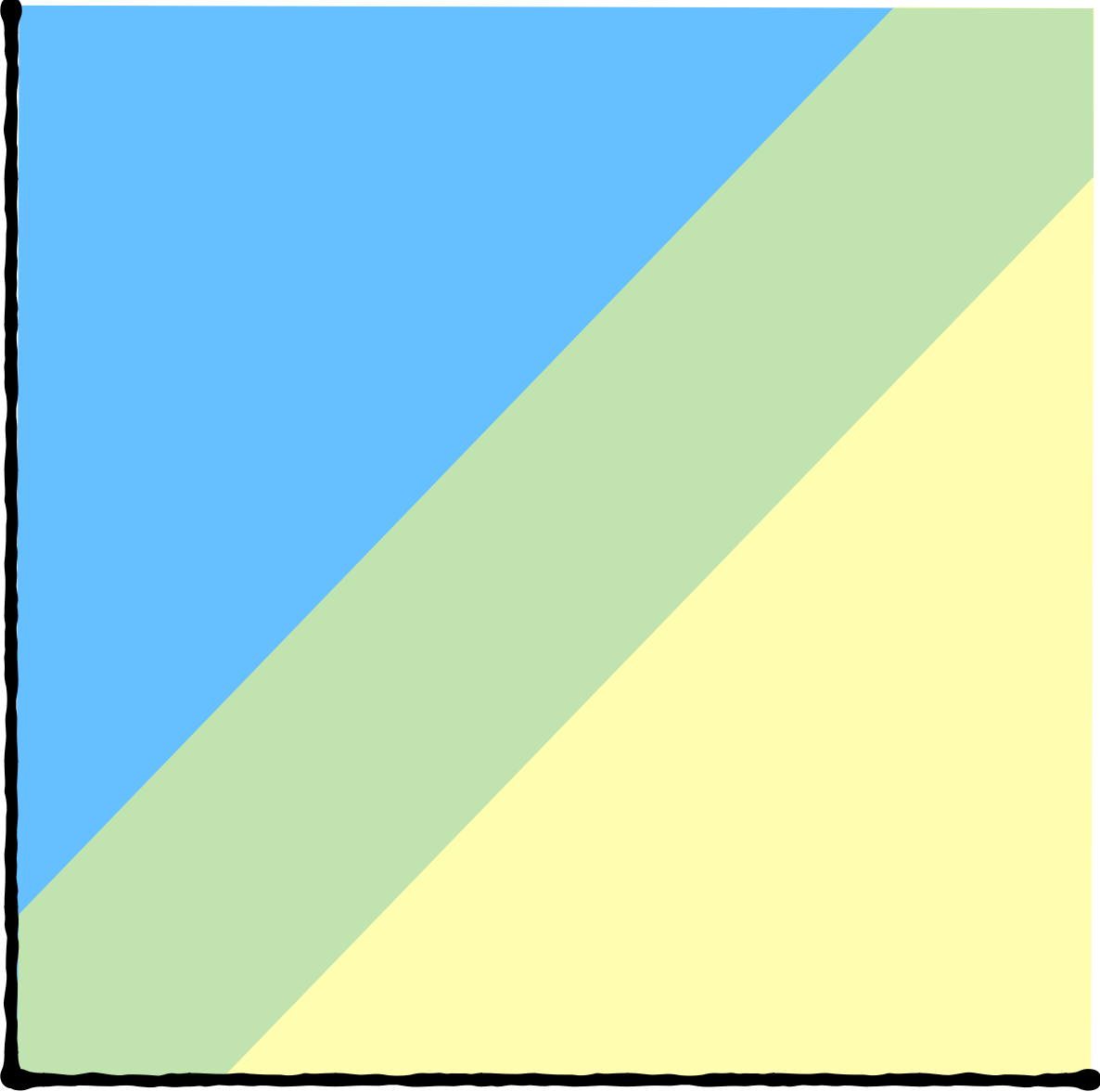
mathedcollective.wordpress.com

**YOUR
SILENCE
WILL NOT
PROTECT
YOU**

-- Audre Lorde

(Image by [Teacher Dude](#), licensed under [CC BY-NC 2.0](#))

Stance



Strategy

Thank you!

Joel Amidon

jcamidon@go.olemiss.edu

Anne Marie Marshall

anne.marshall@lehman.cuny.edu

Becky Nance

rsnance@go.olemiss.edu