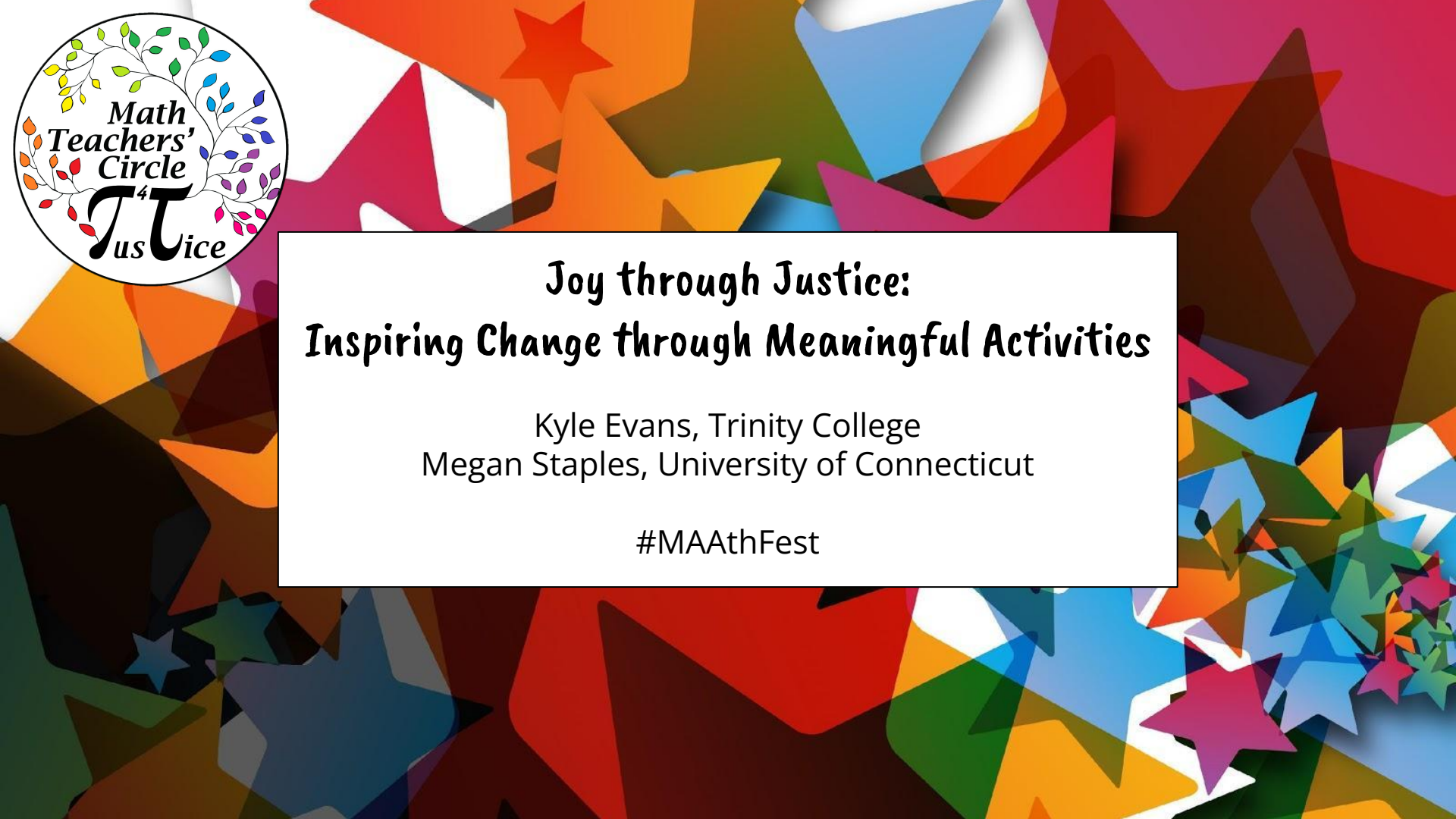

Math Teachers' Circle
Joy through Justice:
Inspiring Change through Meaningful Activities
Kyle Evans, Trinity College
Megan Staples, University of Connecticut
#MAAthFest

Mathematics and Fairness

How does math (attempt to) quantify “fair” or equitable outcomes?

In school (K-12) math this evolves:

- Equal
- Proportional
- True to a claim or standard (not outlier)

There are various contexts in which math “solves” the fairness problem:

- Apportionment (U.S. House of Representatives)
- Cake-cutting
- Rental harmony
- Stable Marriage Problem

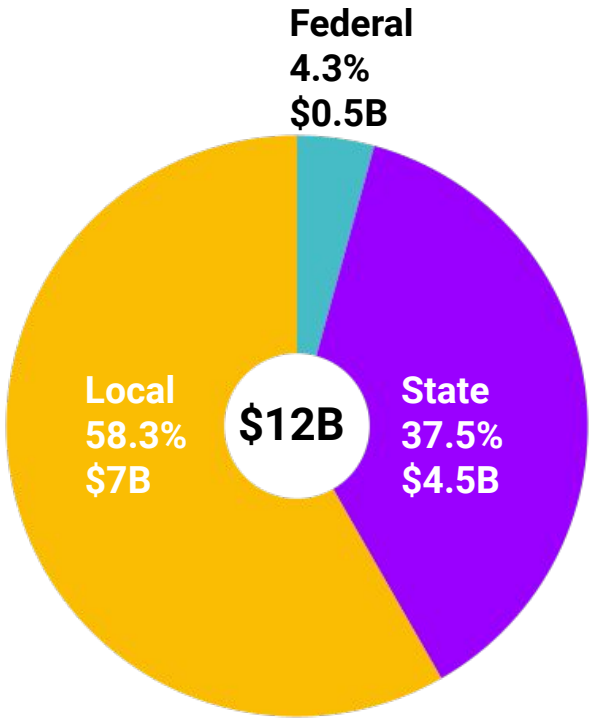
How do public schools get funded?
Where does the money come from?

Horton v. Meskill (1977)

Connecticut Supreme Court in 1977 ruled that education is a basic and fundamental right and that public school students are entitled to equal enjoyment of that right regardless of hometown.

Having a system based only on local property tax revenues was ruled unconstitutional and the state was ordered to use state funds to equalize education.

Connecticut School Funding



The state money is an attempt to “equalize” education by quantifying “fairness.”

What factors would you consider when distributing money to schools/districts?

Teachers' Circle Activity

1) Distribute real data cards from mystery CT district
2) Make sense of district data compared to state totals
3) See data from other groups and decide on “fair share”
4) Groups share out and collectively negotiate $ distribution
5) Districts and formula are revealed
6) Discussion and reflection

Outreach

It’s important!

- Facilitated in a few high school classrooms
- Feedback from teachers that adopted it themselves
- MTC Hawaii (MaTCH)
- Chapter in our book

I feel obligated to share CT's formula

Connecticut uses a **student-based foundation** model.

District $ from state last year:

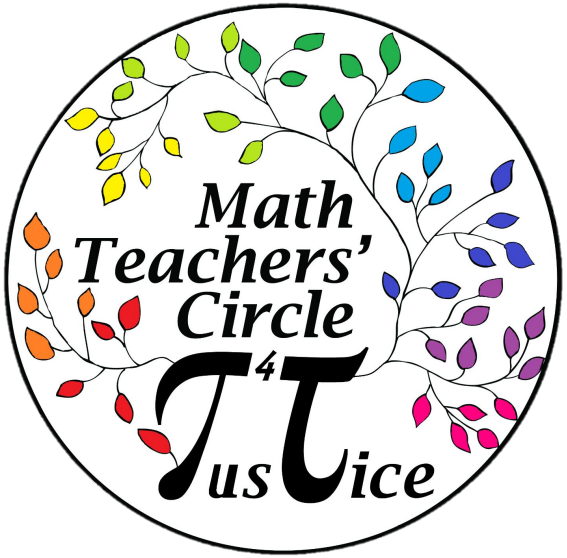
Foundation ✕ Weighted Student Count ✕ Base Aid Ratio

$11,525	1.3 Low-Income	70% Property Wealth
	1.45 Low-Income > 60%	30% Income Wealth
	1.25 ELL	

All districts receive something.
Bonuses for lowest-performing districts.

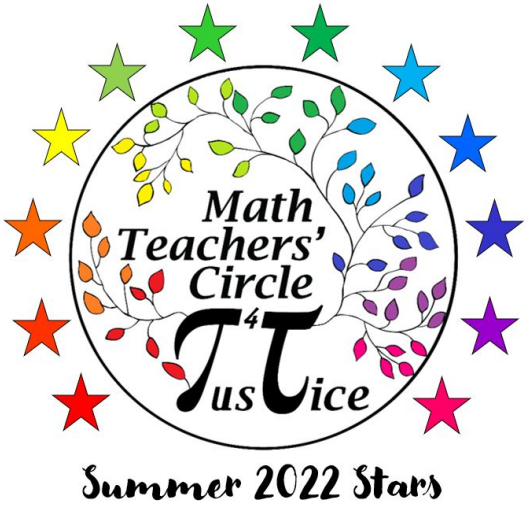
Math Teachers' Circle 4 Social Justice (MTC4SJ)

- Founded in 2020
- Monthly online workshops
  - Tuesday evenings, average 22 participants
- Mostly in-service teachers
- Embrace **capacity** and **community**
- **Summer Stars** cohorts
- Open-access lessons/resources book



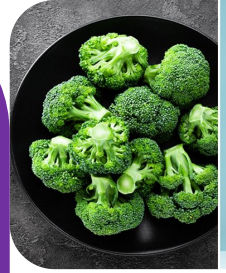
Summer Stars

- 2021: 14 CT educators (MS, HS, coaches)
  - 2-week PD focusing on the **why/what/how** of social justice math + **teacher identity**
  - Developed 6 lessons in groups that became workshops last year + chapters in our book
- 2022: 7 CT educators (HS, pre-service)
  - Currently developing 2 more lessons which will be future workshops + book chapters



Connecting Mathematics & Social Justice

Lessons and Resources for Secondary Math Teachers



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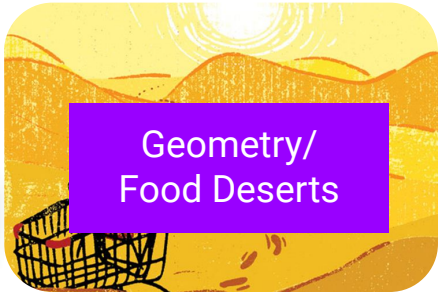
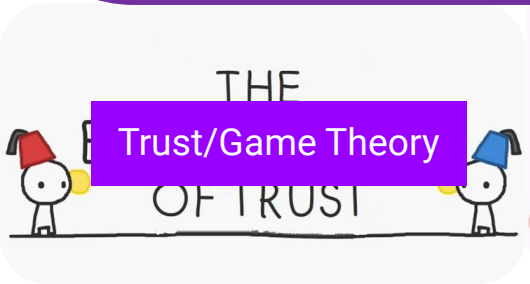
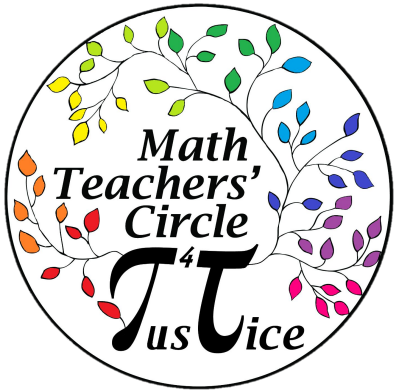




Inspiring Change

"Leaky Pipeline" of Women in STEM

- Workshop in 2021 created by Samantha Greenberg, Kaitlyn Pierce, Marie Randle, McKayla Wyble
- "Women in STEM" week in my own Stats courses
- Will be added to our book in the next set of lessons



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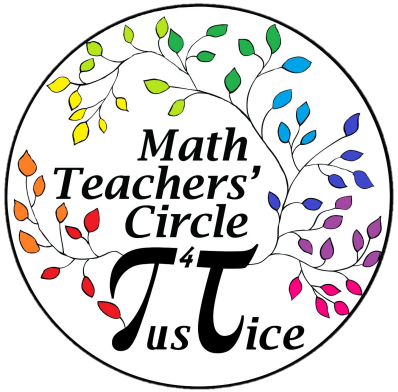
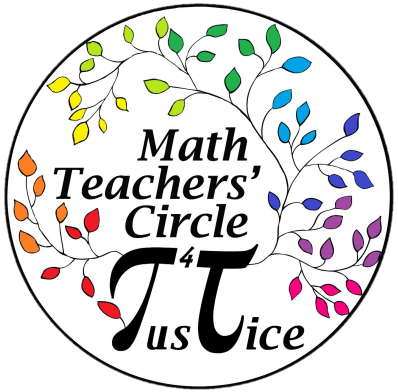
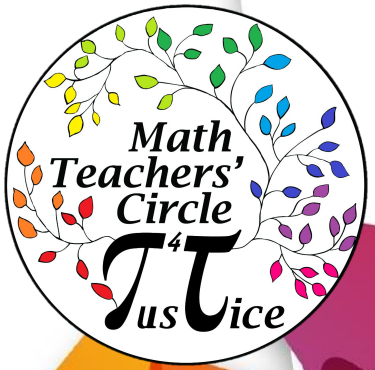
- Won an award ☺️



Next Steps

- More use in schools
  - Book includes user reflections to add to resources
- Broader impact
  - In our own state
  - Pre-service teachers
  - Other Math Circles
- Expansion - Elementary Circle starting this year! (MTC4SJ-E)
- Continue outreach efforts





Thank You!

MTC4SJ Website: bit.ly/mtc4sj

MTC4SJ Book: bit.ly/mtc4sjbook

Email: mtc4socialjustice@gmail.com

kyle.evans@trincoll.edu

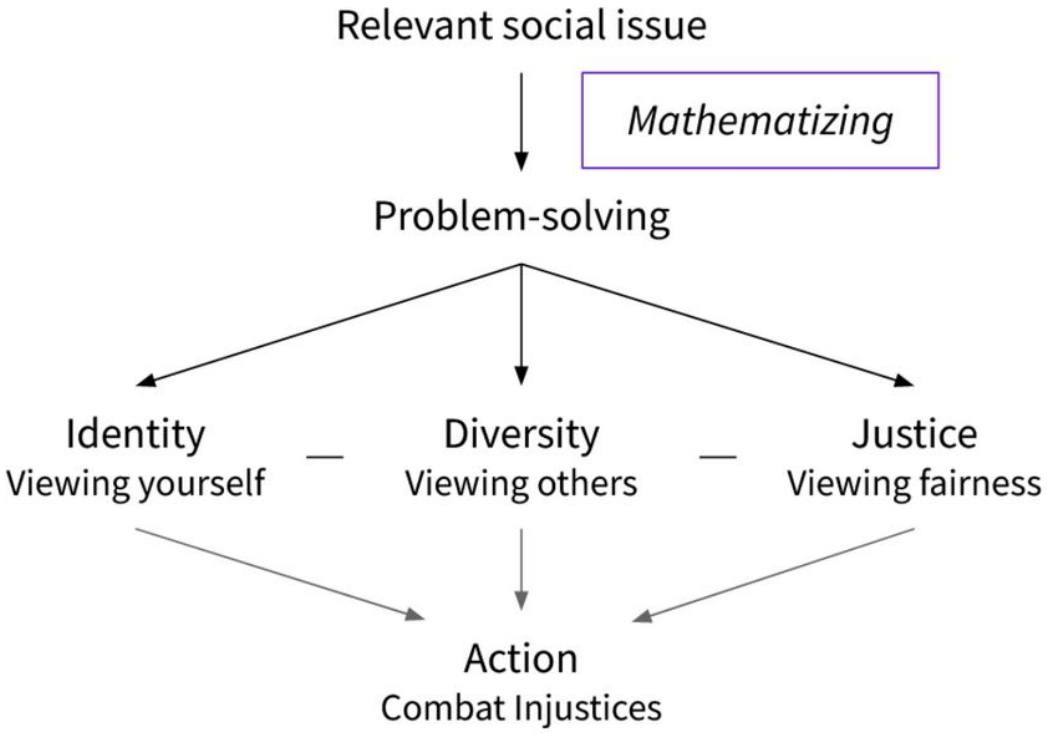
Features of Social Justice Math

Motivation

Investigation

Reflection

Action



Math Teachers' Circle