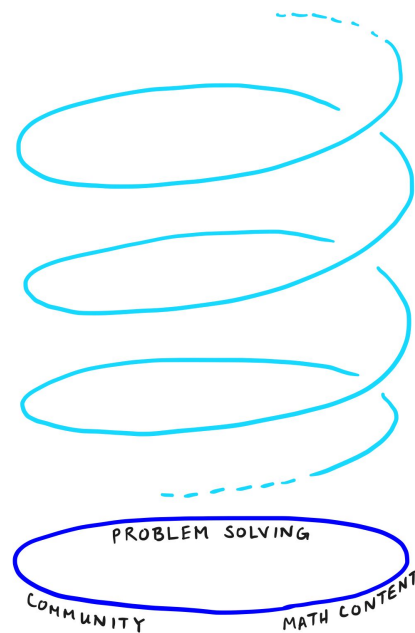




Using the Journal of Math Circles

Brandy Wieggers (@drbrandymath)
Central Washington University



<https://digitalcommons.cwu.edu/mathcirclesjournal/>

Land Acknowledgement

I start by taking a moment to acknowledge the land on which I am speaking from and which Central Washington University resides is the historic home of the Yakama people. The federally recognized Confederated Tribes and Bands of the Yakama Nation is made up of Klikitat, Palus, Wallawalla, Wanapam, Wenatchi, Wishram, and Yakama people.

The Yakama people remain committed stewards of this land, cherishing it and protecting it, as instructed by elders through generations. I am honored and grateful to be here today on their traditional lands. I give thanks to the legacy of the original people, their lives, and their descendants.

Just think of today's SIGMAA-MCST Session

Can we fix it? Adventures into structural stability

Gabriella A. Pinter, University of Wisconsin, Milwaukee*

Fighting for Independence with 0,+1, and -1

Edward Charles Keppelmann, University of Nevada Reno*

Exploring prime numbers and the abc conjecture

David Patrick, Art of Problem Solving*

Dividing Space: First Day Activity for Math Camp and for Linear Algebra (and other courses)

Teresa D Magnus, Rivier University, Nashua NH*

Prolonging the pendulum: an additive activity

Michael D. Barrus, University of Rhode Island*

Finding patterns in visual problems: Examples from Graph Theory

Moshe Cohen, State University of New York At New Paltz*

Let's have fun! Mathematical games for math circles

Rachel Stahl, Bridgewater State University*

....

Math Circle Resources:

- **Olympiad or AMC problems**

Let's have fun! Mathematical games for math circles


Rachel Stahl*, Bridgewater State University

Introduction ○○ Elementary School ○○○○ Middle School ○○○○ High School ○○○○

Pigeonhole Principle

Two players, Red and Blue, play on a rectangular grid. They will alternate turns choosing a box and filling it in with their color.

- Red wants to create a rectangle whose corners are all the same color
- Blue wants to prevent Red from doing so



Start with a small rectangle and build up. Is there a rectangle for which player Red is guaranteed to win?

I

Let's Have Σ Fun! Dr. Shelley Stahl 10 / 17

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- Olympiad or AMC problems
- <http://sigmaa.maa.org/mcst/>
- session resources will be shared here

Can we fix it? Adventures into structural stability

Idea: It makes sense to me if I think about it being tiled with pattern blocks...

Q: Do you do this over one session?



Dividing Space: First Day Activity for Math Camp and for Linear Algebra (and other courses)

Teresa D Magnus*, Rivier University, Nashua NH

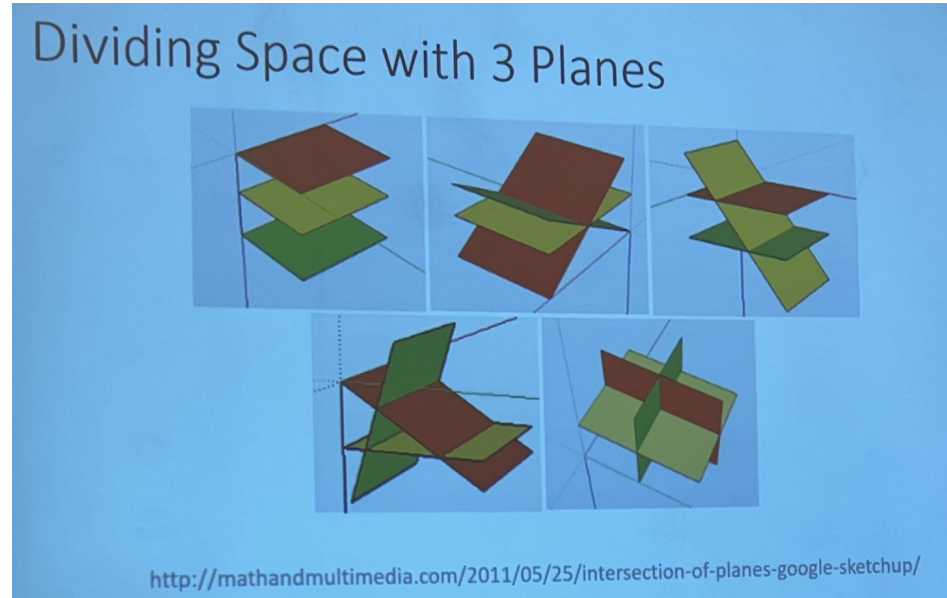
“Students ran across the hall to get cards to see if they could build it”

“Later in the quarter we work together to fit the quadratic”

Idea: extend from polygons to make visualizations something I can see or project the picture/plane cut

Notice: It's not the doubling sequence

Math Monthly connection



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- <https://mathcircles.org/>
and
<https://mathcommunities.org/partners/>

Primes

<https://mathcircles.org/activity/primes/>



The screenshot shows the MathCircles.org website interface. At the top left is the MathCircles.org logo with the tagline "Connecting Mathematicians of All Ages". To the right are navigation links for "About", "Map", "Resources", "Events", and "News", along with social media icons for Facebook and Email. The main content area features a large white box on the left containing a grid of prime numbers: 2, 3, 5, 7 in the first row; 11, 13, 17, 19 in the second; 23, 29, 31, 37 in the third; and 41, 43, 47, 53 in the fourth. A small "Prime-Pic" label is positioned to the right of the grid. To the right of the grid, the title "Primes!" is displayed in large white font. Below the title, the contributor is listed as "David Patrick" and the Math Circles as "MTC Network". A table with four columns—Activity Description, Topics Covered, Session Styles, and Mathematical Practices—lists eight Mathematical Practices (MP1-MP8) associated with the activity. At the bottom left, a small text block provides the citation: "Patrick, David. (2020). Primes. In S. Bowen (Ed.), Math Circle Activity Database. American Institute of Mathematics. https://mathcircles.org/activity/primes".

MathCircles.org
Connecting Mathematicians of All Ages

About Map Resources Events News

Primes!

Contributor(s): **David Patrick**
Math Circles: **MTC Network**

| Activity Description | Topics Covered | Session Styles | Mathematical Practices |
|------------------------------------------------------------------|----------------|----------------|------------------------|
| MP1 - Make sense of problems and persevere in solving them. | | | |
| MP2 - Reason abstractly and quantitatively. | | | |
| MP3 - Construct viable arguments and critique others' reasoning. | | | |
| MP4 - Model with mathematics. | | | |
| MP5 - Use appropriate tools strategically. | | | |
| MP6 - Attend to precision. | | | |
| MP7 - Look for and make use of structure. | | | |
| MP8 - Look for and express regularity in repeated reasoning. | | | |

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- <https://mathcircles.org/> and <https://mathcommunities.org/partners/>
- **Journal of Math Circles**

From Mirrors to Wallpapers: A Virtual Math Circle Module on Symmetry

[Nicole A. Sullivant](#), *Central New Mexico Community College*

Follow

[Christina L. Duron](#), *Pepperdine University*

Follow

[Douglas T. Pfeffer](#), *University of Tampa*

Follow

Biographical Sketch

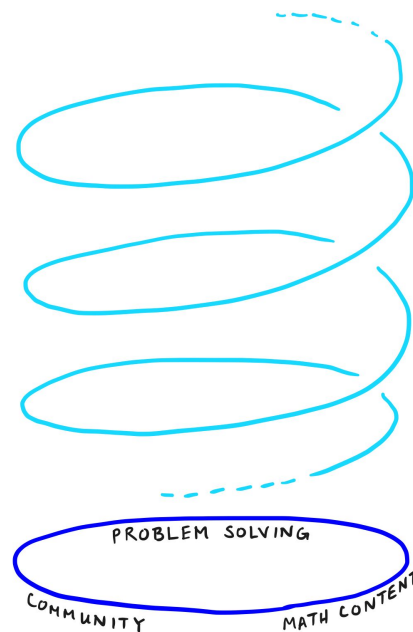
Dr. Nicole Sullivant (formerly Fider) is an Instructor in the School of Math, Science, and Engineering at Central New Mexico Community College. She co-coordinated the Junior division of the Tucson Math Circle (along with Dr. Durón) at the University of Arizona from Fall 2020 through Spring 2022. Her research interests include applied math in the cognitive sciences, mathematical biology, and mathematics education. As a former MAA Project NExT fellow (Silver '19), she is passionate about teaching and seeks to explore active learning methods in her university-level classes and with the Tucson Math Circle.

Dr. Christina Durón is an Assistant Professor of Mathematics in the Natural Science Division of Seaver College at Pepperdine University. She has been part of the Tucson Math Circle at the University of Arizona since 2019. Her interests include mathematics outreach, open educational resources in mathematics, and supervising undergraduate work, particularly in her area of network theory and network analysis.

Dr. Douglas T. Pfeffer is an Assistant Teaching Professor in the Department of Mathematics at the University of Tampa. He obtained his doctorate in functional analysis from the University of Florida, where he specialized in the study of Toeplitz operators associated to constrained subalgebras of the disc algebra. Still



Journal of Math Circles



<https://digitalcommons.cwu.edu/mathcirclesjournal/>

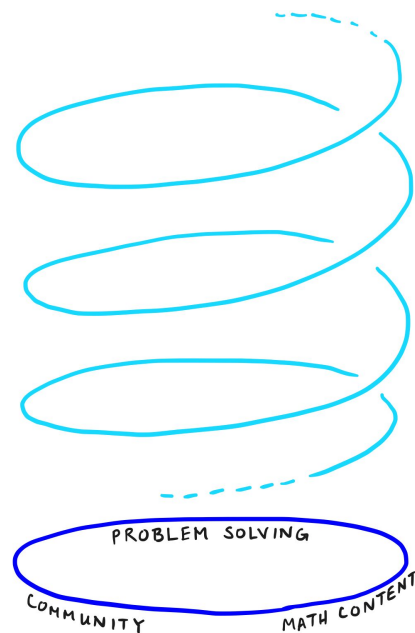
About Journal of Math Circles

Yearly issues with special issues on themed topics

No page limits!

Open-access  creative commons

All published manuscripts have unrestricted access and will remain permanently free to read and download.



JMC Core Values

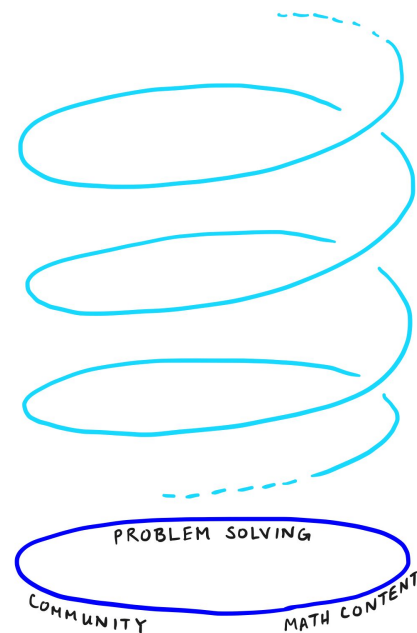
Exploring Worthwhile Mathematical Tasks¹

Math Circle tasks provide low-floor access to essential disciplinary questions, with high ceilings that connect to important, deep mathematical ideas.

Fostering Problem-Solving Habits of Mind^{2,3}

Math Circle problems are facilitated in ways that promote authentic mathematical experiences, where participants maintain agency in driving exploration of mathematics.

Building a Community of Mathematical Thinkers and Problem Solvers



1. Cai, J., & Lester, F. (2010). Why is teaching with problem solving important to student learning. *National council of teachers of mathematics*, 13(12), 1-6.
2. Mason, J., Burton, L., & Stacey, K. 1982. *Thinking mathematically*. Addison-Wesley.
3. Selden, A., & Lim, K. H. 2010, October. Continuing discussion of mathematical habits of mind. In *Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Columbus, OH: The Ohio State University.

3 article types

Lesson Plans. These papers are intended to support leaders of a Math Circle session or progression of sessions.

[Grades 3-5] The Signaling Problem: Using Exploding Dots to Solve an Accessible Mystery in an Elementary-Aged Math Circle

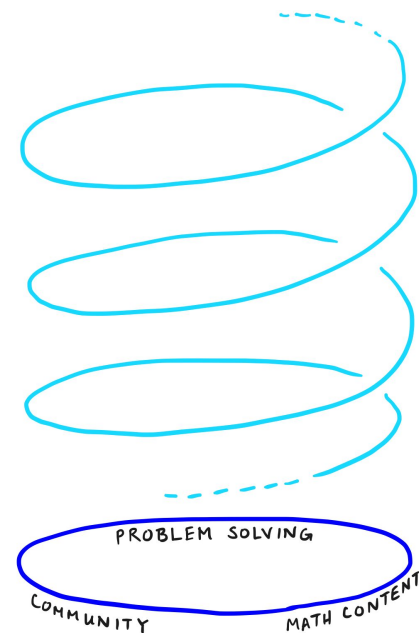
Rodi Steinig, Talking Stick Learning Center

[Grades 4-8] Exploding Dots at the MSU-Billings Math Circle

Tien Chih, Montana State University-Billings

[High School] Advanced Topics Using Exploding Dots: An Explosion of Variations on the Theme

Robert Sachs, George Mason University



3 article types

Outreach Programs. These papers are intended to support individuals or organizations in starting or sustaining Math Circle outreach programs.

Connecting Mathematics and Community: Challenges, Successes, and Different Perspectives

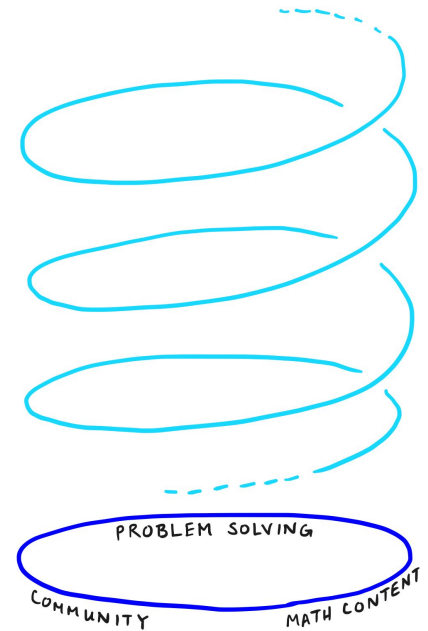
Ariel Azbel, Brown University

Margarita Azbel, Orlando Math Circle

Isabella F. Delbakhsh, Lake Highland Preparatory

Tami E. Heletz, Lake Highland Preparatory

Zeynep Teymuroglu, Rollins College



3 article types

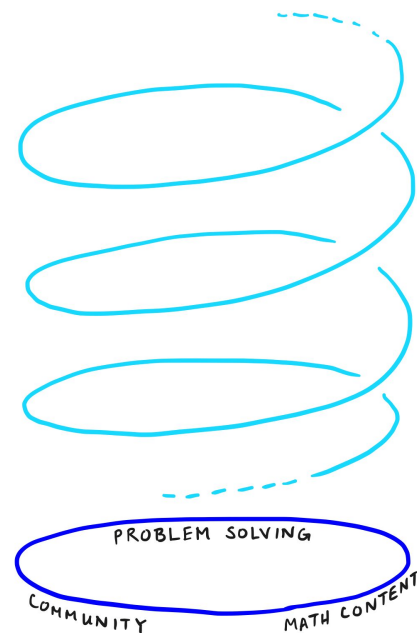
Professional Development. These papers are intended to support leaders of K-12 Math Circle teacher professional development.

Math Amigos: A Community Mathematics Initiative

James C. Taylor, Math Circles Collaborative of New Mexico

Delara Sharma, Santa Fe Public Schools

Shannon Rogers, Art of Problem Solving



Our Goals in Starting Journal of Math Circles

- Increase number of voices; Amplify voices
- Scholarly recognition
- Support authors in research methods and scholarly communication

JMC Special Issue 1:

<https://digitalcommons.cwu.edu/mathcirclesjournal/>

The Intersection of Math Circles and the Global Math Project

The Global Math Project provides access to worthwhile mathematical tasks, like *Exploding Dots*.

“Open research questions are right at the door.”

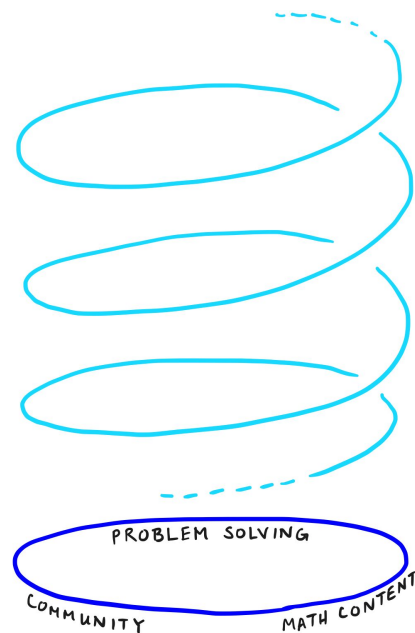
The Global Math Project fosters problem-solving habits of mind.

*“[W]e can teach the world to flail with joy
and find success through persistence.”*

The Global Math Project builds a *global* community of mathematical thinkers and problem solvers.

Commentary from the Field: Elimu Haina Mwisho, “Education has not limits”

Erick Mathew Kaaya, Global Math Project Ambassador
(Meru District, Tanzania)



Math Circles

In Times of Physical Distancing

<https://www.jrmf.org/math-circle-panel>



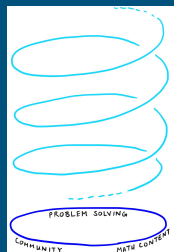
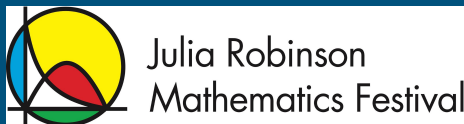
ANNE M. HO.
Appalachian MTC, TEAMTC

GORD HAMILTON.
Math Pickle

JAVIER RONQUILLO & RAMYA RAMASWAMY
Bridge to Enter Advanced Mathematics (BEAM)

SLOAN DESPEAUX
NC Network of MTCs & NCNMTC

Recording notification
This webinar will be recorded and will be shared
via the JRMF website.

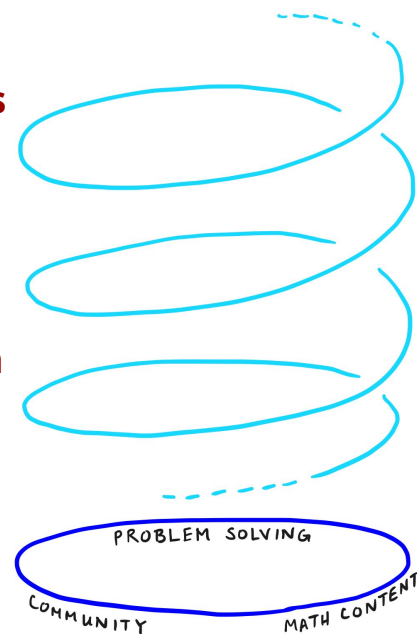


JMC Special Issue 2:

<https://digitalcommons.cwu.edu/mathcirclesjournal/>

Math Circles in a time of Physical Distancing

- **Lessons Learned from [Circle's] Summer of Virtual Programming**
- **The Circle: Building an online community of young math researchers**
- **[Circle]: Math & Girls + Inspiration = Success: Our Amazing Journey
Creating a Virtual Math Circle for Girls**
- **Opportunities and Obstacles for Math Circles in an Online
Environment**
- **Revisiting Prejudiced Polygons: Adapting a Familiar Activity During a
Time of Unknowns**
- **Building on students' natural curiosity over time to change
perception of mathematics through mathematical play**
- **T-Shirts, Zumba, and Desmos: Ways to Reach out to Teachers in
[State] and Beyond**

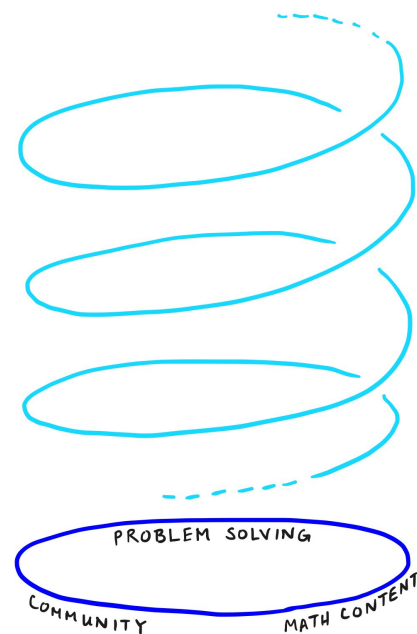


JMC Special Issue 3:

<https://digitalcommons.cwu.edu/mathcirclesjournal/>

Math Circles through the legacy of Bob and Ellen Kaplan

- **The Math Circle Nexus: Developing community through curated debate and collaboration**
- **Different Sizes of Infinity at the Bluebird Math Circle**
- **Sharing big math ideas with children and their teachers in an elementary school math circle**
- **The Kaplans' Influence on the History of Math Circles in the US: an Interview with Tatiana Shubin**
- **The Polymathematician**
- **The Sunday Math Circle**



Write for us!

Double-blind peer review process

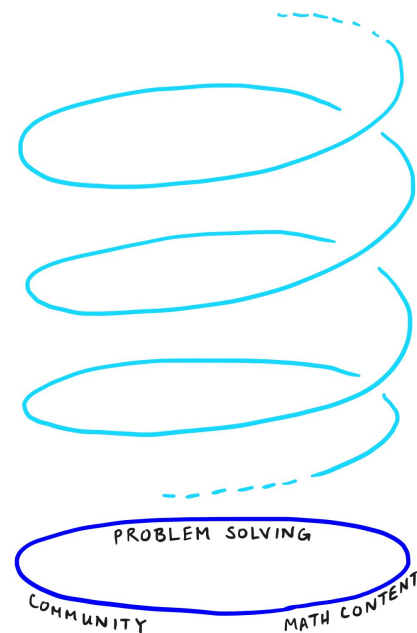
- 4 weeks per round of reviews (min. 2 reviewers)

Evidence-based reflective commentary

- Take attendance
- Collect written artifacts
 - Participant mathematical work
- Document observations
 - Pictures/videos of participants in action
 - Keep a journal observation notes
 - Session implementation, participant reactions
- Interview, survey participants
- Obtain consent/assent

TeX template, Overleaf link, article samples on website

- Please use TeX!

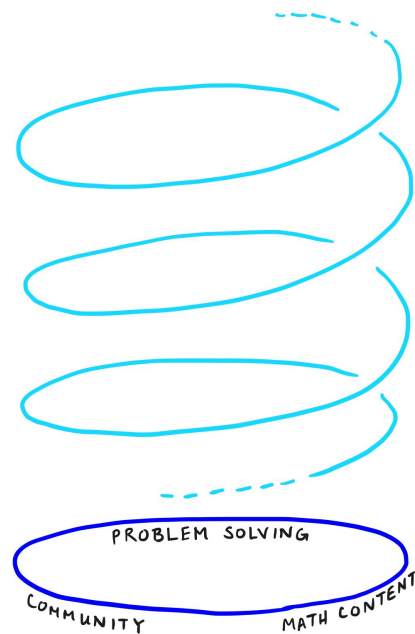


Review for us!

JMC is double-blind peer-reviewed and manuscript reviewers are vital to this process.

As a reviewer for JMC, you will gain valuable experience and help **support the Math Circle community**.

If you are an experienced reviewer or are interested in reviewing for the first time, **visit the JMC website**.



Mathematical Outreach through Math Circles

JMC Editorial Board

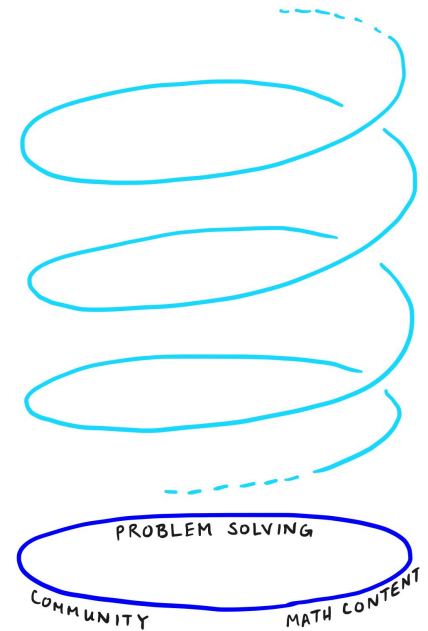
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- Mark Saul, Julia Robinson Mathematics Festival
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- James Tanton, Mathematical Association of America
- Dan Zaharopol, Art of Problem Solving Initiative, Inc.

Copy Editor: Brent Hancock, Central Washington University



Contact JMC!



Brandy S. Wieggers
Central Washington University
Department of Mathematics
brandy.wiegers@cwu.edu
@drbrandymath

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