Welcome to SIGMAA-MCST Session

The Tamu Math Circle Apps Website. *10:00 a.m. - 10:15 a.m.*
Philip Yasskin, Texas A&M University
Carl Van Huyck, Julia Robinson Mathematics Festival
Joshua Goldstein, Texas A&M University

The Winner's Curse. *10:20 a.m. - 10:35 a.m.*
Theodore Alper, Stanford Online High School, Stanford Math Circle

Math Circles in Times of Physical Distancing. *10:40 a.m. - 10:55 a.m.*
Brandy Wiegers, Central Washington University
Emilie Hancock, Central Washington University
Dan Zaharopol, BEAM

INVERSE. *11:00 a.m. - 11:15 a.m.*
Ed Keppelmann, University of Nevada Reno

A Tale of Tic-Tac-Toe: A day of Student Curiosity and Exploration. *11:20 a.m. - 11:35 a.m.*
Nicole Fider, University of Arizona

Math Circle Resources:

- https://mathcircles.org/
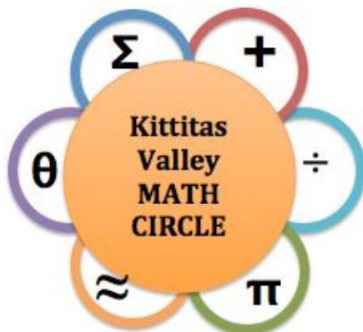- http://sigmaa.maa.org/mcst/- session resources will be shared here

Upcoming SIGMAA-MCST Business Meeting
Likely... Monday, August 16th
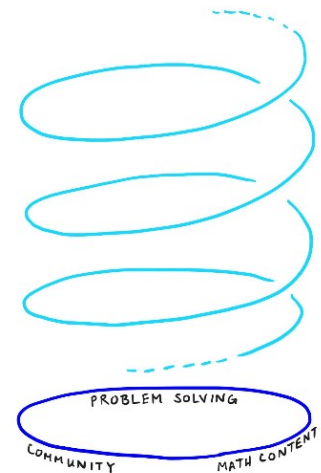3PM ET, 2PM CT, 1PM MT, Noon PT
Email will be sent out
Topics:
- Math Circle Section Meeting support
- Growing SIGMAA website
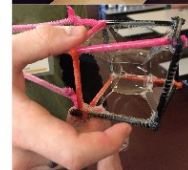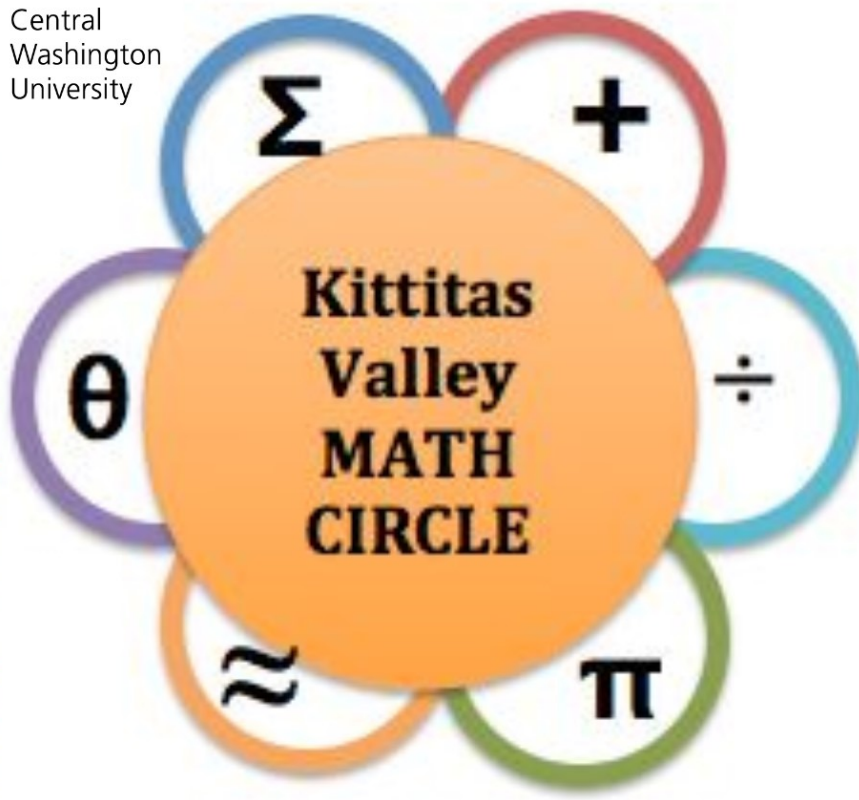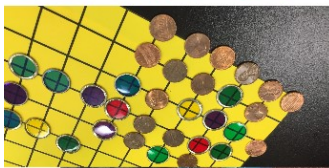- Leadership Opportunities

Math Circles in Times of Physical Distancing

Brandy Wiegers, Central Washington University
Emilie Hancock, Central Washington University
Dan Zaharopol, BEAM

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.

From https://www.cwu.edu/inclusivity/, developed in consultation with members of the Yakama Nation.

Where is Kittitas County?

Population: 42,670 (estimated in 2015).

7,484 children under 18 (18% in 2010)

Total Area: 2,315 square miles

Washington's location in the U.S.

Location in the state of Washington

Image from https://en.wikipedia.org/wiki/Kittitas_County,_Washington
Data from: https://www.co.kittitas.wa.us/about/default.aspx

Creating KVMC- Using Resources Wisely

Small Rural Town (19,786)
- Sports
- Bible Study
- Other outreach projects
- Driving distance

Comprehensive (non-R1) University
- Undergraduate Mentors
- Quarters (10 weeks)
- Supportive STEM outreach
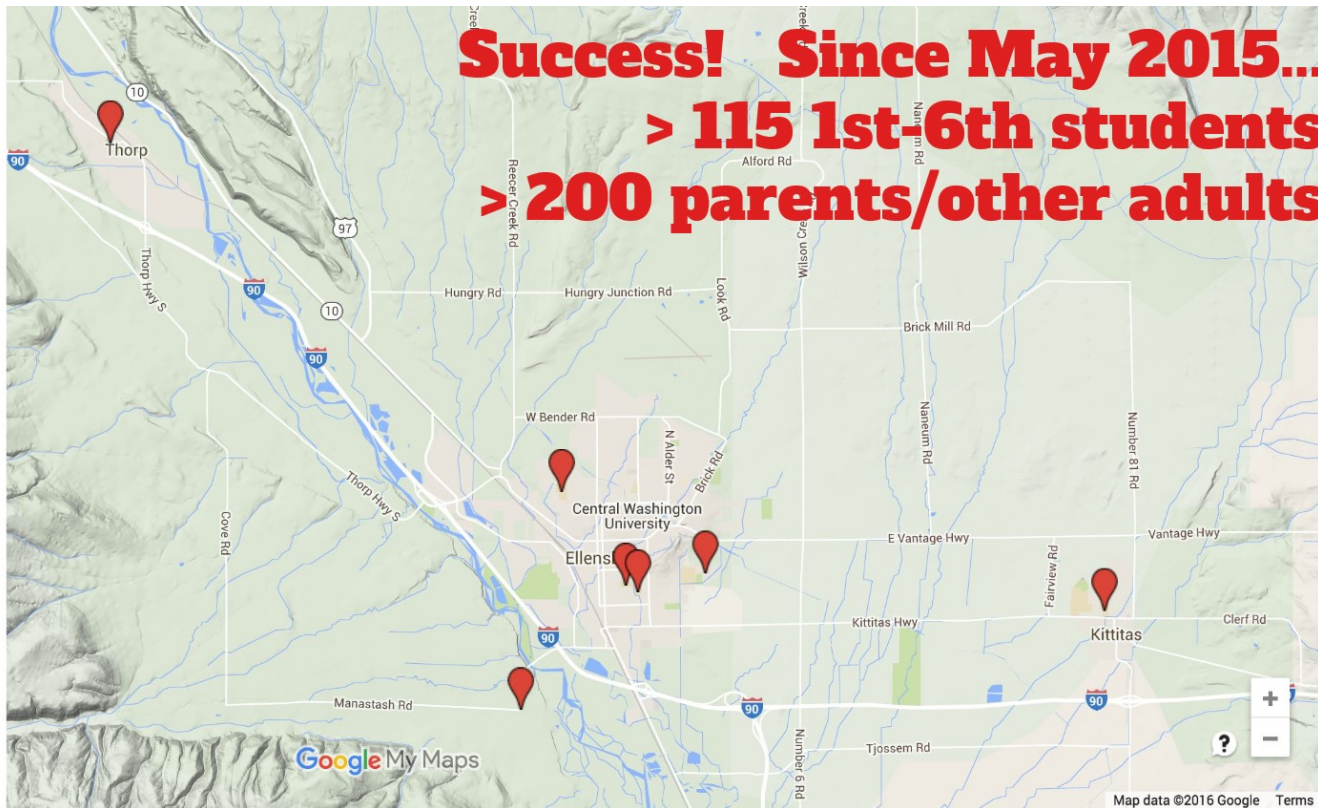
Elementary Math Circle:
2nd- 6th grade students

Topic blocks
(5 weeks, one topic per quarter)

Parents/ guardians are invited to attend a specific adult session for the 1st two weeks of each topic block.

Success!   Since May 2015...
> 115 1st-6th students
>200 parents/other adults

CWU | Central Washington University

4 Year public university

Enrollment: 10,650 students

- ~9800 undergraduates
- ~500 graduate students
- 166 declared majors
- 50+/- graduates a year

Math degrees offered

- Pure
- Actuarial
- Teaching (secondary, middle)
- Applied

From http://www.cwu.edu/about/quick-facts

http://www.cwu.edu/math/kittitas-valley-math-circle

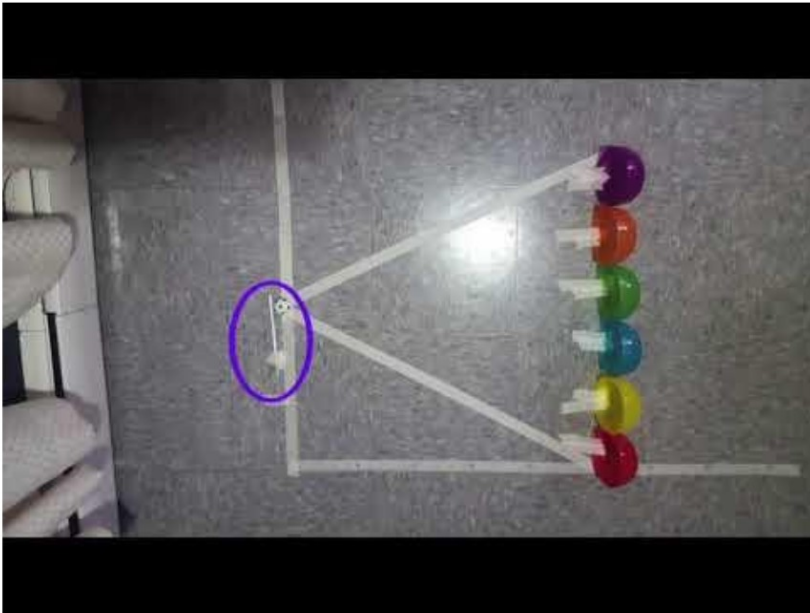# http://www.cwu.edu/math/kittitas-valley-math-circle

Spring 2020

- NIM
- Encryption
- Marble Pinball Experiment
- Experimenting with Probability
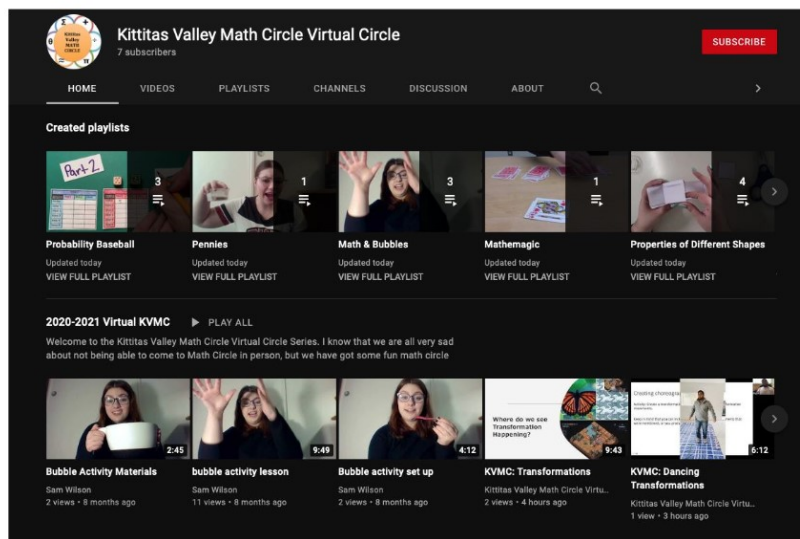- Probability Baseball

2020-2021

- Algebra
- Transformations
- Properties of Different Shapes: Moebius Strips
- Mathemagic
- Math & Bubbles
- Pennies

What went to into making videos?

- Create a plan
  - Materials
  - Multi Part ?
  - Worksheets ?
- Create a script
- Film
- Evaluate
- Refilm

What went to into making videos?

Meet weekly

- Check-in about life
- Make smaller goals
- Report on small goals
- Share successes

http://www.cwu.edu/math/kittitas-valley-math-circle

Thank you!

KVMC is a program of

Central Washington University

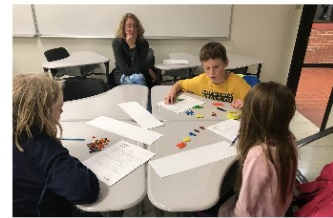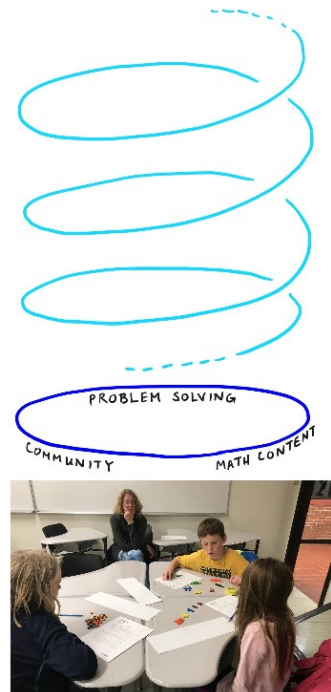The KVMC Spanish program is funded by MAA Tensor-SUMMA grant.

MAA
MATHEMATICAL ASSOCIATION OF AMERICA

http://www.cwu.edu/math/ kittitas-valley-math-circle

KVMC is also supported by

Journal of Math Circles

Emilie Hancock & Brandy Wiegers
Central Washington University

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

PROBLEM SOLVING

COMMUNITY   MATH CONTENT

Our Goals in Starting Journal of Math Circles

- Increase number of voices; Amplify voices

- Scholarly recognition

- Support authors in research methods and scholarly communication

Write for us!

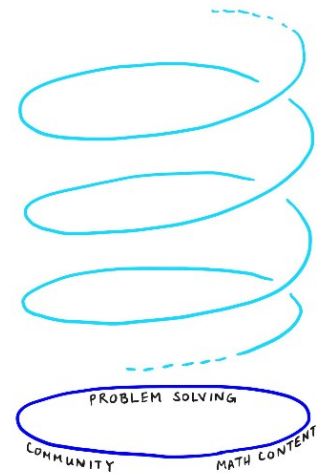**Double-blind peer review process**
- 4 weeks per round of reviews (min. 2 reviewers)

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

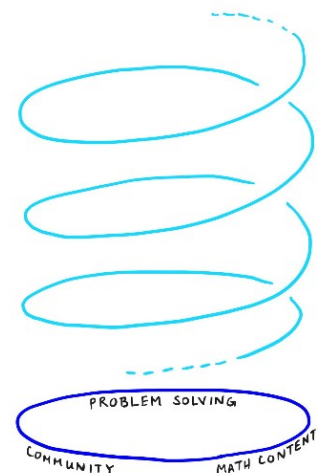**TeX template, Overleaf link, article samples on website**
- Please use TeX!

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**.

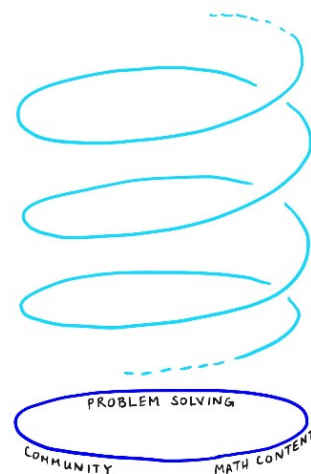# Mathematical Outreach through Math Circles

JMC Editorial Board

https://digitalcommons.cwu.edu/mathcirclesjournal/
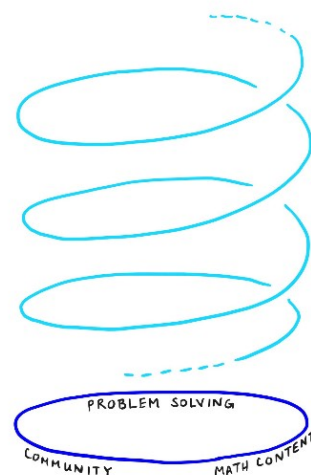
JMC Core Values

Exploring Worthwhile Mathematical Tasks[1]
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 the 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*.

Math Circles
In Times of Physical Distancing
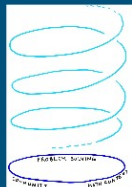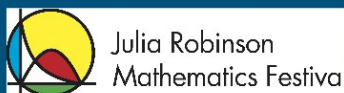https://www.jrmf.org/math-circle-panel

ANNE M. HO.
Appalachian MTC, TEAMTC

GORD HAMILTON.
Math Pickle

JAVIER RONQUILLO & RAMYA RAMASWAMY
Bridge to Enter Advanced Mathematics (BEAM)
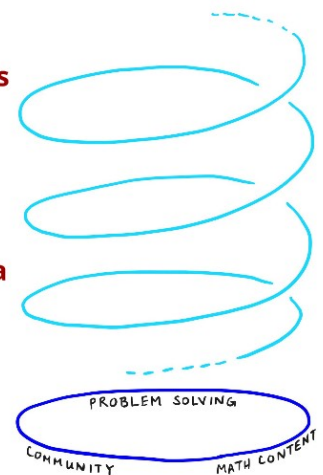
SLOAN DESPEAUX
NC Network of MTCs & NCNMTC

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

Julia Robinson
Mathematics Festival

JMC Special Issue 2:
Math Circles in a time of Physical Distancing

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

- **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**

Contact JMC!

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

PROBLEM SOLVING

COMMUNITY   MATH CONTENT