Kittitas Valley Math Circle

a Circle for students & their parents

B. Wiegers, D. Klyve, A Rogan-Klyve, and J. Shiver
Central Washington University

Where is Kittitas County?

**Population:** 40,915 (in 2010).
**Total Area:** 2,315 square miles

[Image of Kittitas County map]

Data from: [https://www.co.kittitas.wa.us/about/default.aspx](https://www.co.kittitas.wa.us/about/default.aspx)
Creating KVMC- Using Resources Wisely

University Town
● Undergraduate Mentors
● Quarters (10 weeks)
● Existing outreach (CESME)

Rural Small Town
● Sports
● Bible Study
● Other outreach projects
● Driving distance

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Elementary Math Circle:
4th, 5th, 6th grade students

Topic blocks
(5 weeks, 1 per quarter)

Parents/ guardians are invited to attend a parent specific session for the 1st 2 weeks of a topic block
● Fun Topics
  ○ Problem Solving
  ○ Math Patterns
  ○ Cryptology

● Parent/Guardian Program

● Undergraduate Mentors

Creating Success

Block 1: Mathematical Problem Solving
Block 2: Mathematical Patterns

“I have colleagues at Central who have trouble understanding their children’s math homework.

It doesn’t look like the math they learned themselves.”

Dominic Klyve
Math

Janet Shiver
Math Education

Allyson Rogan-Klyve
Science Education
What happens at parent meetings?

Discussing Their Students’ Math Experiences

- Discussion of Shifting Classroom Experience
- Common Core State Standards
- Introduction to mathematical/ education approaches

Discussing Mathematics

- Introduction to the games their students are playing with
- Math at Home: Challenge opportunities

Providing Resources for more fun at home

Shifting Classroom Experience

- Classes become mathematical communities rather than collections of individuals
- Logic and use of mathematical evidence are given priority rather than viewing the teacher as the only authority
- Students work on use mathematical reasoning rather than memorizing procedures
- Increased focus on conjecturing, inventing, and problem solving
- Creation of close connections between mathematics and its applications
Common Core State Standards

Effort by 26 states to develop standards that are meant to support this vision of math and math learning (and English Language Arts)

- Set of Standards
- Not a curriculum
- Not an assessment

Introduction to mathematical/education approaches

- Concrete-Pictorial-Abstract Approach
- Productive Disposition
- Patterns
- Mathematical Thinking and Games
- Meaning of Fraction
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Meaning of Fraction

- Interpreting fractions
- Part-whole interpretation
- Measurement interpretation
- Division interpretation

Undergraduate Mentors
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 - it’s coming :)

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

Changing Undergraduate Experience

- Kittitas Valley Math Circle
- Re-energized Math Club
- Math Honors Program

- New Degree Requirements including Math 299s - Introduction to Problem Solving
- New Math Festival Events
DO NO
HARM

Math Circle Training...
I don’t know, let’s figure it out together

Math 4 Love Tips for Asking Questions

- What happens if we make it smaller/easier/ shorter / lazier?
- Can we organize the data? Picture. Table. List.
- What does your partner think?
- Can you explain your thinking to me?
- Can you give a hint without giving away the answer?
- Tell me why you think it is right.
- Can you break this into parts?
- What would you do if you did know what to do?
- How sure are you?
- What would make you more sure? What can you test?
- Can you break your pattern?
- What have you done so far that has helped you? What got you more stuck?
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http://www.cwu.edu/math/kittitas-valley-math-circle
Dr. Brandy Wiegers
wiegersh@cwu.edu