“Creating confident, inquisitive problem solvers who are excited to explore math each day.”
The mission of each WCSD math teacher is to grow mathematicians by:
  • Making the process of math just as important as the answer to the question
    • Developing conceptual understanding
    • Organizing information mentally

We strive to create a classroom environment where students are confident, inquisitive problem solvers who are excited to explore math each day.

COMMITTEE MEMBERS:

Karen Arbogast
Deanna Boyd
Holly Dietry
Brenda Fleming
Rebecca Furlong
Lindsey Gabor
Amy Hall
Abby Hughes
Katherine Keener
Mike Lipnos
Karen Manges
Julia Myers
Jennifer Nash
Sara Oberst
Lexi Pacheco
Suzi Parker
Erin Rammel
Katy Smith
Ashley Tomassetti
Eric Vizzo
Martin Yoder
Our classrooms are student-centered environments where all learners are empowered to build their understanding of mathematics based on their own context. This will honor them as mathematicians and as individuals. They will develop the ability to take things they already know, make connections to new situations, and then build new understanding.

We accomplish this by ensuring our young people are exposed regularly to the “roots” of their mathematics understanding. By designing purposeful settings involving **Structure, Subitizing, Counting, Place Value, Fraction Readiness, Vocabulary**, students will flourish in their mathematical thinking, problem solving and behaviors. When the “roots” are cared for properly, learners will become flexible risk-taking problem solvers who are accurate and confident in their mathematics (the fruit). *See diagram on next page. Our responsibility as teachers is to build a strong foundation while the students are in charge of developing their knowledge. The learning and connections become easy and natural when the roots have been cared for properly.
COMPONENTS OF A MATH CLASS

01 Fluency - 5-10 minutes: It is not only for basic facts, but concepts or skills. Fluency with facts/skills will allow access to more sophisticated math computation.

02 Computation - 10-20 minutes: Building Number Sense and Mathematical Strategies (Number Talks) - It is when students learn to create, invent and develop strategies to solve computational problems (100% student-driven).

03 Model and Apply - 20-30 minutes: Exploring with Math - It is when students become mathematicians and connecting mathematics to the world.
COMPONENT 1:

FLUENCY

*Fluency - Ability to use efficient, accurate, and flexible methods and computing! Fluency does not imply time tests. (ODE Standards)

WHAT IT IS:

K-2

• Counting by 1’s, 10’s, 100’s forward and backward on and off multiples across decades, centuries, millennium.
• Structure of 5, 10, 20.

3-4

• Counting by 1’s, 10’s, 100’s forward and backward on and off multiples across decades, centuries, millennium.
• Counting by fractional parts. (unit fractions)
• Extending the structure of ten into 1/10, 10, 100.
• Multiplicative structure (using patterns and relationships between changes in the amount of groups and how many are in each group.)
• Second semester possible counting by multiples of 3, 4, 6, 7, 8, 9.

5-6

• Counting by 1’s, 10’s, 100’s forward and backward on and off multiples across decades, centuries, millennium.
• Counting by decimal parts and by non-unit fractions.
• Skill fluency in areas of equivalence (fractions, decimals, place value parts, etc.)
• Extending the structure of ten into 1/10, .1, .01, 10, 100, etc.

WHAT IT IS NOT:

K-5

• Not learned through memorization.
• Not computer based practice.
• Not repetitive drill.

MATHEMATICS FRAMEWORK
COMPONENT 2:

COMPUTATION

“Students exhibit computational fluency when they demonstrate flexibility in the computational methods they choose, understand and explain these methods, and produce accurate answers efficiently.”
— Linda M. Gojak

BUILDING NUMBER SENSE AND COMPUTATION STRATEGIES
(NUMBER TALKS)

WHAT IT IS:
• 10-20 mins.
• Rich classroom discussion
• Connecting Math-to-Math
• Precise Vocabulary
• Partnerships
• Mental and/or written
• Visual thinking
• Connecting Ideas

WHAT IT IS NOT:
• Only about a product
• Focus only on a correct answer
• Worksheets
• Memorization
• Teaching strategies
• Promoting certain strategies
• Teaching isolated skills

NUMBER TALKS

Class discussions don’t give answers/strategies or confirm answers; ask students to:
1. Agree/disagree
2. Add-on
3. Compare thinking
4. Surface discrepancies
5. Revisit previous thinking

Student Behavior
• Debate
• Notice/wonder
• Conjectures (analytical, logical, deductive thinking)
• Process
• Peer feedback, discourse, interaction

“Emphasis on conceptualizing rich mathematical ideas and have an expectation that all students make sense and develop a mathematical intuition.” p. 221, Zager
COMPONENT 3:
MODEL AND APPLY

EXPLORING WITH MATH

Mathematizing the world around us
Recognizing math in the world and everyday situations
Using the practices and habits of mind to solve real-world problems.
SMP - Standards for Mathematical Practice

WHAT IT IS:

• Students driving the questions to answer
• Solving and researching real world problems (everyday life, society, and the workplace)
• Focusing on process rather than answer
• Representing situations with mathematical models (expressions)
• Penalty-free learning
• Student led
• Proving/disproving

WHAT IT IS NOT:

• Worksheets
• I do, we do, you do
• Solving problems for a single answer
• Review of learned skills

Patterns and Relationships of Number System Should be Explored Weekly Through Conceptual Place Value Tools

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<thead>
<tr>
<th>Arrow Cards Link</th>
<th>Number Cards Link</th>
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<td><strong>GO WOOL</strong>&lt;br&gt;Fluency 5-10 min</td>
<td><strong>Computation 10-20 mins</strong></td>
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<td>This section is reserved for fluency developing and counting and facts. We do not memorize facts, but we work on developing fluency. We should count in ALL K-5 classrooms.</td>
<td>The goal here is to create and develop new strategies to compute in mathematics. It is not a time for young people to be explicitly taught &quot;how&quot; to compute.</td>
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<td>Never Say Anything a Kid Can Say</td>
<td>Steven C Reinhart</td>
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<td>13 Rules That Expire</td>
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<td>Warning Signs! Recognize three common instructional moves…</td>
<td>Victoria R Jacobs, et al.</td>
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<td>Fluency: Simply Fast and Accurate? I Think Not!</td>
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<td>Number Talks: Gateway to Sense Making</td>
<td>Kathy Sun, Erin Baldinger, Cathy Humphreys</td>
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