n $v = v_1 \frac{v_1}{v_1}$ $v_2 = k_1(k \cdot v)$ $v_1 = k_2(k \cdot v)$ $v_2 = -k_2(k \cdot v) = v - k_1(k \cdot v)$

Fort Atkinson High School MATHEMATICS PROGRAM ADOPTION



State of WI Changes

In 2010, the State of WI adopted the Common Core Standards for Mathematics. This adoption represented a shift in content rigor, as well as an increased focus on mathematical practices.

State vision calls for students to have mathematical content knowledge, calculation accuracy, as well as development of strong behaviors or, "habits of mind" exhibited by students who are mathematically proficient.

The High School Mathematics Department's current textbooks for Algebra, Geometry and Algebra II are 11 years old.

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Wisconsin's Vision for Mathematics



Mathematics should be experienced as coherent, connected, intrinsically interesting, and relevant



Every student must have access to and engage in meaningful, challenging, and rigorous mathematics



Problem solving, understanding, reasoning, and sense-making are at the heart of mathematics teaching and learning and are central to mathematical proficiency



Effective mathematics classroom practices include the use of collaboration, discourse, and reflection to engage students in the study of important mathematics





Current Need

In addition to the misalignment to the current State Standards, the following are challenges and concerns that are present with the current materials:

- Books are worn
- System lacks revisiting of content (spiraling) and deeper learning expectations
- Teachers are required to self-create materials to compensate for this
- Technology is non-customizable and no longer maintained by the publishing company
- Technology developed since 2004 is not easily incorporated (Chromebook, iPads, etc.)
- Intervention resources are lacking (developed before Response to Intervention)
- Largely direct instruction format rather than a varied instructional approach
- Teacher-driven structure rather than student-responsive design
- Absence of colleagues using the program for professional collaboration
- Program no longer aligned to the 4K-8 District programming

Year 1 - Process Overview (2014-15)

The Math Department completed a year of study prior to beginning the formal Textbook Selection process that included:

- Data review and analysis related to math achievement
- Study of State accountability assessments for math (ACT & Aspire)
- Study of new State Standards
- Identification of current strengths and challenges
- Learned about current best practices related to mathematics instruction from CESA mathematics consultant
- Site visits to area schools

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Development of vision for new program at FAHS

Our Vision / Selection Criteria

- Alignment to the WI State Standards and State Assessments
- Incorporation of technology
- Exploratory learning within problem-solving and hands-on activities
- Differentiation part of the core program in a spiral curriculum structure
- Assessment tools that support standards-aligned grading and practices
- Inclusion of easy-to-use parent support resources
- Professional growth opportunities beyond first year of implementation
- Connection to a professional network of teachers

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Alignment to District 4K-8 recently adopted programming

Year 2 - Process Overview (2015-16)

During the 2015-2016 school year, the High School Math Textbook Selection Team did the following:

- Reviewed a total of 11 programs
- Considered "strand" and "integrated" options and selected to focus on "strand" programs

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- Depth of Knowledge Analysis
- Comprehensive Mathematics Program Evaluation Rubric
- Vendor Presentations
- Deliberation / Decision

Committee Selection

 $\times (\mathbf{k} \times \mathbf{v}) = \mathbf{v} - \mathbf{k} (\mathbf{k} \cdot \mathbf{v})$

The committee recommends the **Core Connections** series for adoption in the School District of Fort Atkinson for Algebra, Geometry and Algebra 2.



Background of the Core Connections Program

- The company that created *Core Connections* has been developing mathematics curriculum since 1989
- Used by 6 million students, 10,000 teachers nationwide
- Supported by research in methodology and student results
- Written by classroom teachers with the collaboration of college professors
- Used by 78 Wisconsin districts with numbers growing

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Methodology Research

Students learn best when they are:

- actively engaging in a wide array of structured inquiry.
- discussing mathematical thinking and ideas with others.
- using mixed, spaced practice.



Alignment to State Vision

The Core Connection Program provides:

- Spiraled instruction aligned to State Standards for Mathematics
- Mathematical practices woven into daily lessons
- Balance of conceptual understanding, fluency and problem solving with an emphasis on reasoning communication
- Purposeful connections and progressions in learning
- Fewer problems, less distractions, deeper thinking
- Opportunity for structured learning in collaborative teams
- Varied instructional approaches



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A Balanced Program

The Core Connection Program provides instruction in:

• procedural fluency and computation (algorithms & basic skills)

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Core Connecti

- deep understanding of important mathematical ideas
- strategic competence (problem solving)
- adaptive reasoning (application and extension)
- building a confidence and positive disposition toward mathematics

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What does it look like for teachers?

- Providing targeted lectures
- Providing support to students as they work
 - Clarifying instructions
 - Checking for understanding
 - Assessing student results
- Enhancing student understanding through questioning
- Facilitating conversation / collaboration
- Providing closure

What does it look like for students?

- Students are active participants in their learning.
- Students solve rich, meaningful problems that lead to deep conceptual understanding of the mathematics.
- Instruction / problems have a definite mathematical purpose and require connections of strands of mathematics.
- Students thinking critically, analyzing, evaluating, making conclusions and communicating mathematically.
- Less practice ... more focus

Other Program Perks

- Online homework help for students
- Very little reading in homework
- Universal access notes for lessons prepared for students
- Parent guides by chapter
- Multi-language translator
- Readability at a 6th grade level (by lexile)
- Multiple assessment resources and approaches
- Defined "checkpoints" that indicate where mastery and fluency should be achieved (assists with intervention identification)
- Extensive, on-going professional development offered including on-site coaching by non-profit company



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2016-2017 = Algebra 2017-2018 = Geometry 2018-2019 = Algebra 2

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Team Members

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For More Information ...



