Mathematics at BRS

Presentation to the Board of Education
Woodbridge School District
February 2024

Presentation topics

- Research
- Philosophy and beliefs
- Current practices
- Data review
- Staffing
- Continuous improvement
- Looking ahead
    - What to expect at BRS
    - What we see at Amity Middle and High School

Research

- Review of standards and resources
- Review of district mission, vision, and beliefs
- Discussions with several districts within our DRG & BOWA
- Meeting with Dr. Katherine Gavin, UCONN NEAG School of Education, Renzulli Center for Creativity, Gifted Education, and Talent Development
- Review of relevant articles and research
- Ongoing BOWA Curriculum Meetings
- Vertical alignment with AMSB through meetings and class visits
- Classroom visits to look at math tasks and student work
- Ongoing data review– both Standardized and Curriculum Based Measures

Research continued

From IM 2020, Guidance on Accelerating Students in Mathematics

"The concepts addressed in K–8 mathematics are extremely important, and students need time to learn this content properly. Acceleration approaches that involve skipping standards put future learning at risk. A survey conducted by ACT (2012) found that topics from grades 6–9 were more important to college faculty for college preparation than advanced topics."

From NCTM 2023, "Disrupting High, Medium, and Low in Mathematics Education"

"… Valuable recommendations including creating opportunities for students to show their strengths by supporting all students' access to rich content and open-ended problem solving; and keeping support groups flexible and focused on information about students' understanding of specific topics rather than general assessments of ability."

BRS Foundational Belief

What are the consequences of thinking that your intelligence is something you can develop, as opposed to something that is a fixed, deep-seated trait?

Carol Dweck, Mindset

Mathematics Beliefs at BRS

- ★ Mathematical Practice Standards are a critical component of instruction in today's classroom

  "*Standards for Mathematical Practice describe the nature of the learning experiences, thinking processes, habits of mind, and disposition that students need to develop a deep, flexible, and enduring understanding of mathematics." CSDE Website*

- ★ All learners deserve opportunities to think deeply and practice inquiry
- ★ Growth mindset research guides BRS instruction
- ★ Gaps in student understanding are created by skipping foundational learning standards
- ★ Passion, perseverance, and being able to communicate mathematically are just as important as computational skills
- ★ Teacher-student relationships drive instructional decisions

Research Recommendations

- Commit to cultivating a solid K–8 mathematics foundation by appropriate implementation of grade-level standards and limiting acceleration options before high school
- Provide extension and enrichment opportunities, aiming for deeper understanding (which is great for future learning), before acceleration is considered
- Compact curriculum in upper grades rather than skip important foundational content
- Use high-quality research-based resources
- Provide ongoing, targeted professional learning

Important Definitions

Compacting: Students complete a pre-assessment. If they score 90% or higher, they are then given a post-assessment for the same unit. If they score a 90% or higher they are then compacted out. Students who are compacted out receive small group work that allows them to apply mastered skills to projects and problem solving tasks.

Flexible grouping: Teachers utilize data to identify students who have mastered concepts and skills. Students are provided with different work to complete during specific class sessions. Flexible grouping changes each unit.

Current Practice: Grades 5

- All grade 5 students stay within their homeroom for math class
  - Support provided: intervention and extension within and outside of homeroom classroom
- Curriculum is compacted
  - “The term compacted means to compress content, which requires a faster pace to complete; it does not involve skipping content.”
- At the end of Grade 5, students are assessed for their grade 6 math placement
  - Identification and timeline for these processes to be shared in spring

Curriculum Compacting data

Unit	Number of students
1 (Multiplication, Division and Order of Operations)	17
2 (Decimals)	6 (one chose not to be part of the group)

Current practice: Grade 6

- All grade 6 students are departmentalized for all subject areas
  - Support provided: intervention and extension both within and outside of the classroom through differentiated instruction and flexible grouping based on formative and summative assessments and curriculum based measures

- For the 2023-2024 school year→ Grade 6 learners who qualified for Pre-algebra are provided with online learning platform (Aleks), a pre-algebra textbook and ongoing check ins from a Math Specialist 1-2x per cycle

- At the end of Grade 6, students may be identified for grade 7 math, pre-algebra, or to take the algebra readiness assessment

Pre-Algebra Data

2021-2022	2022-2023	2023-2024
10%	14%	2%

- Criteria adjusted to match AMSB for the 23-24 school year

What our data shows

Smarter Balanced Math	% Meet/Exceeded
Grade 3	75.7%
Grade 4	87.2%
Grade 5	82.8%
Grade 6	76.5%
All Grades	80.7%

STAR Winter 2024	% at Level 3 and 4
Grade 3	74%
Grade 4	83%
Grade 5	88%
Grade 6	84%
All Grades	83%

Within our District Reference Group (DRG)

DRG Math Ranking for Math SBAC Performance				
Ranking	District	Subject	Level 3&4 Met or Exceeded	
			Count	%
1	Woodbridge School District	Math	380	80.7
2	Madison School District	Math	816	79.2
3	Cheshire School District	Math	1,354	73.7
4	Farmington School District	Math	1,368	72.9
4	Glastonbury School District	Math	1,828	72.9
6	Trumbull School District	Math	2,200	71.6
7	Simsbury School District	Math	1,322	71.5
8	Greenwich School District	Math	2,636	70.3
9	Regional School District 05	Math	484	69.1
10	South Windsor School District	Math	1,577	67.8
11	New Fairfield School District	Math	628	67.2
12	Fairfield School District	Math	2,767	67.1
13	Guilford School District	Math	924	66.3
14	Orange School District	Math	467	65.9
15	Newtown School District	Math	1,138	64.9
16	Monroe School District	Math	970	64.4
17	Avon School District	Math	907	62.5
18	West Hartford School District	Math	2,366	59.4
19	Brookfield School District	Math	601	54.9
20	Granby School District	Math	414	53.3
21	State of Connecticut	Math	92,970	42.5

Collective Teacher Efficacy

“It is the collective belief of teachers in their ability to positively affect students.”

- *Dr. John Hattie, Visible Learning*

Continuous Improvement

- Communication
  - Administration
  - Math Specialists
  - Classroom teachers
  - Special area teachers (ie TAG Teachers, Technology teachers etc.)
- Ongoing conversations with AMSB and BOWA
- Review and revise resources for curriculum compacting, flexible grouping, and homework
- Professional learning
- Strategic Plan
  - Inquiry Teaching and Learning
  - Project Based Learning

Looking ahead- what to expect at BRS

- Pre-Algebra offered to grade 6 students who qualify
- Compacting and flexible grouping continuing
- After-school opportunities in Mathematics for all interested learners
- New resources for learners compacting out
- New resources for flexible grouping
- Closer look at differentiated homework
- Involvement of STEAM teacher
- Continued involvement with math curriculum leaders
- Opportunities for ongoing professional development
- Continued support for ALL students
- Communication with the BRS Community

Communication with the BRS Community

Now:

- Letter sent to the community with information from this presentation

Next:

- Information sent to grade 5 parents regarding process for assessment

In the future:

- Ongoing communication regarding mathematics instruction from teachers and administration

Looking Ahead: Amity

What does the Amity Middle and High School data tell us about our practices at BRS?

Presentation by: Frank Purcaro, Amity Assistant Superintendent

Questions?