SANBORN REGIONAL SCHOOL DISTRICT

K-6 MATH PROGRAM SELECTION REPORT

Presented by Patricia Haynes, PhD – Director of Teaching & Learning
COMMITTEE MEMBERS

Donna Donnell  Amy Carroll  Gail Charest  Trisha Black  Bonnie Banyas  Carrie Daigle  Rich LaPorte  Shari Allessio  Jolene Johnson  Sue Burns  Patricia Haynes
INTRODUCTION

• Math Program Selection began in spring 2019
• Math Committee assembled in fall 2020
  • Delayed due to reorganization and pandemic
  • Volunteers from each grade level, Kindergarten through 6
  • Special educators also on committee
HISTORICAL VIEW
EVERYDAY MATH

2007
• Everyday Math (EDM) Chosen

2012
• Updated Edition of EDM Deployed
• Aligned with Common Core State Standards

2016
• New Edition of EDM deployed
Percent of Students Scoring Proficient or Above on State Math Assessments 2015-2019

![Graph showing the percent of students scoring proficient or above on state math assessments from 2015 to 2019. The graph includes lines for different grade levels, with a transition from SBAC to NHSAS indicated.]
Cohort Math Trends - 2015 to 2019

Grade 3 in 2015
Grade 4 in 2015
Grade 5 in 2015
Grade 6 in 2015
Grade 3 in 2016
Grade 3 in 2017
Even with supplements to the program, yearly scores did not improve

Cohort growth, following the same group of students, was essentially unchanged

Overall program deficiencies exist
PROGRAM SELECTION PROCESS
Every student will see themselves as a mathematician.
IMET

= Instructional Materials Evaluation Tool

Guides reviewers to find and record evidence for criteria in three categories:

- Non-negotiable Criteria
- Alignment Criteria
- Indicators of Quality
Directions for Non-Negotiable 2
Focus and Coherence

Non-Negotiable 2: Materials must focus coherently on the Major Work of the grade in a way that is consistent with the progressions in the Standards.

Focus and coherence are the two major evidence-based design principles of the Common Core State Standards for Mathematics (CCSSM, p. 3). Focus is necessary in order to fulfill the ambitious promise the states have made to their students by adopting the Standards: greater achievement at the college- and career-ready level, greater depth of understanding of mathematics, and a rich classroom environment in which reasoning, sense-making, applications, and a range of mathematical practices flourish. In simpler terms, a mile-wide, inch-deep curriculum translates to less time per topic. Less time means less depth and moving on without many students. Thus, materials must focus coherently on the Major Work of the grade in a way that is consistent with the progressions in the Standards.

Materials to Assemble

- From the grade being evaluated: teacher and student materials
- Focus by Grade Level for the grade being evaluated (www.achievethecore.org/focus)


Metrics to Review

- NN Metric 2A: Students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.
- NN Metric 2B: Supporting Work enhances focus and coherence simultaneously by also engaging students in the Major Work of the grade.
- NN Metric 2C: Materials follow the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with on-grade-level content.
- NN Metric 2D: Lessons that only include mathematics from previous grades are clearly identified as such to the teacher.

Rating this Criterion

Non-Negotiable 2 is rated as Meets or Does Not Meet.

To rate Non-Negotiable 2, first rate metrics 2A-2D. Each of these four metrics must be rated as Meets in order for Non-Negotiable 2 to be rated as Meets. Rate each metric 2A-2D as Meets or Does Not Meet/Insufficient Evidence. If the evidence examined shows that the Criterion is not met, then mark the Criterion Meets. If the evidence examined shows that the Criterion is not met—or if there is insufficient evidence to make a determination—then mark the Criterion as Does Not Meet/Insufficient Evidence. Support all ratings with evidence.
EdReports

- Educator-lead teams conduct reviews of educational programs
  - Gather evidence
  - Investigate materials
  - Confer with publishers
- Produce evidence-rich reports available to educators to select high quality materials for students
  - Rate as “Meets Expectations”, “Partially Meets Expectations”, or “Does not Meet Expectations”
Review Criteria Design

The EdReports review criteria supports a sequential review process through three gateways. These gateways reflect the importance of standards alignment to the fundamental design elements of the materials and considers other attributes of high-quality curriculum as recommended by educators.

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Result: Alignment Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>The reviewed materials <strong>Meet Expectations</strong> for Gateway 1</td>
<td>AND <strong>Meet Expectations</strong> for Gateway 2</td>
<td><strong>Meet Expectations</strong></td>
</tr>
<tr>
<td><strong>BUT</strong> either <strong>Partially Meet or Do Not Meet</strong> the expectations for Gateway 2</td>
<td></td>
<td></td>
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<tr>
<td>The reviewed materials <strong>Partially Meet Expectations</strong> for Gateway 1</td>
<td>AND <strong>Meet Expectations</strong> for Gateway 2</td>
<td><strong>Partially Meet Expectations</strong></td>
</tr>
<tr>
<td><strong>BUT</strong> <strong>Partially Meets</strong> expectations for Gateway 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUT Do Not Meet</strong> the expectations for Gateway 2</td>
<td></td>
<td><strong>Do Not Meet Expectations</strong></td>
</tr>
<tr>
<td>The reviewed materials <strong>Do Not Meet</strong> the expectations for Gateway 1</td>
<td>If it <strong>Does Not Meet Expectations</strong> for Gateway 1 the material is not reviewed for Gateway 2</td>
<td><strong>Do Not Meet Expectations</strong></td>
</tr>
</tbody>
</table>
District Needs

- Chosen program had to also align with district needs
  - Sanborn Graduate Success Profile
  - Digital resources
  - High-engagement
- Mathematics Teaching Practices
## Effective Mathematics Teaching Practices

<table>
<thead>
<tr>
<th>Practice</th>
<th>Description</th>
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<tbody>
<tr>
<td>Establish mathematics goals to focus learning</td>
<td>Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.</td>
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<tr>
<td>Implement tasks that promote reasoning and problem solving</td>
<td>Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.</td>
</tr>
<tr>
<td>Use and connect mathematical representations</td>
<td>Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.</td>
</tr>
<tr>
<td>Facilitate meaningful mathematical discourse</td>
<td>Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.</td>
</tr>
<tr>
<td>Pose purposeful questions</td>
<td>Effective teaching of mathematics uses purposeful questions to assess and advance students’ reasoning and sense making about important mathematical ideas and relationships.</td>
</tr>
<tr>
<td>Build procedural fluency from conceptual understanding</td>
<td>Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skilled in using procedures flexibly as they solve contextual and mathematical problems.</td>
</tr>
<tr>
<td>Support productive struggle in learning mathematics</td>
<td>Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.</td>
</tr>
<tr>
<td>Elicit and use evidence of student thinking</td>
<td>Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.</td>
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</tbody>
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**MATHEMATICAL TEACHING PRACTICES**
SANBORN’S CHECKLIST

- Cohesive units with no spiraling
- Structured
- Skill practice
- Visuals to support all learners
- Real-world, purposeful math
- Family support and connections
- Technology
Family Survey

- Sent to families through newsletters from each of the four schools
- Open from January 30 – February 8
Publishers presented programs and answered questions in January 2021

Teachers “test flew” programs
  ▶ Taught a unit
  ▶ Gave assessment
  ▶ Gathered information
Findings
Filtering out

- 12 of 20 programs eliminated with IMET and EdReports
- Additional programs eliminated that did not match district needs
EVERYDAY MATH

- Did not meet alignment criteria in IMET
- EdReports scores
  - Rigor & Mathematical Practices = **Does Not Meet Expectations**
  - Focus & Coherence = **Partially Meets Expectations**
  - Overall rating = **Does Not Meet Expectations**
Family Survey

- January 30-February 8, 2021
- 136 Responses
My child feels successful in math.
My child has a strong mathematical foundation.
My child can complete math homework (other than games) independently.
My child can complete homework assignments in other subject areas independently.
My child completes his/her math homework in a reasonable amount of time.
I have enough understanding of the math program to assist my child with his/her math homework.
The district provides me with the necessary reference materials to assist my child with his/her homework.
The district provides enough opportunities for parent education in math.

Parent Survey Responses – K-12 Math Program Review February 2021

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- Don't Know
EnVision Mathematics 2020 – Common Core

- Fulfilled requirements of IMET
- Aligned to Common Core Math Standards
- EdReports scored high in Focus & Coherence, Rigor & Mathematical Practices, and Usability – “Meets Expectations”
- Meets District Needs
Support for students at all levels

Vocabulary

1. You can draw a picture or bar diagram to multiply. To find $3 \times 5$, think about 3 groups of 5.

<table>
<thead>
<tr>
<th></th>
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<th>5</th>
<th>6</th>
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$3 \times 5 = \underline{____} \times 5 + \underline{____} \times 5$

You can also use known facts to multiply because of the **Distributive Property**.

$3 \times 5 = \underline{____} + 5$

$3 \times 5 = \underline{____}$

2. Complete the bar diagram to find $8 \times 6$.

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</table>

$8 \times 6 = \underline{____}$

Name ____________________

Reaching to Build Understanding 3-5

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**Tree Diagrams**

Mrs. Leeu needs to have one bookcase and one rug for the classroom library. The choices are shown in the table.

<table>
<thead>
<tr>
<th>Bookcase Sizes</th>
<th>Rug Shapes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall</td>
<td>Circle</td>
</tr>
<tr>
<td>Short</td>
<td>Rectangle</td>
</tr>
<tr>
<td>Short</td>
<td>Square</td>
</tr>
</tbody>
</table>

How many different combinations of one size of bookcase and one shape of rug are there?

A tree diagram is one way to show all the possible combinations. Complete the tree diagram that is started for you.

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Intervention

Enrichment 3-5
Guided Practice

1. Sarah has 4 pages of stickers in an album. Each page has 3 rows with 2 stickers in each row. How many stickers are in Sarah’s album? You may use objects to help.

2. Billy concludes the product of $(2 \times 3) \times 5$ is not equal to the product of $2 \times (3 \times 5)$. Is Billy correct? Explain.

Do You Know How?

In 3–6, use the Associative Property of Multiplication to find the missing number. You may use objects or draw a picture to help.

3. $2 \times (4 \times 2) = (2 \times 4) \times$ 

4. $(3 \times 4) \times 3 = 3 \times (\_\_ \times 3)$ 

5. $2 \times (2 \times 3) = (2 \times 2) \times$ 

6. $(3 \times 2) \times 4 = \_\_ \times (2 \times 4)$

Independent Practice

In 7–12, use the Associative Property of Multiplication to find the missing number. You may use objects or draw a picture to help.

7. $8 \times (3 \times 6) = (8 \times 3) \times$ 

8. $5 \times (6 \times 9) = (5 \times 6) \times$ 

9. $5 \times (7 \times 2) = (5 \times 7) \times$ 

10. $5 \times (2 \times 9) = (5 \times ____ \_ \_ \times 9$ 

11. $3 \times (2 \times 5) = (3 \times 2) \times$ 

12. $4 \times (2 \times 2) = (4 \times ____ \_ \_ \times 2$

In 13–18, use the Associative Property of Multiplication to find the product. You may use objects or draw a picture to help.

13. $2 \times 3 \times 2 =$ 

14. $3 \times 6 \times 2 =$ 

15. $2 \times 6 \times 2 =$
SAMPLE PAGES

In-Class Practice

Preparation for High-Stakes Assessments
Family Connection Letter

At Home Practice – with examples
Fluency Practice Pages
MEETS SANBORN’S NEEDS

✓ Cohesive units with no spiraling
✓ Structured
✓ Skill practice
✓ Visuals support all learners
✓ Real-world, purposeful math
✓ Family support and connections
✓ Technology
IMPLEMENTATION TIMELINE

- Upon approval from the board, order materials **Spring 2021**
- Summer PD for teachers
- Ongoing PD
- Data collection
  - Informally at curriculum meetings
  - Formally by trimester
Every student will see themselves as a mathematician