



MARLBOROUGH BOARD OF EDUCATION

MATHEMATICS PROGRAM UPDATE



October 28, 2021

# Math



CCSS Mathematical Standards...

envisioned by William Schmidt and Richard Houang (2002), not only stressing conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value and the laws of arithmetic to structure those ideas.

# *enVision Math*

(Adopted by MES September, 2020)




Introduces concepts and procedures within problem solving experiences.

Mathematics explicitly instructed & connected to problem solving.

Consistent, every day engagement with meaningful mathematical problems requires students to select, implement and manage multiple mathematical practices.

- High cognitive level conversations (Solve & Share Task)
- Enhanced direct instruction (built off Solve & Share Task)
- Solve the problem (visual learning bridge)



# 2021-22 Program Action Steps

Identify additional focus areas to support grade level instruction (screener data)

Unit Pacing / Assessment adjustments

High quality daily math instruction (enVision)

Tier Group

- Tier 2 supportive intervention (just in time concepts and procedures)
- Tier 3 intensive intervention (just in time...)

Math Fact Fluency – additional focus required

- Xtra Math (focused, assigned activities)



# Fall, 2021 Identified Focus Areas



Grade	Data Informed – Additional Integrated Standards
K	numeral recognition, number sequencing
1	composing shapes, +/- word problems, decompose numbers 11 to 19
2	equations ( $6=5+1$ ), unknown addends
3	+/- within 100 solving two step word problems, portioning using equal shares
4	equivalent fractions, fractions equivalent to whole numbers, division as an unknown factor problem
5	decimals, whole number quotients up to 4 digits, equivalent fractions, area/perimeter with unknown factor
6	parenthesis & brackets in numerical expressions, decimal problem solving, area with fractional sides, +/- fractions with unlike denominators

4 <sup>th</sup> Grade Topics	Major Clusters 4 <sup>th</sup> Grade
	<ul style="list-style-type: none"> <li>○ Data informed reteaching 3<sup>rd</sup> Grade Content Standards</li> </ul>
1: Generalize Place Value Understanding	4.NBT.A: Generalize place value understandings for multi-digit whole numbers.
2: Fluently add and subtract multi-digit whole numbers.	4.NBT.B: Use place value understanding and properties of operations to perform multi-digit arithmetic.
3: Use strategies and properties to multiply by 1-digit numbers.	<ul style="list-style-type: none"> <li>○ 3.NBT.A.2: Fluently add and subtract within 1000 using strategies and algorithms</li> </ul>
4: Use strategies and properties to multiply by 2-digit numbers.	
5: Use strategies and properties to divide by on-digit numbers.	
6: Use operations with whole numbers to solve problems.	4.OA.A: Use the four operations with whole numbers to solve problems.
7: Factors and multiples	<ul style="list-style-type: none"> <li>○ 3.OA.A.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.</li> <li>○ 3.OA.B.6: Understand division as an unknown-factor problem.</li> </ul>
8: Extend understanding of fraction equivalence and ordering	4.OA.B: Gain familiarity with factors & multiples
9: Understand addition and subtraction of fractions.	4.NF.A: Extend understanding of fraction equivalence and ordering.
10: Extend multiplication concepts to fractions.	<ul style="list-style-type: none"> <li>○ 3.NF.A.3.A: Understand two equivalent fractions as equal if they are the same size or same point on a number line.</li> <li>○ 3.NF.A.3.B: Recognize and generate simple equivalent fractions.</li> <li>○ 3.NF.A.3.C: Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.</li> </ul>
11: Represent and interpret data on line plots.	4.NF.B: Build fractions from unit fractions by applying and extending previous understandings of operations with whole numbers.
12: Understand and compare decimals.	4.MD.B: Represent and interpret data.
13: Measurement: Find equivalence in units of measure.	4.NF.C: Understand decimal notation for fractions and compare decimal fractions.
14: Algebra: Generate and Analyze Patterns	4.MD.A: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
15: Geometric Measurement: Understand concepts of angles and angle measurement.	<ul style="list-style-type: none"> <li>○ 3.MD.C.7.B: Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems.</li> <li>○ 3.MD.C.7.C: Use area models to represent the distributive property in mathematical reasoning.</li> </ul>
16: Lines, angles, shapes	4.OA.C: Generate and analyze patterns.
	4.MD.C: Geometric measurement: understand concepts of angles and measure angles.
	4.G.A: Draw and identify lines and angles and classify shapes by properties of their lines and angles.
	<ul style="list-style-type: none"> <li>○ 3.G.A.1: Recognize rhombuses, rectangles and squares as quadrilaterals.</li> </ul>

# Mathematical Data Footprint – September 2021

Grade	Data Collection Tools			Tier
	Fall	Mid-Year	End of Year	
Kindergarten	CBM: Numeral Recognition Quantity Compare Number Sequences within 10 Quantity Recognition within 10	CBM: Numeral Recognition Quantity Compare Number Sequences within 10 Quantity Recognition within 10	CBM: Numeral Recognition Quantity Compare Number Sequences within 20 Quantity Recognition within 20	Push in support Numeral recognition: 19.4% Quantity discrim: 8% Number sequencing: 11%
1 <sup>st</sup> Grade	enVision Screener (B) STAR Math CBM: Quantity Compare Addition to 10 Number sequences within 20 Quantity recognition within 20	STAR Math CBM: Quantity Compare Addition to 10 Number sequences within 20 Quantity recognition within 20	STAR Math CBM: Quantity Compare Addition to 10 Number sequences within 20 Quantity recognition within 20	7/55 => 13%
2 <sup>nd</sup> Grade	enVision Screener (C) STAR Math CBM: Addition to 10 / Addition to 20 Subtraction from 10	STAR Math CBM: Addition to 10 / Addition to 20 Subtraction from 10	STAR Math CBM: Addition to 10 / Addition to 20 Subtraction from 10	9/65 => 14%
3 <sup>rd</sup> Grade	enVision Screener (D) STAR Math CBM: Mixed addition / subtraction	STAR Math STAR CBM: Mixed addition / subtraction Unit & mid year tests	STAR Math STAR CBM: Mixed addition / subtraction Unit & end of year tests	7/57 => 12%
4 <sup>th</sup> – 6 <sup>th</sup> Grade	enVision Screener STAR Math TOMAGS	STAR Math Unit tests Mid year test	STAR Math Unit tests End of year test	4 <sup>th</sup> : 6/51 => 12% 5 <sup>th</sup> : 11/61 => 18% 6 <sup>th</sup> : 6/62 => 10%

# Staffing Resources to Support Math Intervention and Extension



Grade	Math Tier	Alternative Time Math	Math Extension
K	Push in	---	Push in
1 <sup>st</sup>	3 students	4 students	6 students
2 <sup>nd</sup>	4 students	5 students	6 students
3 <sup>rd</sup>	4 students	3 students	7 students
4 <sup>th</sup>	3 students	3 students	6 students
5 <sup>th</sup>	8 students	3 students	8 students
6 <sup>th</sup>	3 students	3 students	5 students





# Additional Learning Opportunities for Math

## **Geometry and Measurement & Data Standards**

- Integration into essential arts classes

## **Numbers & Operations – Fractions**

- Instrumental & instructional music classes

## **Statistics & Probability**

- Science labs / instruction

