

MATHEMATICS PARENT GUIDE

FIRST GRADE



Every Student. Every Day.

Medinah School District # 11

TABLE OF CONTENTS

Mathematics Philosophy.....	2
Best Practices - Characteristics of Mathematically Proficient Students.....	3
Progressions of Concepts.....	4
Grade-Level Introductory Letters.....	5
Grade-Level Vocabulary.....	6
Kindergarten	
First Grade	
Second Grade	
Third Grade	
Fourth Grade	
Fifth Grade	
Sixth Grade	
Seventh Grade	
Eighth Grade	
Grade Level Standards – Core Essentials.....	7
Kindergarten	
First Grade	
Second Grade	
Third Grade	
Fourth Grade	
Fifth Grade	
Sixth Grade	
Seventh Grade	
Eighth Grade	
Assessment.....	8

Mathematics Philosophy

The Medinah School District 11 Math Curriculum Committee affirms that students and teachers in grades K-8 have a well-developed and meaningful mathematics curriculum. The standards-based program is comprehensive and includes basic skills, problem solving, concept development, and critical thinking. This balanced, research-based curriculum encourages students to be thoughtful math practitioners.

“The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years.”

—*Common Core State Standards for Mathematics*, page eight

The eight Standards for Mathematical Practice are:

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

The Math Committee recognizes that for effective implementation of this philosophy, ongoing support and cooperation from the home and school district are vital. To maximize the benefits of the allocated instructional time necessary for concept development, the majority of skill maintenance will take place outside the math classroom. Instructional support, depending upon grade level, includes technology resources, tutorials, homework, and home study. Ongoing staff development is fundamental as well.

The goal of the Medinah School District 11 math program is to ensure **all** students' **life-long** mathematical success.

Best Practices



Characteristics of Mathematically Proficient Students¹

Standards for Mathematical Practice

Student Characteristics

1. Make sense of problems and persevere in solving them.

Mathematically proficient students can

- Explain the meaning of a problem and restate it in their words.
 - Analyze given information to develop possible strategies for solving the problem.
 - Identify and execute appropriate strategies to solve the problem.
 - Evaluate progress toward the solution and make revisions if necessary.
 - Check for accuracy and reasonableness of work, strategy and solution.
 - Understand and connect strategies used by others to solve problems.
-

2. Reason abstractly and quantitatively.

Mathematically proficient students can

- Translate given information to create a mathematical representation for a concept.
 - Manipulate the mathematical representation by showing the process considering the meaning of the quantities involved.
 - Recognize the relationships between numbers/quantities within the process to evaluate a problem.
 - Review the process for reasonableness within the original context.
-

3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students can

- Use observations and prior knowledge (stated assumptions, definitions, and previous established results) to make conjectures and construct arguments.
 - Compare and contrast logical arguments and identify which one makes the most sense.
 - Justify (orally and in written form) the approach used, including how it fits in the context from which the data arose.
-

-
- Listen, understand, analyze, and respond to the arguments of others.
 - Identify and explain both correct and flawed logic.
 - Recognize and use counterexamples to refine assumptions or definitions and dispute or disprove an argument.
-

4. Model with mathematics.

Mathematically proficient students can

- Use a variety of methods to model, represent, and solve real-world problems.
 - Simplify a complicated problem by making assumptions and approximations.
 - Interpret results in the context of the problem and revise the model if necessary.
 - Choose a model that is both appropriate and efficient to arrive at one or more desired solutions.
-

5. Use appropriate tools strategically.

Mathematically proficient students can

- Identify mathematical tools and recognize their strengths and weaknesses.
 - Select and use appropriate tools to best model/solve problems.
 - Use estimation to predict reasonable solutions and/or detect errors.
 - Identify and successfully use external mathematical resources to pose or solve problems.
 - Use a variety of technologies, including digital content, to explore, confirm, and deepen conceptual understanding.
-

6. Attend to precision.

Mathematically proficient students can

- Understand symbols and use them consistently within the context of a problem.
 - Calculate answers efficiently and accurately and label them appropriately.
 - Formulate precise explanations (orally and in written form) using both mathematical representations and words.
 - Communicate using clear mathematical definitions, vocabulary, and symbols.
-

7. Look for and make use of structure.

Mathematically proficient students can

- Look for, identify, and accept patterns or structure within relationships.
- Use patterns or structure to make sense of mathematics and connect prior knowledge to similar situations and extend to novel situations.
- Analyze a complex problem by breaking it down into smaller parts.
- Reflect on the problem as a whole and shift perspective as needed.

8. Look for and express regularity in repeated reasoning.

Mathematically proficient students can

- Recognize similarities and patterns in repeated trials with a process.
- Generalize the process to create a shortcut which may lead to developing rules or creating a formula.
- Evaluate the reasonableness of results throughout the mathematical process while attending to the details.

¹http://www.ocde.us/CommonCoreCA/Documents/mathematicalpractices_characteristicsofproficientstudent_wisconson.pdf

Progression of Concepts



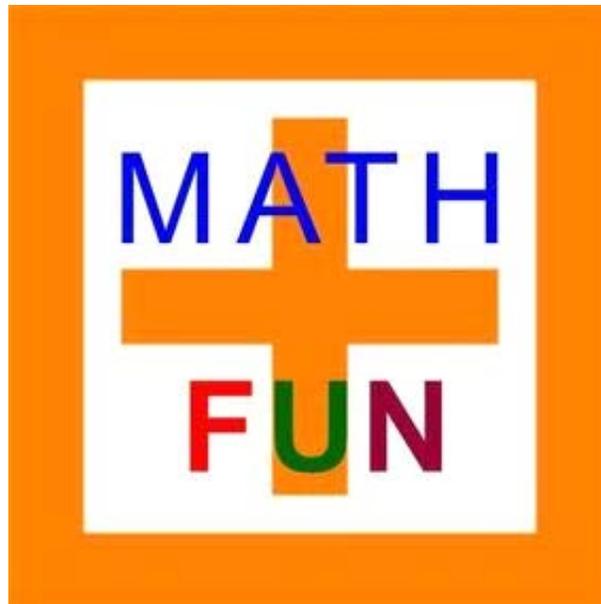
K-8 MATH

Progression of Concepts

KDG	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Counting and Cardinality								
Numbers and Operations in Base Ten				Ratios and Proportional Relationships				
		Numbers and Operations: Fractions			The Number Systems			
Operations and Algebraic Thinking				Expressions and Equations				
				Function				
Geometry								
Measurement and Data				Statistics and Probability				

Introductory Letter

by
Grade Level



First Grade

enVisionMATH Common Core

enVisionMATH Common Core is a focused and coherent mathematics curriculum that provides in-depth instruction on a limited number of important categories of mathematics content. The program revolves around Big Ideas in mathematics that children need to know, and shows how these ideas are related. To convey the power of Big Ideas to students, they are translated into student-friendly Essential Questions presented at the beginning of each topic. Throughout the topic, numerous smaller ideas (called Essential Understandings) are linked into a coherent whole. Application of the eight math practices are weaved into every topic.

enVisionMATH	
Topic 1	Understanding Addition
Topic 2	Understanding Subtraction
Topic 3	Five and Ten Relationships
Topic 4	Addition and Subtraction Facts to 12
Topic 5	Addition Facts to 20
Topic 6	Subtraction Facts to 20
Topic 7	Counting and Number Patterns to 120
Topic 8	Tens and Ones
Topic 9	Comparing Numbers to 100
Topic 10	Adding with Tens and Ones
Topic 11	Subtracting with Tens and Ones
Topic 12	Length
Topic 13	Time
Topic 14	Using Data to Answer Questions
Topic 15	Geometry
Topic 16	Factions of Shapes

Standards for Mathematical Practice

- ✓ Make sense of problems and persevere in solving them.
- ✓ Reason abstractly and quantitatively.
- ✓ Construct viable arguments and critique the reasoning of others.
- ✓ Model with mathematics.
- ✓ Use appropriate tools strategically.
- ✓ Attend to precision.
- ✓ Look for and make use of structure.
- ✓ Look for and express regularity in repeated reasoning.

Home School Connection:

Parent tutorial: <http://mypearsontraining.com/products/pearsonrealize/tutorials.asp?page=students>

Parents and students will also have online access to math videos, manipulatives, quizzes, and other resources. Look for upcoming information from your child's teacher that includes a username and password.

www.pearsonrealize.com

Vocabulary



EnVision Math

Common Core Vocabulary

Grade 1

Topic 1: Understanding Addition

- join
- outside
- inside
- in all
- whole
- part
- double
- sum
- addition sentence
- plus (+)
- equals (=)
- add
- addend
- order

Topic 2: Understanding Subtraction

- missing part
- subtraction
- difference
- subtraction sentence
- equal sign
- minus sign
- compare
- take away
- same amount

Topic 3: Five and Ten Relationships

Topic 4: Addition and Subtraction Facts to 12

- 2 less than
- 1 less than
- 0 less than
- near double

Topic 5: Addition Facts to 20

- double plus 1
- double plus 2

Topic 6: Subtraction Facts to 20

- related fact
- fact family

Topic 7: Counting and Number Patterns to 120

- digit
- row
- column

Topic 8: Tens and Ones

- tens
- ones
- digit
- break apart a ten

Topic 9: Comparing Numbers to 100

- 1 more
- 1 less
- 10 more
- 10 less
- equal to =
- less than
- greater than

Topic 10: Adding with Tens and Ones

- Regroup

Topic 11: Subtracting with Tens and Ones

Topic 12: Length

- longest
- shortest
- taller
- shorter
- estimate
- measure

Topic 13: Time

- o'clock
- minute
- minute hand
- hour hand
- hour
- schedule
- half hour

Topic 14: Using Data to Answer Questions

- picture graph
- bar graph
- data
- tally mark

Topic 15: Geometry

- plane shape
- hexagon
- trapezoid
- sort
- side
- corner
- solid figure
- cube
- sphere
- rectangular prism
- cone
- cylinder
- vertex (vertices)
- vertex (vertices)
- flat surface
- pyramid

Topic 16: Fractions of Shapes

- Equal parts

Core Essentials



1st Grade Core Essentials

Operations and Algebraic Thinking

- I can use strategies to solve addition word problems. 1.OA.1
- I can use strategies to solve subtraction word problems. 1.OA.1
- I can solve word problems by adding 3 whole numbers. 1.OA.2
- I can use the associative property of addition. 1.OA.3
- I can use an addition fact to help me answer a subtraction problem. 1.OA.4
- I can count to help me add and subtract. 1.OA.5
- I can add facts within 20. 1.OA.6
- I can subtract facts within 20. 1.OA.6
- I know what an equal sign means. 1.OA.7
- I can tell if addition or subtraction equations are true or false. 1.OA.8
- I can tell the missing number in an addition or subtraction problem. 1.OA.8

Numbers and Operations in Base Ten

- I can count to 120 1.NBT.1
- I can tell how many tens and how many ones are in a number. 1.NBT.2
- I can compare two-digit numbers using $<$, $=$, and $>$. 1.NBT.3
- I can use manipulatives and pictures to help me solve problems within 100. 1.NBT.4
- I can use math strategies to help me solve problems within 100. 1.NBT.4
- I can find 10 more or 10 less in my head. 1.NBT.5
- I can subtract multiples of 10 under 100 and explain what I did. 1.NBT.6

Measurement and Data

- I can put three objects in order from longest to shortest. 1.MD.1
- I can tell the length of an object using whole numbers. 1.MD.2
- I can tell and write time in hours and half-hours using a clock. 1.MD.3
- I can organize data. 1.MD.4
- I can understand data. 1.MD.4
- I can ask questions about data. 1.MD.4

Geometry

- I can tell about shapes. 1.G.1
- I can build and draw shapes. 1.G.1
- I can make two-dimensional shapes. 1.G.2
- I can make three-dimensional shapes. 1. G.2
- I can use shapes to make new shapes. 1.G.2
- I can divide shapes into parts. 1.G.3

Assessments



MEASURES of ACADEMIC PROGRESS (MAP)

Measures of Academic Progress (MAP) are state-aligned computerized adaptive tests that reflect the instructional level of each student and measure growth over time.

The assessment itself is unique in that it adapts to the student's ability, accurately measuring what a student knows and needs to learn. In addition, MAP tests measure academic growth over time, independent of grade level or age. Most importantly, the results educators receive have practical application to teaching and learning.

Students in Medinah take the mathematics and reading assessments in the fall, winter and spring from grades 1 thru 8. Each student is provided with a Rausch Unit Interval (RIT) score after testing. They are then given a RIT Target goal for the next assessment session.

Parents receive a summary of their student's progress in mathematics and reading. The report includes a growth chart, current test scores compared to a National perspective, and the projected RIT goal for students next session of testing.

Testing Seasons: FALL, WINTER, SPRING								
KDG	1st	2nd	3rd	4th	5th	6th	7th	8th
	Operations and Algebraic Thinking Number and Operations Measurement and Data Geometry					Operations and Algebraic Thinking The Real and Complex Number Systems Geometry Statistics and Probability		

AIMSWEB

At the foundation of Aimsweb is general outcome measurement, a form of curriculum-based measurement (CBM), used for universal screening and progress monitoring. This form of brief assessment measures overall performance of key foundational skills at each grade level and draws upon over thirty years of scientific research that demonstrates both its versatility to provide prediction or reading and math achievement as well as its sensitivity to growth.

The Power of CBM

Educators and researchers will tell you CBM is their assessment of choice for progress monitoring and Response to Intervention (RTI) because this method of general outcome measurement is:

- **Brief:** Can be administered frequently without disrupting instruction.
- **Predictive:** Provides accurate predictions of reading and math achievement.
- **Sensitive to Improvement:** An increase in ability will be reflected in rising scores on the measure.
- **Easy to administer and score:** Can be used accurately by a wide range of education personnel.
- A **valid** measure of skills that are central to the domain being measured (reading, math)
- **Standardized and reliable:** Producing consistent results across time or testing conditions.
- **Available in multiple equivalent forms** to reduce practice effects on retesting (up to 33 forms per measure, per grade)

Medinah School District #11 utilizes AIMSWeb assessments for both benchmarking of student performance in Fall, Winter, and Spring, and progress monitoring of targeted students, weekly or bi-weekly, throughout the school year. The chart below indicates specific test administration information for students in grade K-8. Unless otherwise noted, the AIMSweb tests are administered for both benchmarking and progress monitoring.

Testing Seasons: FALL, WINTER, SPRING								
KDG	1st	2nd	3rd	4th	5th	6th	7th	8th
<ul style="list-style-type: none"> • Tests of Early Numeracy (1st Grade Only) 	<ul style="list-style-type: none"> • Math Computation • Concepts and Applications 							
*Administered for progress monitoring only								