

MATHEMATICS PARENT GUIDE

KINDERGARTEN



Every Student. Every Day.

Medinah School District # 11

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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



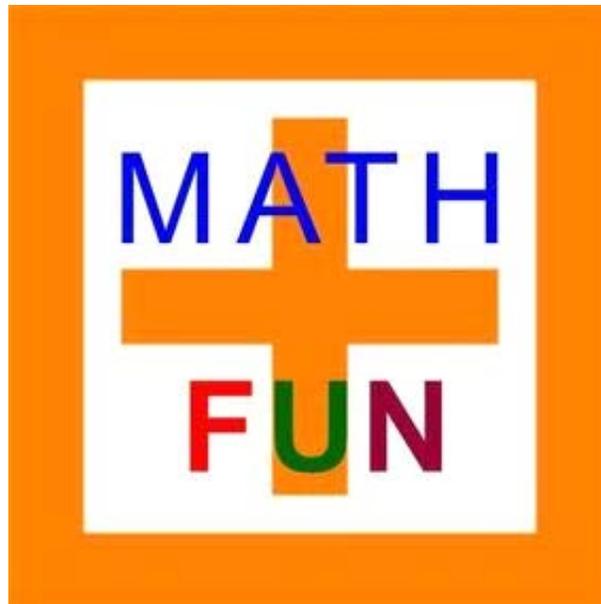
K-8 MATH

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



Kindergarten

Kindergarten 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	One to Five
Topic 2	Comparing and Ordering 0 to 5
Topic 3	Six to Ten
Topic 4	Comparing and Ordering Numbers 0 to 10
Topic 5	Numbers to 20
Topic 6	Numbers to 100
Topic 7	Understanding Addition
Topic 8	Understanding Subtraction
Topic 9	More Addition and Subtraction
Topic 10	Composing Numbers 11 to 19
Topic 11	Decomposing Numbers 11 to 19
Topic 12	Measurement
Topic 13	Sorting, Classifying, Counting, and Categorizing Data
Topic 14	Identifying and Describing Shapes
Topic 15	Position and Location of Shapes
Topic 16	Analyzing, Comparing, and Composing 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

Kindergarten

Topic 1: One to Five

- one
- two
- three
- count
- number
- four
- five

Topic 2: Comparing and Ordering 0-5

- column
- row
- fewer (than)
- more (than)
- same number of
- same as
- 1 more (than)
- 2 more (than)
- 1 fewer (than)
- 2 fewer (than)
- zero
- none
- as many
- order
- fewest
- most
- greater
- less

Topic 3: Six to Ten

- six
- seven
- eight
- nine
- ten
- growing pattern

Topic 4: Comparing and Ordering Numbers 0 to 10

- forward
- backward
- order
- number line

Topic 5: Numbers to 20

- eleven
- twelve
- thirteen
- fourteen
- fifteen
- sixteen
- seventeen
- eighteen
- nineteen
- twenty

Topic 6: Numbers to 100

- hundred chart
- row
- column
- count by 10's

Topic 7: Understanding Addition

- in all
- join
- number story
- altogether
- plus sign
- add
- equal sign
- sum
- addition sentence

Topic 8: Understanding Subtraction

- separate
- left
- minus sign
- take away
- difference
- subtract
- subtraction sentence

Topic 9: More Addition and Subtraction

- graph
- whole
- part

Topic 10: Composing Numbers 11 to 19

- how many more

Topic 11: Decomposing Numbers 11 to 19

- double ten-frame
- set

Topic 12: Measurement

- longer than
- length
- as long as (same length as)
- shorter (than)
- shortest
- longest
- taller (than)
- height
- tallest
- as tall as
- balance scale
- weight
- weighs less
- weighs more
- heavier (than)
- about the same
- holds more
- empty
- most
- holds less
- least
- full

Topic 13: Sorting, Classifying, Counting, and Categorizing Data

- different
- same (alike)
- does not belong
- sort
- sorting rule
- picture graph
- real graph

Topic 14: Identifying and Describing Shapes

- rectangle
- corner
- side
- square
- circle
- triangle
- hexagon
- cone
- cylinder
- sphere
- cube
- flat surface

Topic 15: Position and Location of Shapes

- inside (in)
- outside (out)
- above (over)
- below (under)
- behind
- on (top of)
- beside
- next to
- right
- left
- in front of

Topic 16: Analyzing, Comparing, and Composing Shapes

- same size
- same shape
- roll
- stack
- slide

Core Essentials



Kindergarten Core Essentials

I can use numbers to help me understand Math

- I can count to 100 by ones and tens. K.CC.1
- I can count forward starting at a given number. K.CC.2
- I can write numbers from 0 to 20. K.CC.3
- I can write a number for a group of 0 to 20 objects. K.CC.3
- I can put numbers in order. K.CC.4
- I can name a group of objects by using a number. K.CC.4
- I can understand that the last object counted tells the number of objects in a group. K.CC.4
- I can understand that the number of objects in a group can be rearranged and the total number will be the same. K.CC.4
- I can understand that adding an object to a group will make the total number one bigger. K.CC.4
- I can count to tell how many. K.CC.5
- I can count out a number of objects between 1 and 20. K.CC.5
- I can tell if a group of objects in one group is greater than, less than or equal to a group of objects in another group. K.CC.6
- I can compare two written numbers between 1 and 10. K.CC.7

I Can Use Addition and Subtraction to Help Me Understand Math

- I can use objects, fingers and pictures to help me show addition. K.OA.1
- I can use objects, fingers and pictures to help me show subtraction. K.OA.1
- I can solve addition and subtraction word problems within 10. K.OA.2
- I can take apart numbers less than or equal to 10. K.OA.3
- I can find the number that is added to 1 through 9 to make 10. I can use objects or drawings to show my answer. K.OA.4
- I can add and subtract within 5. K.OA.5

I Can Use Number Sense and Place Value to Help Me Understand Math

- I can put together and take apart numbers from 11 to 19 by naming the tens and ones. K.NBT.1
- I can use objects, drawings or equations to show tens and ones. K.NBT.1

I Can Use Measurement and Data to Help Me Understand Math

- I can tell how an object can be measured. K.MD.1 (length, weight)
- I can compare how two objects are similar or different. K.MD.2 (more of, less of, taller, shorter)
- I can place objects into categories. K.MD.3
- I can count the number of objects in categories. K.MD.3
- I can sort the categories by the number of objects. K.MD.3

I Can Use Geometry to Help Me Understand Math

- I can find shapes around me. K.G.1
- I can tell where shapes are. K.G.1 (above, below, beside, in front of, behind, next to)
- I can tell about shapes. K.G.1
- I can compare shapes. K.G.1
- I can name shapes. K.G.3
- I can tell about and compare two-dimensional and three-dimensional shapes. K.G.4
- I can make shapes using materials like sticks and clay. K.G.5
- I can use simple shapes to make larger shapes. K.G.6

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								