MATHEMATICS PARENT GUIDE

SECOND GRADE

Every Student. Every Day.

Medinah School District # 11

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Philosophy

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 Students[1]

Standards for Mathematical Practice	Student Characteristics
1. Make sense of problems and persevere in solving them.	*Mathematically proficient students can* o Explain the meaning of a problem and restate it in their words. o Analyze given information to develop possible strategies for solving the problem. o Identify and execute appropriate strategies to solve the problem. o Evaluate progress toward the solution and make revisions if necessary. o Check for accuracy and reasonableness of work, strategy and solution. o Understand and connect strategies used by others to solve problems.
2. Reason abstractly and quantitatively.	*Mathematically proficient students can* o Translate given information to create a mathematical representation for a concept. o Manipulate the mathematical representation by showing the process considering the meaning of the quantities involved. o Recognize the relationships between numbers/quantities within the process to evaluate a problem. o Review the process for reasonableness within the original context.
3. Construct viable arguments and critique the reasoning of others.	*Mathematically proficient students can* o Use observations and prior knowledge (stated assumptions, definitions, and previous established results) to make conjectures and construct arguments. o Compare and contrast logical arguments and identify which one makes the most sense. o Justify (orally and in written form) the approach used, including how it fits in the context from which the data arose.

	o Listen, understand, analyze, and respond to the arguments of others.
	o Identify and explain both correct and flawed logic.
	o Recognize and use counterexamples to refine assumptions or definitions and dispute or disprove an argument.
4. Model with mathematics.	*Mathematically proficient students can*
	o Use a variety of methods to model, represent, and solve real-world problems.
	o Simplify a complicated problem by making assumptions and approximations.
	o Interpret results in the context of the problem and revise the model if necessary.
	o 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*
	o Identify mathematical tools and recognize their strengths and weaknesses.
	o Select and use appropriate tools to best model/solve problems.
	o Use estimation to predict reasonable solutions and/or detect errors.
	o Identify and successfully use external mathematical resources to pose or solve problems.
	o Use a variety of technologies, including digital content, to explore, confirm, and deepen conceptual understanding.
6. Attend to precision.	*Mathematically proficient students can*
	o Understand symbols and use them consistently within the context of a problem.
	o Calculate answers efficiently and accurately and label them appropriately.
	o Formulate precise explanations (orally and in written form) using both mathematical representations and words.
	o Communicate using clear mathematical definitions, vocabulary, and symbols.

7. Look for and make use of structure.	*Mathematically proficient students can* o Look for, identify, and accept patterns or structure within relationships. o Use patterns or structure to make sense of mathematics and connect prior knowledge to similar situations and extend to novel situations. o Analyze a complex problem by breaking it down into smaller parts. o 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* o Recognize similarities and patterns in repeated trials with a process. o Generalize the process to create a shortcut which may lead to developing rules or creating a formula. o Evaluate the reasonableness of results throughout the mathematical process while attending to the details.

[1]http://www.ocde.us/CommonCoreCA/Documents/mathematicalpractices _characteristicsofproficientstudent_wisconson.pdf

Progression
of
Concepts

K-8 MATH
Progression of Concepts

	KDG	1st	2nd	3rd	4th	5th	6th	7th	8th
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

Second 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 & Subtraction
Topic 2	Addition Strategies
Topic 3	Subtraction Strategies
Topic 4	Working with Equal Groups
Topic 5	Place Value to 100
Topic 6	Mental Addition
Topic 7	Mental Subtraction
Topic 8	Adding Two-Digit Numbers
Topic 9	Subracting Two-Digit Numbers
Topic 10	Place Value to 1,000
Topic 11	Three-Digit Addition & Subtraction
Topic 12	Geometry
Topic 13	Counting Money
Topic 14	Money
Topic 15	Measuring Length
Topic 16	Time, Graphs & Data

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 2

Topic 1: Understanding Addition and Subtraction
- add
- addition sentence
- difference
- equals (=)
- fact family
- fewer
- join
- minus (-)
- more
- part
- plus (+)
- related
- separate
- subtract
- subtraction sentence
- sum
- whole

Topic 2: Addition Strategies
- addend
- doubles
- near doubles
- number sentence

Topic 3: Subtraction Strategies

Topic 4: Working with Equal Groups
- array

Topic 5: Place Value to 100
- after
- before
- digits
- equal to (=)
- even
- greater than (>)
- less than (<)
- number word
- odd

Topic 6: Mental Addition
- mental math
- next ten
- tens digit

Topic 7: Mental Subtraction

Topic 8: Adding Two-Digit Numbers
- number line
- regroup

Topic 10: Place Value to 1,000
- compare
- expanded form
- hundreds
- number word
- standard form
- thousands

Topic 11: Three-Digit Addition and Subtraction

Topic 12: Geometry
- angle
- circle
- column
- cone
- cube
- cylinder
- edges
- equal
- face
- flat surface
- fourths
- halves
- hexagon
- pentagon
- plane shapes
- polygon
- pyramid
- quadrilateral
- rectangle
- rectangular prism
- row
- side
- solid figure
- sphere
- square
- thirds
- triangle
- unequal
- vertex (vertices)

Topic 13: Counting Money

- cents
- coins
- decimal point
- dime
- dollar bill
- dollar coin
- dollar sign
- greatest value
- half-dollar
- least value
- nickel
- penny
- quarter
- tally mark

Topic 14: Money

Topic 15: Measuring Length

- centimeter (cm)
- foot (ft)
- height
- inch (in)
- length
- meter (m)
- nearest centimeter
- nearest inch
- unit
- width
- yard (yd)

Topic 16: Time, Graphs and Data

- a.m.
- bar graph
- data
- half hour
- half past
- hour
- hour hand
- line plot
- minute
- minute hand
- p.m.
- pictograph
- quarter past
- quarter to
- symbol

Core Essentials

2nd Grade Core Essentials

I Can Use Addition and Subtraction to Help Me Understand Math

- ☐ I can use strategies to solve addition word problems. 2.OA.1
- ☐ I can use strategies to solve subtraction word problems. 2.OA.1
- ☐ I know my addition facts. 2.OA.2
- ☐ I know my subtraction facts. 2.OA.2
- ☐ I can group objects to tell if a number is odd or even. 2.OA.3
- ☐ I can use repeated addition to help me understand multiplication. 2.OA.4

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

- ☐ I can understand and use hundreds, tens and ones. 2.NBT.1
- ☐ I can count to 1,000 using 1s, 5s, 10s and 100s. 2.NBT.2
- ☐ I can read and write numbers to 1,000 in different ways. 2.NBT.3
- ☐ I can compare three-digit numbers using <, =, and >. 2.NBT.4
- ☐ I can add and subtract three-digit numbers. 2.NBT.5
- ☐ I can add more than two big numbers. 2.NBT.6
- ☐ I can add and subtract with regrouping. 2.NBT.7
- ☐ I can add and subtract tens and hundreds in my head. 2.NBT.8
- ☐ I can explain why I need to use addition or subtraction to help me solve problems. 2.NBT.9

I Can Use Measurement and Data to Help Me Understand Math

- ☐ I can use different tools to measure objects. 2.MD.1
- ☐ I can compare the length of an object using two different units of measurement. 2.MD.2
- ☐ I can estimate the lengths of objects. 2.MD.3
- ☐ I can compare the length of two different objects. 2.MD.4
- ☐ I can use addition and subtraction to solve measurement problems. 2.MD.5
- ☐ I can make and use a number line. 2.MD.6
- ☐ I can tell time to five minutes. 2.MD.7
- ☐ I can understand a.m. and p.m. 2.MD.7
- ☐ I can count money to help me solve word problems. 2.MD.8
- ☐ I can make a table to organize data. 2.MD.9
- ☐ I can use a table to make a line plot. 2.MD.9
- ☐ I can make a graph. 2.MD.10

I Can Use Geometry to Help Me Understand Math

☐ I can name and draw shapes. 2.G.1

  (I know triangles, quadrilaterals, pentagons, hexagons and cubes.)

☐ I can find the area of a rectangle. 2.G.2

☐ I can divide shapes into equal parts. 2.G.3

☐ I can use fractions to describe the equal parts of a shape. 2.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	**1**st	**2**nd	**3**rd	**4**th	**5**th	**6**th	**7**th	**8**th	
	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	**1**st	**2**nd	**3**rd	**4**th	**5**th	**6**th	**7**th	**8**th	
• **Tests of Early Numeracy** (**1st Grade Only**)	• **Math Computation** • **Concepts and Applications**								
*Administered for progress monitoring only									