MATHEMATICS PARENT GUIDE

FIFTH GRADE

Every Student. Every Day.

Medinah School District # 11

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Philosophy

www.tagxedo.com

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
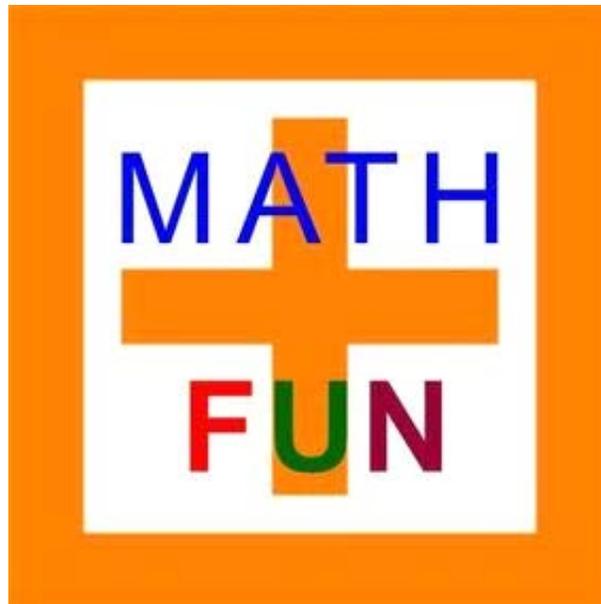
Fifth Grade

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	Place Value
Topic 2	Adding/Subtracting Decimals
Topic 3	Multiplying Whole Numbers
Topic 4	Dividing with 1-digit Divisors
Topic 5	Dividing with 2-digit Divisors
Topic 6	Multiplying Decimals
Topic 7	Dividing Decimals
Topic 8	Numerical Expressions/Patterns
Topic 9	Adding/Subtracting Fractions
Topic 10	Adding/Subtracting Mixed Numbers
Topic 11	Multiplying/Dividing Fractions and Mixed Numbers
Topic 12	Volume of Solids
Topic 13	Units of Measure
Topic 14	Data
Topic 15	Classifying Plane Figures
Topic 16	Coordinate Geometry

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 5

Topic 1: Place Value
- digits
- value
- standard form
- expanded form
- word form
- equivalent decimals

Topic 2: Adding/Subtracting Decimals
- commutative property of addition
- associative property of addition
- compatible numbers
- compensation
- rounding

Topic 3: Multiplying Whole Numbers
- commutative property of multiplication
- associative property of multiplication
- identity property of multiplication
- zero property of multiplication
- product
- multiple
- underestimate
- overestimate
- exponential notation
- expanded form
- standard form
- partial products
- base
- exponent

Topic 4: Dividing with 1-digit Divisors
- dividend
- divisor
- quotient

Topic 5: Dividing with 2-digit Divisors

Topic 6: Multiplying Decimals

Topic 7: Dividing Decimals

Topic 8: Numerical Expressions/Patterns
- variable
- term
- sequence
- algebraic expression
- order of operations
- corresponding

Topic 9: Adding/Subtracting Fractions
- prime number
- composite number
- benchmark fraction
- prime factorization
- factor tree
- common denominator
- least common denominator (LCD)
- least common denominator (LCD)

Topic 10: Adding/Subtracting Mixed Numbers
- proper fraction
- mixed number
- improper fraction

Topic 11: Multiplying/Dividing Fractions and Mixed Numbers

- reciprocal
- resizing
- scaling

Topic 12: Volume of Solids

- volume
- cubic unit

Topic 13: Units of Measure

Topic 14: Data

- line plot
- outlier
- survey
- data
- frequency table
- sample

Topic 15: Classifying Plane Figures

- polygon
- regular polygon
- triangle
- quadrilateral
- pentagon
- hexagon
- octagon
- equilateral triangle
- isosceles triangle
- scalene triangle
- right triangle
- acute triangle
- obtuse triangle
- parallelogram
- trapezoid
- rectangle
- rhombus
- square
- generalization

Topic 16: Coordinate Geometry

- coordinate grid
- x-axis
- y-axis
- origin
- ordered pair
- x-coordinate
- y-coordinate

Core
Essentials

5th Grade Core Essentials

Operations and Algebraic Thinking

- ☐ I can use parentheses and brackets in expressions. 5.0A.1
- ☐ I can write expression I hear using mathematic symbols and the order of operations. 5.OA.2
- ☐ I can use numerical rules and patterns to form ordered pairs. Graph the ordered pairs on a coordinate plane. 5.OA.3

Numbers and Operations in Base Ten

- ☐ I can understand and explain the value of digits. 5.NBT.1
- ☐ I can explain patterns when multiplying a number by powers of 10. 5.NBT.2
- ☐ I can explain patterns when a decimal is multiplied or divided by a power of 10. 5.NBT.2
- ☐ I can read, write, and compare decimals to thousandths. 5.NBT.3
- ☐ I can use place value understanding to round decimals to any place. 5.NBT.4
- ☐ I can multiply multi-digit whole numbers. 5.NBT.5
- ☐ I can divide four-digit dividends by two-digit divisors. 5.NBT.6
- ☐ I can illustrate and explain a division problem using equations, arrays, and/or models. 5.NBT.6
- ☐ I can add, subtract, multiply, and divide decimals to hundredths. I can use concrete models or drawings to explain the method used. 5.NBT.7

Number and Operations- Fractions

- ☐ I can add and subtract fractions with unlike denominators and mixed numbers. 5.NF.1
- ☐ I can solve word problems that involve fractions. 5.NF.2
- ☐ I can understand that fractions are really the division of the numerator by the denominator. 5.NF.3
- ☐ I can solve word problems where I divide whole numbers to create an answer that is a mixed number. 5.NF.3
- ☐ I can multiply a fraction or whole number by a fraction. 5.NF.4
- ☐ I can think of multiplication as the scaling of a number (similar to a scale on a map). 5.NF.5
- ☐ I can solve real world problems by multiplying fractions and mixed numbers. 5.NF.6
- ☐ I can divide fractions by whole numbers and whole numbers by fractions. 5.NF.7

Measurement and Data

- ☐ I can convert measurements within the same measuring system. 5.MD.1
- ☐ I can make a line plot to display data sets of measurements in fractions. 5.MD.2

- ☐ I can use fraction operations to solve problems involving information presented on a line plot. 5.MD.2
- ☐ I can understand volume. 5.MD.3
- ☐ I can measure volume by counting unit cubes. 5.MD.4
- ☐ I can solve real world problems involving volume. 5.MD.5
- ☐ I can find the volume of an object using the formulas V= l * w * h and V= b * h. 5.MD.5

Geometry

- ☐ I can understand how to graph ordered pairs on a coordinate plane. 5.G.1
- ☐ I can graph and interpret points in the first quadrant of a coordinate plane. 5.G.2
- ☐ I can classify shapes into categories. 5.G.3
- ☐ I can classify shapes based on properties. 5.G.4

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									