

# MATHEMATICS PARENT GUIDE

THIRD GRADE



*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 Students<sup>1</sup>

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## Standards for Mathematical Practice

## Student Characteristics

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### **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.
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### **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.
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- 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.
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**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.
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**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.
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**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.

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**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.

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<sup>1</sup>[http://www.ocde.us/CommonCoreCA/Documents/mathematicalpractices\\_characteristicsofproficientstudent\\_wisconson.pdf](http://www.ocde.us/CommonCoreCA/Documents/mathematicalpractices_characteristicsofproficientstudent_wisconson.pdf)

# Progression of Concepts



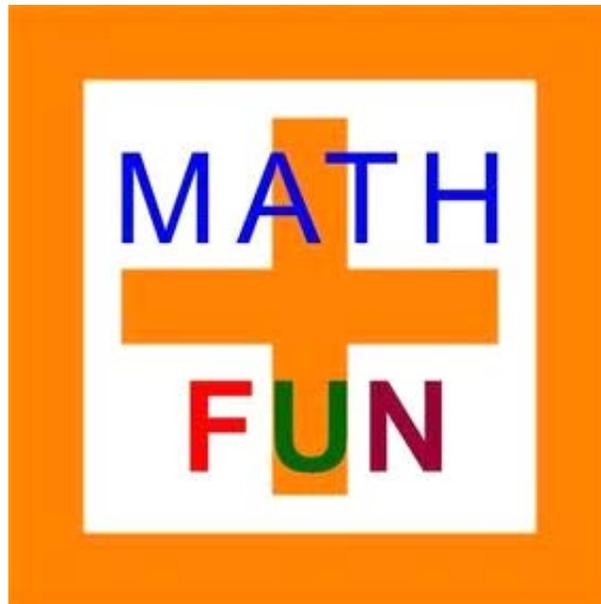
# K-8 MATH

## Progression of Concepts

KDG	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
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



## Third 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.

Topic 1	Numeration
Topic 2	Number Sense: Addition and Subtraction
Topic 3	Using Place Value to Add and Subtract
Topic 4	Meanings of Multiplication
Topic 5	Multiplication Facts: Use Patterns
Topic 6	Multiplication Facts: Use Known Facts
Topic 7	Meanings of Division
Topic 8	Division Facts
Topic 9	Understanding Fractions
Topic 10	Fraction Comparison and Equivalence
Topic 11	Two-Dimensional Shapes and Their Attributes
Topic 12	Time
Topic 13	Perimeter
Topic 14	Area
Topic 15	Liquid Volume and Mass
Topic 16	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](http://www.pearsonrealize.com)

# Vocabulary



# EnVision Math

## Common Core Vocabulary

### Grade 3

#### Topic 1: Numeration

- digits
- place value
- standard form
- expanded form
- word form
- round

#### Topic 2: Number Sense: Addition and Subtraction

- addends
- sum
- commutative (order) property of addition
- identity (zero) property of addition
- associative (grouping) property of addition
- estimate
- compatible numbers

#### Topic 3: Using Place Value to Add and Subtract

- equation
- inverse operations

#### Topic 4: Meaning of Multiplication

- multiplication
- factors
- product
- array
- commutative (order) property of multiplication
- commutative (order) property of multiplication

#### Topic 5: Multiplication Facts: Use Patterns

- identity (one) property of multiplication
- zero property of multiplication
- multiple

#### Topic 6: Multiplication Facts: Use Known Facts

- distributive property
- associative (grouping) property of multiplication

#### Topic 7: Meanings of Division

- Division

#### Topic 8: Division Facts

- dividend
- divisor
- quotient
- variable

#### Topic 9: Understanding Fractions

- halves
- thirds
- fourths
- fifths
- sixths
- eighths
- tenths
- twelfths
- fraction
- unit fraction
- numerator
- denominator
- mixed numbers

## **Topic 11: Two-Dimensional Shapes And Their Attributes**

- polygon
- vertex
- diagonal
- triangle
- quadrilateral
- pentagon
- hexagon
- octagon
- decagon
- trapezoid
- parallel sides
- parallelogram
- rectangle
- right angles
- rhombus
- square

## **Topic 12: Time**

- hour
- half hour
- quarter hour
- minute
- seconds
- A.M.
- P.M.
- elapsed time

## **Topic 13: Perimeter**

- Perimeter

## **Topic 14: Area**

- area
- square unit

## **Topic 15: Liquid Volume and Mass**

- milliliters
- liters
- mass
- grams
- kilograms
- line plot

## **Topic 16: Data**

- pictograph
- bar graph
- scale

# Core Essentials



# 3<sup>rd</sup> Grade Core Essentials

Students in third grade will demonstrate proficiency in the following skills.

## Operations and Algebraic Thinking

- I can understand multiplication by finding the total number of objects in equal groups. 3.OA.2
- I can use the Commutative Property of Multiplication. 3.OA.5
- I can write and solve multiplication word problems. 3.OA.8
- I can use the Distributive Property of Multiplication. 3.OA.5
- I can use the Associative Property of Multiplication. 3. OA. 5
- I can understand division by thinking about how a group objects can be divided into smaller groups. 3.OA.2
- I can find the answer to a division problem by thinking of the missing factor in a multiplication problem. 3.OA.7
- I can write and solve division word problems. 3.OA.8
- I can find the missing number in a multiplication or division equation because I know how multiplication and division are related. 3.OA.7
- I can use addition, subtraction, multiplication, and division to solve word problems and use mental math to determine if my answers are reasonable. 3.OA.8
- I can find patterns and explain them because I know how numbers work together. 3.OA.9

## Number and Operations in Base Ten

- I can represent numbers with place-value blocks and number lines. 3.NBT
- I can round numbers to the nearest ten or hundred. 3.NBT.1
- I can add and subtract numbers within 1000 using different strategies and algorithms. 3.NBT.2
- I can easily multiply whole numbers by ten. 3.NBT.3

## Number and Operations—Fractions

- I can understand and show that fractions are equal parts of a whole. 3.NF.1
- I can understand that fractions are parts of a group. 3.NF.1
- I can find and label fractions on a number line because I know a fraction is a number and the space between any two numbers can be thought of as a whole. 3.NF.2

- I can compare fractions by reasoning about their size. 3.NF.3
- I can explain in words and pictures how two fractions are equivalent. 3.NF.3
- I can show whole numbers as fractions. 3.NF.3
- I can recognize fractions that are equal to one whole. 3.NF.3

## **Measurement and Data**

- I can tell and write time to the nearest minute. 3.MD.1
- I can measure elapsed time by adding and subtracting minutes. 3.MD.1
- I can solve real world problems using what I know about perimeter. 3.MD
- I can measure area by counting unit squares. 3.MD.6
- I can measure area by using what I know about multiplication and addition. 3.MD.7
- I can measure capacity with liters and grams. 3.MD.2
- I can solve word problems involving mass and volume. 3.MD.2
- I can create line plots to show collected data. 3.MD.4
- I can read and create picture and bar graphs to show data and solve problems using information from the graph. 3.MD.3

## **Geometry**

- I can identify two-dimensional shapes and classify them by their defining attributes. 3.G.1
- I can recognize and draw quadrilaterals such as trapezoids, parallelograms, rectangles, rhombi, and squares. 3.G.1
- I can divide shapes into parts with equal areas and show those areas as fractions. 3.G.2

# 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
	<b>Operations and Algebraic Thinking</b> <b>Number and Operations</b> <b>Measurement and Data</b> <b>Geometry</b>					<b>Operations and Algebraic Thinking</b> <b>The Real and Complex Number Systems</b> <b>Geometry</b> <b>Statistics and Probability</b>		

# 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"> <li>• Tests of Early Numeracy (1st Grade Only)</li> </ul>	<ul style="list-style-type: none"> <li>• Math Computation</li> <li>• Concepts and Applications</li> </ul>							
*Administered for progress monitoring only								