

Diocese of Lansing

Curriculum Guidelines for Mathematics

Kindergarten through Grade Eight



**Grade 1
2008**

Mathematics K-8

June, 2008

VISION STATEMENT

Mathematics plays an integral role in the Catholic School, home, community and world, reflecting the beauty, order and unity in God's universe. Basic knowledge and skills in mathematics are important to every individual. Mathematics contributes to the development of the whole person by providing a practical tool for daily living.

Society demands mathematical knowledge which helps students develop their ability to reason and to think logically, as well as to discover creative ways of solving problems.

Our goal is to provide the mathematics teachers with an overview of the broad spectrum of mathematical concepts. These specific standards are provided so that students can learn to apply mathematical concepts through the use of higher level thinking skills, critical analysis, application of technology and problem solving.

Integrating Catholic Social Teaching into Mathematics Instruction

“The Church’s social teaching is a rich treasure of wisdom about building a just society and living lives of holiness amidst the challenges of modern society”.
(United States Council of Catholic Bishops)

Diocese of Lansing mathematics teachers should integrate Catholic social teachings whenever applicable. Examples of this could include faith-based data collection, economics and statistics respectful of the life and dignity of the human person, proportions and graphical representations that are illustrative of solidarity with our brothers and sisters, problem solving that will ensure the right to life and dignity, as well as math-based community service projects to encourage stewardship of creation.

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Purpose of this Document

- This document is designed to be used as a tool to guide instruction
 - To provide Grade Level Content Expectations (GLECs) as developed by the State of Michigan (SOM) Department of Education.
 - To assist schools with grade level and school-wide curriculum mapping.
 - To provide a means of measuring progress at grade level.
 - To provide a means of communicating progress between grade levels.
 - To provide continuity between schools within the Diocese of Lansing
- This document also offers main focus areas for each grade level
- This document offers scope and sequence of objectives across grade levels
- This document contains suggestions for incorporating Catholic faith and values into mathematics instruction.
- This document contains an analysis of current mathematical textbooks from a wide range of publishers.

With appreciation

To Michael Goetz,
Math Department Chair for grades K-8 at Grand Blanc Community Schools
for sharing his expertise, knowledge and materials with us.

In first grade, students will gain proficiency with counting, writing, and ordering numbers up to 110. Students will add and subtract whole numbers with an emphasis on the inverse relationships between addition and subtraction.

Students will use strategies to estimate and measure lengths, tell time, and work with money. In geometry, students will create and describe two and three dimensional shapes and patterns.

Understanding the Organizational Structure

The expectations in this document are divided into strands with multiple domains within each, as shown below. The skills and content addressed in these expectations will in practice be woven together into a coherent, Mathematics curriculum. The domains in each mathematics strand are broader, more conceptual groupings.

In several of the strands, the “domains” are similar to the “standards” in Principles and Standards for School Mathematics from the National Council of Teachers of Mathematics.

To allow for ease in referencing expectations, each expectation has been coded with a strand, domain, grade-level, and expectation number.

For example, **M.UN.00.01** indicates:

M-Measurement strand

UN-Units & systems of measurement domain of the Measurement strand

01-First Expectation in the Grade-Level view of the Measurement strand

Strand 1 Number & Operations	Strand 2 Algebra	Strand 3 Measurement	Strand 4 Geometry	Strand 5 Data & Probability
Domains				
Meaning, notation, place value, and comparisons (ME)	Patterns, relations, functions, and change (PA)	Units and systems of measurement (UN)	Geometric shape, properties, and mathematical arguments (GS)	Data representation (RE)
Number relationships and meaning of operations (MR)	Representation (RP)	Techniques and formulas for measurement (TE)	Location and spatial relationships (LO)	Data interpretation and analysis (AN)
Fluency with operations and estimation (FL)	Formulas, expressions, equations, and inequalities (RP)	Problem solving involving measurement (PS)	Spatial reasoning and geometric modeling (SR)	Probability (PR)
			Transformation and symmetry (TR)	

MEAP Correlations: [Core]-core item [Core-NC] No calculator [Ext-NC]- extension no calculator [Ext] - extension of core [Fut] – future core item [NASL] – Not assessed at State level

1st Grade GLCEs

SOM-GLCES CODE	OBJECTIVES	COMPLETED	DATE	CHAPTERS
STRAND 1	NUMBERS AND OPERATIONS			
	Count, write, and order numbers			
N.ME.01.01	Count to 110 by 1's, 2's, 5's, and 10's, starting from any number in the sequence; count to 500 by 100's and 10's; use ordinals to identify position in a sequence, e.g., 1st, 2nd, 3rd.			
N.ME.01.02	Read and write numbers to 110 and relate them to the quantities they represent.			
N.ME.01.03	Order numbers to 110; compare using phrases such as "same as", "more than", "greater than", "fewer than"; use = symbol. Arrange small sets of numbers in increasing or decreasing order, e.g., write the following from smallest to largest: 21, 16, 35, 8.			
N.ME.01.04	Identify one more than, one less than, 10 more than, and 10 less than for any number up to 100.			
N.ME.01.05	Understand that a number to the right of another number on the number line is bigger and that a number to the left is smaller.			
N.ME.01.06	Count backward by 1's starting from any number between 1 and 100.			
	Explore place value			
N.ME.01.07	Compose and decompose numbers through 30, including using bundles of tens and units, e.g., recognize 24 as 2 tens and 4 ones, 10 and 10 and 4, 20 and 4, and 24 ones.			
	Add and subtract whole numbers			
N.ME.01.08	List number facts (partners inside of numbers) for 2 through 10, e.g., $8 = 7 + 1 = 6 + 2 = 5 + 3 = 4 + 4$; $10 = 8 + 2 = 2 + 8$.			
N.MR.01.09	Compare two or more sets in terms of the difference in number of elements.			
N.MR.01.10	Model addition and subtraction for numbers through 30 for a given contextual situation using objects or pictures; explain in words; record using numbers and symbols; solve.			
N.MR.01.11	Understand the inverse relationship between addition and subtraction, e.g., subtraction "undoes" addition: if $3 + 5 = 8$, we know that $8 - 3 = 5$ and $8 - 5 = 3$; recognize that some problems involving combining, "taking away," or comparing can be solved by either operation.			
N.FL.01.12	Know all the addition facts up to $10 + 10$, and solve the related subtraction problems fluently.			
N.MR.01.13	Apply knowledge of fact families to solve simple open sentences for addition and subtraction, such as: $\square + 2 = 7$ and $\square - \square = 6$.			
N.FL.01.14	Add three one-digit numbers.			
N.FL.01.15	Calculate mentally sums and differences involving: a two-digit number and a one-digit number without regrouping; a two-digit number and a multiple of 10.			
N.FL.01.16	Compute sums and differences through 30 using number facts and strategies, but no formal algorithm.			

SOM-GLCES CODE	OBJECTIVES	COMPLETED	DATE	CHAPTERS
STRAND 2	ALGEBRA – NO OBJECTIVES FOR FIRST GRADE			
STRAND 3	MEASUREMENT			
	Estimate and measure length			
M.UN.01.01	Measure the lengths of objects in non-standard units, e.g., pencil lengths, shoe lengths, to the nearest whole unit.			
M.UN.01.02	Compare measured lengths using the words shorter, shortest, longer, longest, taller, tallest, etc.			
	Tell time			
M.UN.01.03	Tell time on a twelve-hour clock face to the hour and half-hour.			
	Work with money			
M.UN.01.04	Identify the different denominations of coins and bills.			
M.UN.01.05	Match one coin or bill of one denomination to an equivalent set of coins/bills of other denominations, e.g., 1 quarter = 2 dimes and 1 nickel.			
M.UN.01.06	Tell the amount of money: in cents up to \$1, in dollars up to \$100. Use the symbols \$ and ¢.			
M.PS.01.07	Add and subtract money in dollars only or in cents only.			
	Solve problems			
M.PS.01.08	Solve one-step word problems using addition and subtraction of length, money and time, including “how much more/less”, without mixing units.			
STRAND 4	GEOMETRY			
	Create and describe shapes			
G.GS.01.01	Create common two-dimensional and three-dimensional shapes, and describe their physical and geometric attributes, such as color and shape.			
G.LO.01.02	Describe relative position of objects on a plane and in space, using words such as above, below, behind, in front of.			
	Create and describe patterns involving geometric objects			
G.SR.01.03	Create and describe patterns, such as repeating patterns and growing patterns using number, shape, and size.			
G.SR.01.04	Distinguish between repeating and growing patterns.			
G.SR.01.05	Predict the next element in a simple repeating pattern.			
G.SR.01.06	Describe ways to get to the next element in simple repeating patterns.			
STRAND 5	DATA AND PROBABILITY			
	Use pictographs			
D.RE.01.01	Collect and organize data to use in pictographs.			
D.RE.01.02	Read and interpret pictographs.			
D.RE.01.03	Make pictographs of given data using both horizontal and vertical forms of graphs; scale should be in units of one and include symbolic representations, e.g. 😊 represents one child.			