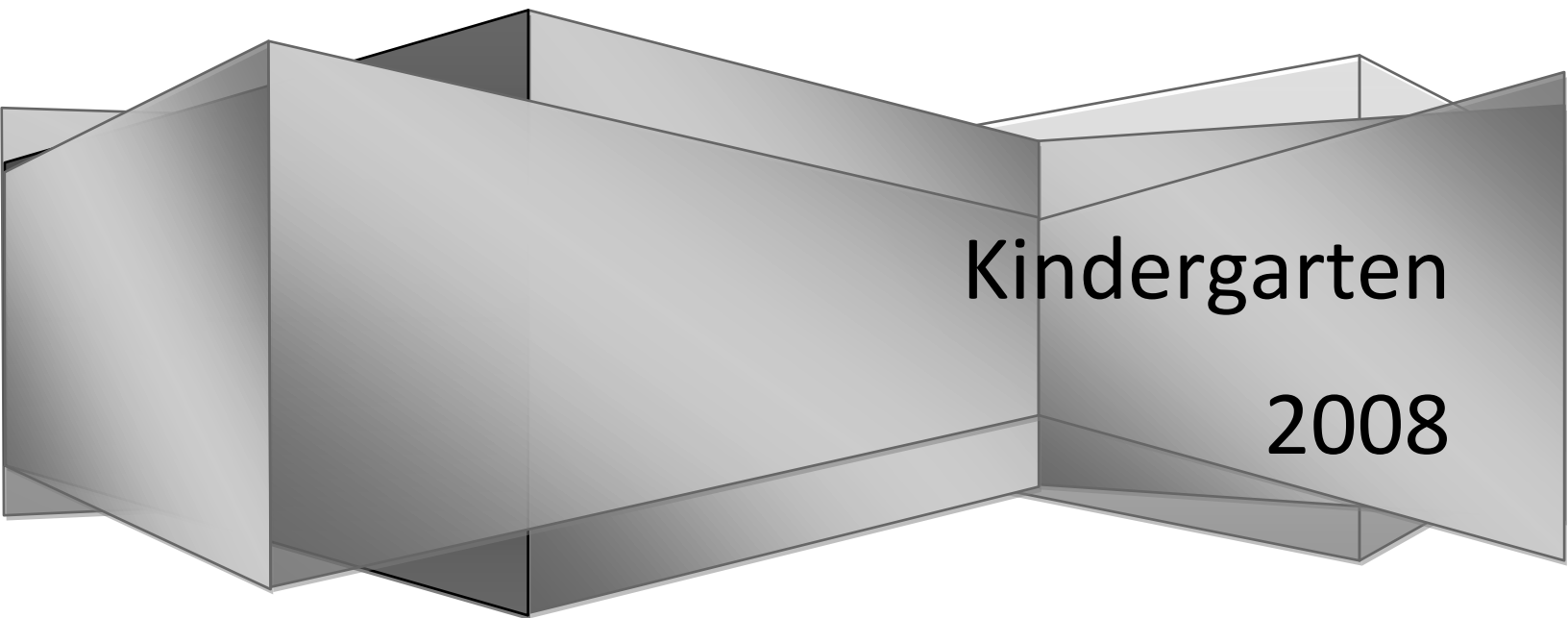


Diocese of Lansing

Curriculum Guidelines for Mathematics

Kindergarten through Grade Eight



Kindergarten

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.

KINDERGARTEN

In kindergarten, students will perform the following number operations: count, write, order numbers up to 30, explore basic addition and subtraction.

Students will be introduced to measurement attributes including time, length, weight, and capacity.

Students will classify, explore and create 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	Strand 2	Strand 3	Strand 4	Strand 5
<u>N</u>umber & <u>O</u>perations	<u>A</u>lgebra	<u>M</u>easurement	<u>G</u>eometry	<u>D</u>ata & <u>P</u>robability
Domains				
Meaning, notation, place value, and comparisons (ME) Number relationships and meaning of operations (MR) Fluency with operations and estimation (FL)	Patterns, relations, functions, and change (PA) Representation (RP) Formulas, expressions, equations, and inequalities (RP)	Units and systems of measurement (UN) Techniques and formulas for measurement (TE) Problem solving involving measurement (PS)	Geometric shape, properties, and mathematical arguments (GS) Location and spatial relationships (LO) Spatial reasoning and geometric modeling (SR) Transformation and symmetry (TR)	Data representation (RE) Data interpretation and analysis (AN) Probability (PR)

Kindergarten GLCEs

SOM-GLCEs Code	Objectives	Completed	Date	Chapter
Strand 1	NUMBER AND OPERATIONS			
	Count, write, and order numbers			
N.ME.00.01	Count objects in sets up to 30.			
N.ME.00.02	Use one-to-one correspondence to compare and order sets of objects to 30 using phrases such as “same number”, “more than”, or “less than”; use counting and matching.			
N.ME.00.03	Compare and order numbers to 30 using phrases such as “more than” or “less than.”			
N.ME.00.04	Read and write numbers to 30 and connect them to the quantities they represent.			
N.ME.00.05	Count orally to 100 by ones. Count to 30 by 2’s, 5’s and 10’s using grouped objects as needed.			
	Compose and decompose numbers			
N.ME.00.06	Understand the numbers 1 to 30 as having one, or two, or three groups of ten and some ones. Also count by tens with objects in ten-groups to 100.			
N.MR.00.07	Compose and decompose numbers from 2 to 10, e.g., $5 = 4 + 1 = 2 + 3$, with attention to the additive structure of number systems, e.g., 6 is one more than 5, 7 is one more than 6.			
N.MR.00.08	Describe and make drawings to represent situations/stories involving putting together and taking apart for totals up to 10; use finger and object counting.			
	Add and subtract numbers			
N.MR.00.09	Record mathematical thinking by writing simple addition and subtraction sentences, e.g., $7 + 2 = 9$, $10 - 8 = 2$.			

	Objectives	Completed	Date	Chapter
	Explore number patterns			
N.MR.00.10	Create, describe, and extend simple number patterns.			
Strand 3	MEASUREMENT			
	Explore concepts of time			
M.UN.00.01	Know and use the common words for the parts of the day (morning, afternoon, evening, night) and relative time (yesterday, today, tomorrow, last week, next year).			
M.TE.00.02	Identify tools that measure time (clocks measure hours and minutes; calendars measure days, weeks, and months).			
M.UN.00.03	Identify daily landmark times to the nearest hour (lunchtime is 12 o'clock; bedtime is 8 o'clock).			
	Explore other measurement attributes			
M.UN.00.04	Compare two or more objects by length, weight and capacity, e.g., which is shorter, longer, taller?			
M.PS.00.05	Compare length and weight of objects by comparing to reference objects, and use terms such as shorter, longer, taller, lighter, heavier.			
Strand 4	GEOMETRY			
	Create, explore, and describe shapes			
G.GS.00.01	Relate familiar three-dimensional objects inside and outside the classroom to their geometric name, e.g., ball/sphere, box/cube, soup can/cylinder, ice cream cone/cone, refrigerator/prism.			
G.GS.00.02	Identify, sort, and classify objects by attribute and identify objects that do not belong in a particular group.			
	Explore geometric patterns			
G.GS.00.03	Create, describe, and extend simple geometric patterns.			