Math Program and Essential Standards
Grades 6-8

Program Standard #1: PROBLEM SOLVING
  Essential Standard #1: Apply strategies to solve problems

Program Standard #2: COMMUNICATION
  Essential Standard #2: Describe and differentiate between mathematical processes

Program Standard #3: REASONING
  Essential Standard #3: Apply fundamental properties of mathematics to justify answers

Program Standard #4: CONNECTIONS
  Essential Standard #4: Explain how mathematical ideas interconnect

Program Standard #5: REPRESENTATIONS
  Essential Standard #5: Collect and draw conclusions using mathematical data

Directions for Use of Content Checklist

The grade level Content Checklist is designed to accompany the Essential Standards. Faculty discussion will need to take place to ensure consistency in teaching. The administrator should reproduce the Content Checklist and distribute it to all teachers.

The format for the Content Section is as follows:

1. Blank box to record date of instruction of content or to use as a check-off to indicate that instruction of content occurred
2. Numeric system that identifies the specific content statement
3. Content Statement
4. Nebraska Math Standard Reference (**NE)**
5. Program Standard Reference (**PS)**
6. Level of Teacher Instruction:
    Introduce (**I**), Develop (**D**), Master (**M**)

Introduce (**I**):   To provide with a beginning knowledge or first experience of something. No assessment.

Develop (**D**): To progress from simple to more complex through practice. Check for understanding as needed.

Master   (**M**): To gain control over content; to understand and be able to retrieve the specified material for use as needed to maintain proficiency. Must be assessed.

Teachers will use this curriculum as the basis for planning their lessons for the year. Use of the curriculum will assist students in attaining the Standards for which all are accountable. Teachers are required to spend 80% of their time teaching strictly from the curriculum guide with the remaining 20% of their time teaching concepts that enhance the curriculum.

Archdiocese of Omaha Math Content Checklist
Middle School Grades 6-8

			Grade	Grade	Grade
		Middle School Grades	**6**	**7**	**8**
	1	**NUMERATION/NUMBER SENSE**			
		Reads and writes place values of: (NE 6.1.1; PS #5)			
	1.1	--Whole numbers from millions to trillions	**D,M**		
	1.2	**--**Decimals from thousandths to the millionths	**D,M**		
		Recognizes, classifies and compares: (NE 6.1.1, 7.1.1, 8.1.1, 12.1.1; PS #1, 2, 3, 4, 5)			
	1.3	--Natural numbers	**I,D,M**		
	1.4	--Whole numbers	**M**		
	1.5	--Integers	**I**	**D**	**M**
	1.6	--Rational numbers	**I**	**D**	**M**
	1.7	--Real numbers	**I**	**D**	**M**
	1.8	--Irrational numbers	**I**	**D**	**M**
	1.9	**--**Absolute values	**I**	**D**	**D**
		Determines and recognizes equivalences among fractions, decimals, and percents: (NE 7.1.3, 8.1.3; PS #1, 4)			
	1.10	--Ratios	**D**	**M**	
	1.11	--Proportions	**D**	**M**	
	1.12	--Percents	**D**	**M**	
		Writes numbers in: (NE 6.1.1, 7.1.1; PS #5)			
	1.13	--Prime factorization form	**D,M**		
	1.14	--Expanded exponential form	**D,M**		
	1.15	--Scientific notation	**I, D**	**M**	
		Identifies and uses: (NE 6.1.1, 7.1.1, 8.1.1; PS #1, 2, 3, 4, 5)			
	1.16	--Greatest common factor	**D**	**M**	
	1.17	--Least common multiple	**D**	**M**	
	1.18	--Rules of divisibility	**I**	**D**	**M**
	1.19	Solves problems involving percents (NE 7.1.3; PS #1, 2)	**I**	**D,M**	

Archdiocese of Omaha Math Content Checklist
Middle School Grades 6-8

				Grade 6	Grade 7	Grade 8
		Middle School Grades				
	1	**NUMERATION/NUMBER SENSE continued**				
		Understands the meaning of: (NE 8.1.3; PS #1, 2, 3, 4, 5)				
	1.20	--Powers		I	D	M
	1.21	--Square roots		I	D	M
		Identifies and uses: (NE 8.3.3; PS #1, 2, 3, 4, 5)				
	1.22	--Commutative Properties		I	D	M
	1.23	--Associative Properties		I	D	M
	1.24	--Distributive Property		I	D	M
	1.25	--Identity Properties		I	D	M
	1.26	--Inverse Properties		I	D	M
	1.27	Understands and applies the order of operations (NE 8.1.3; PS #1, 2, 3, 4, 5)		D	D	M
	1.28	Demonstrates the meaning of arithmetic operations with integers (NE 8.1.2; PS #1, 2, 3)		I	D	M
	1.29	Recognizes and applies math ideas in everyday life (PS #4)		D	D	D

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		Middle School Grades	Grade **6**	Grade **7**	Grade **8**
	2	**COMPUTATION/ESTIMATION**			
	2.1	Multiplies and divides positive rational numbers fluently (NE 6.1.3; PS #1, 3)	**D,M**		
		Adds, subtracts, multiplies, and divides with or without appropriate use of technology: (NE 8.1.3; PS #1, 5)			
	2.2	--Whole Numbers	**M**		
	2.3	--Decimals	**D,M**		
	2.4	--Proper fractions with common and uncommon denominators	**D**	**M**	
	2.5	--Improper fractions with common and uncommon denominators	**D**	**M**	
	2.6	--Mixed numbers with common and uncommon denominators	**D**	**M**	
	2.7	--Integers	**I**	**D**	**M**
	2.8	Uses estimation with decimal operations (NE 8.1.4; PS #1, 5)	**I,D,M**		
	2.9	Identifies the appropriate operation and does the correct calculations when solving word problems (NE 8.1.3; PS# 1)	**D**	**D**	**M**
		Solves problems with or without appropriate use of technology: (NE 6.1.3, 7.1.3, 8.1.3, 12.1.3; PS #1)			
	2.10	--Whole numbers	**D,M**		
	2.11	--Rational numbers	**D**	**D**	**M**
	2.12	--Decimals	**D**	**M**	
	2.13	--Ratios	**I**	**D,M**	
	2.14	--Proportions	**I**	**D,M**	
	2.15	--Percents	**I,D**	**M**	
	2.16	--Integers		**I**	**D**
		Uses proportions to solve scale-model problems using: (NE 8.1.3; PS #1, 3, 4, 5)			
	2.17	-- Whole numbers	**I,D**	**M**	
	2.18	-- Fractions/mixed numbers	**I,D**	**M**	
	2.19	-- Decimals	**I,D**	**M**	

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		Middle School Grades	Grade 6	Grade 7	Grade 8
	2	**COMPUTATION/ESTIMATION continued**			
	2.20	Applies the order of operations to solve problems with or without appropriate use of technology (NE 8.1.3, 12.1.3; PS #1)	**D**	**D**	**D**
		Applies strategies when solving problems with and without appropriate use of technology: (NE 7.1.3, 8.1.3, 12.1.3; PS #1, 3, 4)			
	2.21	--Estimation	**D**	**M**	
	2.22	--Rounding	**D**	**M**	
	2.23	--Illustrations	**D**	**D**	**M**
	2.24	--Patterns	**D**	**D**	**M**
	2.25	--Tables	**D**	**M**	
	2.26	--Logic	**D**	**D**	**D**
	2.27	--Trial and error	**D**	**D**	**D**
	2.28	--Working backwards	**D**	**D**	**D**
	2.29	Recognizes and applies math ideas in everyday life (PS #4)	**D**	**D**	**D**
	3	**MEASUREMENT and DATA**			
		Selects and uses measurement tools to measure quantities for: (NE 6.2.5, 8.25; PS #1, 2, 4, 5)			
	3.1	--Temperature	**M**		
	3.2	--Time, Elapsed Time	**M**		
	3.3	--Distance	**M**		
	3.4	--Capacity	**D**	**M**	
	3.5	--Weight/mass in standard units	**D**	**M**	
	3.6	--Weight/mass in metric units	**D**	**M**	
		Converts from one unit to another within the same system: (NE 8.2.5; PS #1, 2, 3, 4, 5)			
	3.7	--Standard units	**D**	**D,M**	
	3.8	--Metric units	**D**	**D,M**	
	3.9	Identifies solutions using rates (NE 8.1.3; PS #1, 4, 5)	**I**	**D**	**M**
	3.10	Recognizes and applies math ideas in everyday life (PS #4)	**D**	**D**	**D**

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		Middle School Grades	Grade 6	Grade 7	Grade 8
	4	**GEOMETRY/SPATIAL CONCEPTS**			
		Identifies, classifies, and describes two-dimensional geometric polygons: (NE 7.2.1, 8.2.1; PS #2, 3)			
		--Triangles			
	4.1	--Classification by Sides	**D**	**M**	
	4.2	--Classification by Angles	**D**	**M**	
		--Quadrilaterals			
	4.3	--Parallelogram	**D**	**M**	
	4.4	--Rectangle	**D**	**M**	
	4.5	--Square	**D**	**M**	
	4.6	--Rhombus	**D**	**M**	
	4.7	--Trapezoid	**D**	**M**	
	4.8	--Multisided figures up to 10 sides	**D**	**M**	
	4.9	--Prisms	**I,D**	**M**	
	4.10	--Pyramids	**I,D**	**M**	
	4.11	--Cylinders	**I,D**	**M**	
	4.12	--Spheres	**I,D**	**M**	
	4.13	--Cones	**I,D**	**M**	
		Identifies and describes basic plane geometric figures: (NE 8.2.1 12.2.1; PS #2, 3)			
	4.14	--Planes	**D**	**D**	**M**
	4.15	--Transversal	**I**	**D**	**D**
	4.16	--Measures Angles	**D,M**		
	4.17	--Classifies Angles – Acute, Right, Obtuse, Straight	**M**		
	4.18	--Complementary	**I**	**D**	**D**
	4.19	--Supplementary	**I**	**D**	**D**
	4.20	--Vertical		**I,D**	**D**
	4.21	--Corresponding		**I,D**	**D**
	4.22	--Alternate Interior		**I,D**	**D**
	4.23	--Alternate Exterior		**I,D**	**D**

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		Middle School Grades	Grade **6**	Grade **7**	Grade **8**
	4	**GEOMETRY/SPATIAL CONCEPTS continued**			
		Describes relationships of: (NE 8.2.1; PS #1, 2, 3, 5)			
	4.24	--Congruence	I	D	M
	4.25	--Similarity	I	D	M
	4.26	--Symmetry	I	D	M
	4.27	Identifies and uses the Pythagorean Theorem (NE 8.2.5 12.2.1; PS # 1, 2, 3, 5)		I	D
		Uses formulas to solve perimeter/circumference: (NE 6.2.5, 8.2.5; PS #1, 2, 3, 4, 5)			
	4.28	--Triangle	I	D	M
	4.29	--Parallelogram	M		
	4.30	--Trapezoid	D	D	M
	4.31	--Circle	I	D	M
		Uses formulas to solve area: (NE 8.2.5; PS #1, 2, 3, 4, 5)			
	4.32	--Triangle	I	D	M
	4.33	--Parallelogram	D	D	M
	4.34	--Trapezoid	D	D	M
	4.35	--Circle	I	D	M
		Uses formulas to solve surface area and volume: (NE 8.2.5, 12.2.5; PS #1, 2, 3, 4, 5)			
	4.36	--Rectangular Prisms	I	D	D
	4.37	--Cylinders		I,D	D
	4.38	--Cones		I,D	D
	4.39	--Pyramids		I,D	D
	4.40	--Spheres		I,D	D
		Applies transformations to two- and three-dimensional geometric figures by using: (NE 12.2.3; PS #1, 3, 4, 5)			
	4.41	--Translations	I	D	D
	4.42	--Rotation	I	D	D
	4.43	--Reflection	I	D	D
	4.44	--Scale (dilations)		I	D
	4.45	Applies geometric terms and representations to the real world (NE 12.2.5; PS #4, 5)	I	D	D

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		Middle School Grades	Grade 6	Grade 7	Grade 8
	5	**DATA ANALYSIS, PROBABILITY, AND STATISTICAL CONCEPTS**			
		Selects and creates appropriate graphical representations of data: (NE 7.4.1, 8.4.1, 12.4.1; PS #1, 3, 4, 5)			
	5.1	**--** Multiple Bar graphs	**D**	**M**	
	5.2	--Histograms	**I**	**D**	**D**
	5.3	--Circle graphs	**D**	**D**	**D**
	5.4	--Line graphs	**D**	**D**	**M**
	5.5	--Scatter plots	**I**	**D**	**D**
	5.6	--Venn diagrams	**I**	**D**	**D**
	5.7	Computes mean, median, mode, and range (NE 6.4.1; PS #1, 2, 3, 5)	**D,M**		
	5.8	Compares the mean, median, mode and range from two sets of data (NE 6.4.1; PS #1, 2, 3, 5)	**I,D,M**		
	5.9	Explains the difference between a population and a sample (NE 7.4.1; PS #1, 5)	**I**	**D,M**	
	5.10	Uses graphical representations to make comparisons and predictions (NE 7.4.2; PS #1, 3, 4, 5)	**I, D**	**M**	
		Solves problems using probability with or without appropriate use of technology: (NE 12.4.3; PS #1, 3, 4, 5)			
	5.11	--Experimental	**I**	**D**	**D**
	5.12	--Sample spaces	**I**	**D**	**D**
	5.13	--Simulations	**I**	**D**	**D**
	5.14	--Predictions	**I**	**D**	**D**
	5.15	--Theoretical		**I**	**D**
	5.16	Evaluates predictions and makes inferences based on data (NE 7.4.2, 8.4.2; PS #1, 4)	**I**	**D**	**M**

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		Middle School Grades	Grade 6	Grade 7	Grade 8
	6	**ALGEBRAIC CONCEPTS**			
	6.1	Uses and interprets variables and mathematical symbols to solve one-step equations (NE 6.3; PS #2, 5)	M		
	6.2	Uses symbols to understand orders of operation (NE 6.3; PS #2, 5)	M		
	6.3	Describes relationships using algebraic expressions, equations and inequalities (NE 8.3.1; PS #2, 5)	I	D	M
		Demonstrates knowledge and use of the one-dimensional coordinate system: (NE 12.3.1; PS #2, 3, 4, 5)			
	6.4	--Graphing equalities		I	D
	6.5	--Graphing inequalities		I	D
	6.6	--Graphing real numbers		I	D
		Demonstrates knowledge and use of the two-dimensional coordinate system: (NE 7.2.2, 12.3.1; PS #1, 3, 4, 5)	I	D	D
	6.7	--Graphing ordered pairs	I	D	M
	6.8	--Generate a table of ordered pairs to graph an equation with two variables		I	D
	6.9	Applies algebraic concepts and operations to solve one-step equations in one variable (NE 8.3.3; PS #1, 3, 5)	D	D	M
	6.10	Applies algebraic concepts and operations to solve two-step equations in one variable (NE 8.3.3; PS #1, 3, 5)		I,D	M
	6.11	Describes and represents relations and functions using tables, graphs, and rules (NE 12.3.1; PS #1, 2, 3, 4, 5)		I	D
	6.12	Translates word problems into algebraic expressions or equations using variables and mathematical symbols (NE 12.3.1; PS #1, 2, 3, 4, 5)	I	D	D
	6.13	Uses input/output table to identify and extend patterns (PS #1, 3, 4, 5)	D	D	D
	6.14	Recognizes and applies math ideas in everyday life (PS #4)	D	D	D