Archdiocese of Newark Catholic Schools

Curriculum Mapping

Curriculum mapping is a process that helps schools and districts/dioceses determine the "agreed-upon" learning for all students. Curriculum mapping was undertaken in the Archdiocese of Newark in order to ensure that a consistent, clearly articulated curriculum infused with Gospel values is being provided to all students in our schools. The curriculum maps for the Catholic schools of the Archdiocese of Newark identify the content to be taught and skills to be mastered at each grade level.

The expertise and experience of the educators within our schools is the main source for determining the content and skills students will be expected to master.   The Archdiocesan curriculum maps are developed through a collaborative process which involves individual teacher contributions, small group sessions and larger group meetings. Relevant educational standards, including those proposed by content area experts, the New Jersey Core Curriculum Content Standards, and the Common Core State Standards, are used as a resource in the curriculum mapping process. The resulting consensus maps reflect the collective thinking of classroom teachers based on their observation of student learning and their knowledge of educational practice and research. The Archdiocesan curriculum maps include teacher generated ideas for the infusion of Gospel values and faith connection activities.

While the curriculum maps clearly articulate the expected learning for all students, individual teachers have the flexibility to teach the content and skills in their own manner by:
- utilizing their own particular strengths and teaching style
- addressing the varying learning needs of their students
- determining the order in which the content and skills are presented within a marking period
- including additional content and skills once students have met the learning expectations identified in the curriculum map

Administrators at all levels will maintain the responsibility to ensure that teachers are following the curriculum maps and that appropriate teaching is being conducted. This will be done through a combination of classroom observations, faculty meetings, professional development opportunities and teacher evaluations, as well as by using various measurement tools, including but not limited to in-class and standardized testing.   The Archdiocesan curriculum maps will help ensure the academic excellence that is integral to the mission of our Catholic schools and will provide educators and parents with a clear understanding of the learning expectations at each grade level.

Grade 3
July 2014

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections

3.NBT.S1 Represent, order, and compare large numbers (to at least 10,000) using various equivalent forms (e.g., expanded notation).
 	
3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.
 	
3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *Example: Observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*
 	
3.OA.S1 Represent and analyze patterns and functions, using words and tables (e.g., input-output tables).
	Place Value	Write and read numbers in standard, word and expanded forms.
		
		Identify place value to 100,000.
		
		Read, write, compare and order numbers up to 100,000.
		
		Identify and complete number patterns.
		
		Round and estimate numbers up to the nearest hundred thousand (including money).
			Student learning will be assessed on a continual basis using various types of formal and informal assessments. A list of possible assessment methods is provided below:
			
			  Test
			  Quizzes
			  Teacher Observation
			  Projects
			  Oral Test/Drills
			  Group Projects
			  Surveys and Graphs
			  Standardized Test Preps
			  Center Activities
			  Homework
				Gospel values should be evident in the classroom environment and referenced and reinforced throughout the curriculum.
				
				Gospel Values
				  Community
				  Compassion
				  Faith in God
				  Forgiveness
				  Hope
				  Justice
				  Love
				  Peace
				  Respect For Life
				  Service
				  Simplicity
				  Truth

3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**Addition & Subtraction**	Add and subtract two, three, and four- digit numbers with and without regrouping. Apply the four properties of addition: (Associative, Distributive, Commutative, and Zero Property).	Classwork Timed Drills Exit Slips Pre- Test/Post- Test Online Assessment Problem of the Day Individual Response Boards	Included in this column are suggestions for making faith connections within the Math classroom. These suggestions were submitted by teachers.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *Example: Observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*		Utilize mental math strategies. Use basic fact and patterns of zero to add tens, hundreds and thousands mentally. Estimate sums and differences. Identify, demonstrate and explain the relationship between addition and subtraction.	Thumbs up/Thumbs down Games Journaling Interactive whiteboard activities Solve and Explain	Create equations for students to solve. The answer should represent an important date on the Church calendar such as, holy days of obligation, saint days, etc.
3.MD.S2 Determine the value of sets of coins and bills and determine if the value is enough to cover the cost of specific items	**Money**	Add and subtract money amounts. Make and count change correctly.		Count the money collected each week for the Missions. Compare the amount collected to previous weeks.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**Problem Solving**	Solve addition and subtraction word problems using a four step strategy-*Read, Plan, Solve and Check.* Apply problem solving skills to real life situations involving addition, subtraction. Solve multi-step word problems using addition and subtraction. Solve problems involving addition and subtraction of money. Explain and justify the mathematical thinking and procedures used to solve a word problem.		Incorporate Gospel values into word problem scenarios. *Example: The third grade class will give 50 cents for the poor on Monday and promised to double the previous day's amount every day for a week. How much money will the third grade have on Friday?*

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.OA.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. Example: Describe a context in which a total number of objects can be expressed as 5 × 7. 3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. 3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. (*By the end of Grade 3, students should know from memory all products of two one-digit numbers.*) 3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *Example: Observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	**Multiplication** **Math Terms (Vocabulary)**	Represent multiplication facts as they connect to repeated addition. Construct and utilize arrays to model multiplication. Demonstrate developing mastery of basic multiplication facts. *(Begins in 1st trimester and continues throughout the 2nd and 3rd trimesters.)* Identify factors and multiples. Demonstrate understanding of math vocabulary. Use math terms terminology correctly.		Use the mathematical folktale, "One Grain of Rice" to explore doubling numbers and as a basis for discussions about social justice. Use service projects as the theme for word problems. *Ex: The class has been collecting Pennies for Patients, as part of a service project. The class collected $127.13 the first four days. Today is the fifth day. Job brought in 5 quarters and 2 dimes. Grant brought in 8 stacks of 5 pennies each. Keira brought in $1.50. How much did the class collect at the end of five days?*

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections

3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. *(By the end of Grade 3, students should know from memory all products of two one-digit numbers.)*
 	
3.OA.5 Apply properties of operations as strategies to multiply and divide.
 	
3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
 	
3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each
	Multiplication/ Division	Demonstrate fluent recall of products for multiplication facts with 0 through 12 as factors. (*Mastery of facts develops throughout the year.*)
		
		Show the relationship between multiplication and division through the use of fact families.
		
		Apply the properties of multiplication and division, including the distributive property.
		
		Apply multiplication strategies to problems with or without regrouping.
		
		Determine the missing number in a multiplication or division equation.
		
		Interpret quotients as the number of equal shares or the number of objects in each share.
			Student learning will be assessed on a continual basis using various types of formal and informal assessments. A list of possible assessment methods is provided below:
			
			Test
			
			Quizzes
			
			Teacher Observation
			
			Projects
			
			Oral Test/Drills
			
			Group Projects
			
			Surveys and Graphs
			
			Standardized Test Preps
			
			Center Activities
			
			Homework
			
			Classwork
			
			Timed Drills
			
			Exit Slips
			
			Pre- Test/Post- Test
			
			Online Assessment
			
			Problem of the Day
			
			Individual Response
				Gospel values should be evident in the classroom environment and referenced and reinforced throughout the curriculum.
				
				Gospel Values
				  Community
				  Compassion
				  Faith in God
				  Forgiveness
				  Hope
				  Justice
				  Love
				  Peace
				  Respect For Life
				  Service
				  Simplicity
				  Truth
				
				Included in this column are suggestions for making faith connections within the Math classroom. These suggestions were submitted by teachers.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections

3.NF.1 Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.
 	
3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.
    a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.
    b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
 	
3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
    a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
	Fractions	Describe a fraction as part of a whole.
		
		Identify the numerator and denominator of a fraction.
		
		Use models to demonstrate, compare, represent and order fractions.
		
		Represent fractions on a number line.
		
		Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line.
			Boards
			
			Thumbs up/Thumbs down
			
			Games
			
			Journaling
			
			Interactive whiteboard activities
			
			Solve and Explain
				40 Random Acts of Kindness for Lent- challenge students to track the random acts of kindness they do each day. At the end of Lent, count up how many acts they did. What fraction represents the number you did out of the 40?

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual fraction model).				
3.MD.S1 Carry out simple unit conversions within a system of measurement (e.g., hours to minutes, cents to dollars, yards to feet or inches, meters to centimeters).	**Measurement**	Recognize customary and metric units of measurement for temperature, length, liquid volume, and mass. (*Continue in 3rd Trimester*) Perform simple conversions within the same measurement system. Measure the length of an object to the nearest inch.		

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., by representing the problem on a number line diagram).	**Time**	Express time to the hour, half hour, quarter hour, minute and five minutes. Calculate elapsed time using a line diagram.		
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	**Problem Solving**	Solve word problems using a four step strategy- *Read, Plan, Solve and Check.* Apply and model problem solving skills to real life situations using addition, subtraction, multiplication and division. Solve multi-step word problems using addition, subtraction, multiplication and division. Solve word problems involving elapsed time. Explain and justify the mathematical thinking and procedures used to solve a word problem.		Have students work in groups on an extended project based on the book, "The Lemonade War". Each week students are given specific tasks to complete as they "start a new business". Values and ethics are emphasized and discussed throughout the course of the project. Using the weekly supermarket flyer, have students work in small groups to determine the cost of items needed to make sandwiches for a local soup kitchen.

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
	Math Vocabulary	Demonstrate an understanding of math vocabulary. Use math terminology correctly.		
3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *Example: Draw a bar graph in which each square in the bar graph might represent 5 pets.*	**Data/ Graphing**	Collect, organize and display data in a variety of graphs. Compare and interpret data presented in various types of graphs. Draw conclusions based on data presented in various types of charts and graphs.		Food Drive- Sort and compare the different types of foods collected. Graph the findings. Find the top ten names used by popes. Create a bar graph to show how often each name has been selected.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.G.S1 Recognize, identify and draw congruent and similar figures. 3.G.S2 Recognize lines of symmetry. 3.G.S3 Identify transformations of shapes and objects as reflections (flips), rotations (turns), and translations (slides). 3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	**Geometry**	Determine lines of symmetry in a figure. Recognize and distinguish between congruent and similar figures. Identify transformations of two dimensional and three dimensional figures as reflections, rotations or translations. Classify and draw angles. Identify, draw and recognize types of lines. Recognize and classify polygons.		Observation of geometric and numerical patterns reveals the order throughout God's creation, Repetition and patterns in creation can be seen in the design of a honeycomb (hexagons), the stripes on a zebra, the seeds in a sunflower, the planets and their orbits, etc. Lead students on a search for geometric figures within the church setting. Have them list the shapes they find and tell where they found them.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections

3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
 	
3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.
  a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
 	
  b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
 	
3.MD.6 Measure areas by counting unit squares (square cm, square m, square inches, square ft, and improvised units).
 	
3.MD.7 Relate area to the operations of multiplication and addition.
  a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
	Geometric Measurement	Calculate perimeter of polygons.
		
		Recognize area as an attribute of plane figures and understand concepts of area measurement.
		
		Determine the area of a plane figure by counting unit squares.
		
		Demonstrate an understanding of the formula for calculating area of a rectangle		

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	**Probability/ Statistics** *Probability/ Statistics to be taught in 2nd or 3rd trimester*	Distinguish between certain, possible and impossible outcomes.

Classify outcomes as certain, likely, unlikely or impossible.

Generate the range, median, and mode of data set. | | |

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Third Trimester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.OA.5 Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known (Commutative Property of Multiplication). 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative Property of Multiplication). Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive Property).* 3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	**Multiplication**	Calculate the product of 3 one-digit factors. Apply knowledge of basic multiplication facts multiple single digit numbers by multiples of ten.	Student learning will be assessed on a continual basis using various types of formal and informal assessments. A list of possible assessment methods is provided below: Test Quizzes Teacher Observation Projects Oral Test/Drills Group Projects Surveys and Graphs Standardized Test Preps Center Activities Homework Classwork Timed Drills Exit Slips Pre- Test/Post- Test Online Assessment Problem of the Day Individual Response	Gospel values should be evident in the classroom environment and referenced and reinforced throughout the curriculum. **Gospel Values** Community Compassion Faith in God Forgiveness Hope Justice Love Peace Respect For Life Service Simplicity Truth
3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. (*By the end of Grade 3, students should know from memory all products of two one-digit numbers.*)	**Division**	Divide two-digit dividends by one-digit divisors resulting in one-digit or two- digit quotients.		Included in this column are suggestions for making faith connections within the Math classroom. These suggestions were submitted by teachers.

Third Trimester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.MD.S3 Represent the possible outcomes for a simple probability situation (e.g., the probability of drawing a red marble from a bag containing three red marbles and four green marbles). 3.MD.S4 Classify outcomes as *certain, likely, unlikely, or impossible* by designing and conducting experiments using concrete objects such as counters, number cubes, spinners, or coins.	**Probability/ Statistics** *Probability/ Statistics to be taught in 2nd or 3rd trimester*	Distinguish between certain, possible and impossible outcomes. Classify outcomes as certain, likely, unlikely or impossible. Generate the range, median, and mode of data set.	Boards Thumbs up/Thumbs down Games Journaling Interactive whiteboard activities Solve and Explain	
3.NF.3c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*	**Fractions/ Decimals**	Relate fractions with denominators of 10 and 100 to their decimal equivalent. Express whole numbers as fractions. Recognize fractions that are equivalent to whole numbers.		

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 3

Third Trimester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding**.** 3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., by representing the problem on a number line diagram). 3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	**Problem Solving**	Use models to represent addition and subtraction of fractions with like denominators. Relate decimals to money. Solve word problems using a four step strategy- *Read, Plan, Solve and Check.* Apply problem solving strategies to real life situations involving addition, subtraction, multiplication, division, money, elapsed time, geometric concepts, fractions, etc Solve multi-step word problems involving addition, subtraction, multiplication, division, money, elapsed time, geometric concepts, fractions, etc.		Based on the following information: $5 can buy milk for one child for one month and for 10 children for one week ; $3 can buy 75 pencils for a mission school; $4 can buy bread, students can use their knowledge of multiplication and division to quantify the help they generate in their collection of mission money over a specific amount of time.

Third Trimester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *Example: Determine the unknown number that makes the equation true in each of the equations 8×? = 48, 5 = □ ÷ 3, 6 × 6 = ?.*	**Basic Algebra**	Explain and justify the mathematical thinking and procedures used to solve word problems. Determine the unknown number in a simple algebraic equation.		
	Math Terms	Demonstrate understanding of math vocabulary. Use terminology correctly.		