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 5
July 2014

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections

5.NBT.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
 	
5.NBT.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
 	
5.NBT.3 Read, write, and compare decimals to thousandths.
  a) Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
 	
  b) Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
 	
5.NBT.4 Use place value understanding to round decimals to any place.
	Place Value from billions to thousandths place	Identify the value of digits to the billions through thousandths place using expanded, standard and word form.
		
		Compare, order and round whole numbers and decimals.
			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:
			
			  Pre- and post-tests
			
			  Quizzes
			
			  Chapter and Unit Tests
			
			  Interactive Whiteboard activities
			
			  Online Math Programs
			
			  Software programs and applications
			
			  Homework Review
			
			  Group activities
			
			  Projects
			
			  Math vocabulary quizzes
			
			  Math journals
			
			  Math notebooks
			
			  Modeling
				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 5

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm. 5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	**Addition, Subtraction, Multiplication and Division of Whole Numbers and Decimals**	Demonstrate the ability to add and subtract numbers with 3 or more digits. Demonstrate the ability to multiply numbers with 3 or more digits. Demonstrate the ability to divide with up to 2- digit divisors.	Check-out/Exit cards or tickets Use of manipulatives Learning activities/games Student-created problems Student-created technology resources Oral presentations	Each group is given a recipe that would be prepared at a soup kitchen. Using a weekly store ad, students need to estimate how much of each item is needed, and the cost of the meal.
5.OA.S2 Select and apply the properties of operations, such as commutative, associative, distributive, and identity, to simplify and evaluate numerical expressions.	**Properties of Operations**	Apply the commutative, associative, distributive, and identity properties to simplify and evaluate numerical expressions.		

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
5.NBT.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. 5.NBT.3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.	**Exponents**	Use whole number exponents to denote powers of 10. Describe the relationship between powers of 10 and the place value system.		
5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. 5.OA.S1 Apply the order of operations for expressions involving addition, subtraction, multiplication, and division with grouping symbols (+, −, x, ÷).	**Order of Operations**	Display fluency in using standard algorithms and applying the Order of Operations to evaluate numerical expressions.		
5.OA.S6 Apply the divisibility rules for 2, 3, 4, 5, 6, 9, and 10 to the solution of problems.	**Divisibility**	Recall and apply rules of divisibility.		

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 5

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
5.NF.3 Interpret a fraction as division of the numerator by the denominator (*a/b* = *a* ÷ *b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem	**Fractions**	Interpret a fraction as a division of the numerator by the denominator.		
5.NBT.S1 Select and use appropriate operations (addition, subtraction, multiplication, division) to solve problems, including those involving money.	**Problem Solving**	Determine operations and strategies needed to solve problems. Explain how the solution to a mathematical problem was achieved. Interpret and solve multi-step problems using a combination of operations. Apply estimation skills to real life situations.		Solve real world problems related to social justice issues.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 5

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
5.OA.S4 Determine if a number is prime or composite. 5.OA.S5 Identify factors and multiples of a number. 5.NF.S1 Demonstrate an understanding of fractions as a ratio of whole numbers, as parts of unit wholes, as parts of a collection, and as locations on the number line.	**Factors and Multiples** **Equivalent Fractions**	Identify factors and multiples of a number. Determine whether a number is prime or composite. Identify the greatest common factor (GCF) and least common multiple (LCM) of a given set of numbers. Represent prime factorization in exponential form by creating factor trees. Understand how to multiply and divide the numerator and denominator by the same non zero number in order to express equivalent fractions. Simplify fractions to lowest terms. Rename improper fractions and mixed numbers.	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: Pre- and post-tests Quizzes Chapter and Unit Tests Interactive Whiteboard activities Online Math Programs Software programs and applications Homework Review Group activities Projects Math vocabulary quizzes Math journals Math notebooks	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.

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
5.NF.S2 Identify and determine common equivalent fractions, mixed numbers, decimals, and percents.	**Relationships among Fractions, Decimals and Percents**	Demonstrate the relationship between fractions, percents, and decimals. Convert among fractions, decimals, and percents.	Modeling Check-out/Exit cards or tickets Use of manipulatives Learning activities/games Student-created problems Student-created technology resources Oral presentations	
5.NF.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	**Addition and Subtraction of Fractions**	Add and subtract fractions and mixed numbers with like and unlike denominators.		

5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
  a) A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
 	
  b) A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
	Understanding Volume	Demonstrate volume using physical objects (counting unit cubes).		

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 5

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. 5.MD.5 Relate volume to the operations of multiplication and addition, and solve real world and mathematical problems involving volume. a) Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication). b) Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.	**Finding Volume**	Apply the formula to find the volume of rectangular prisms		

Archdiocese of Newark Catholic Schools Curriculum Map for Mathematics Grade 5				
Second Trimester: December-February				
Standards	**Content**	**Skills**	**Assessment**	**Gospel Values & Faith Connections**
5.NBT.S1 Select and use appropriate operations (addition, subtraction, multiplication, division) to solve problems, including those involving money. 5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	**Problem Solving**	Determine operations and strategies needed to solve problems. Explain the mathematical reasoning and process used to solve problems. Interpret and solve multi-step problems using a combination of operations Apply estimation skills to real-life situations. Solve problems involving whole numbers, fractions, and decimals.		

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values

5.NF.5 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
  a) Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.
 	
  b) Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
 	
5.NF.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
  a) Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.
 	
  b) Interpret division of a whole number by a unit fraction, and compute such quotients.
	Multiplication and Division of Fractions	Multiply and divide fractions and mixed numbers.	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:
			
			  Pre- and post-tests
			
			  Quizzes
			
			  Chapter and Unit Tests
			
			  Interactive Whiteboard activities
			
			  Online Math Programs
			
			  Software programs and applications
			
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Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values

5.OA.S11 Solve problems involving proportional relationships, including unit pricing and map interpretation (e.g., one inch represents five miles, so two inches represent ten mile).
 	
5.NF.5 Interpret multiplication as scaling (resizing) by:
  a) Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
 	
  b) Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
	Ratio and Proportions	Represent ratios in three forms.
		
		Determine if two ratios form a proportion.
		
		Solve for missing terms in a proportion.
		
		Demonstrate the knowledge and use of scaling (resizing)
			Use of manipulatives
			
			Learning activities/games
			
			Student-created problems
			
			Student-created technology resources
			
			Oral presentations	

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values
5.MD.S4 Describe and compare data sets using the concepts of median, mean, mode, maximum and minimum, and range. 5.OA.S10 Use pictures, models, tables, charts, graphs, words, number sentences, and mathematical notations to interpret mathematical relationships. 5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. 5.MD.S5 Propose and justify conclusions and predictions that are based on data	**Data, Tables and Graphs**	Compute mean, median, mode, and range for a given set of data. Collect, organize, and represent data using tables and graphs. Analyze data relevant to real life situations.		Keep track of the money collected for the Missions. Use the figures to calculate the mean, median, and range of a given month as well as the percent of increase and decrease from week to week. Construct a line graph of donations over time.
5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. 5.MD.S1 Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.	**Measurement: Customary and Metric Systems**	Distinguish between different units of measurement. Use estimation and direct measurement skills. Convert units of measurement within a measurement system. Demonstrate competency in use of measurement tools.		

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values
5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. 5.G.4 Classify two-dimensional figures in a hierarchy based on properties. 5.G.S1. Identify and classify the different kinds of triangles. 5.MD.S8 Develop and apply strategies for estimating the perimeter of shapes and the circumference of circles.	**Geometry: Polygons, Angles & Circles**	Identify and classify polygons according to sides and angles. Differentiate between area and perimeter. Apply formulas to find area and perimeter. Measure, draw and identify angles. Identify parts of a circle. Estimate the circumference of a circle.		
5.G.1 Use a pair of perpendicular number lines, called <u>axes</u>, to define a coordinate system, with the intersection of the lines (the <u>origin</u>) arranged to coincide with the 0 on each line and a given point in the plane located by using an <u>ordered pair</u> (x, y) of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction on <u>the horizontal axis</u>, and the second number indicates how far to travel in the direction on the <u>vertical axis</u>, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	**Coordinate Plane**	Identify the *x-axis, y*-axis and origin on the coordinate plane. Plot and locate points within the first quadrant of the coordinate plane.		

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 5

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values
5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. 5.OA.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. 5.G.S2 Predict, describe, and perform transformations on two-dimensional shapes, e.g., rotations(turns); reflections (flips), and translations (slides).		Predict, describe and perform geometric transformations with two dimensional shapes. Graph geometric transformations on the coordinate plane.		
5.OA.S7 Use symbol and letter variables (e.g., $\square$, *x)* to represent unknowns or quantities that vary in expressions and in equations or inequalities (mathematical sentences that use =, <, >). 5.OA.S8 Determine the values of variables in simple equations. 5.OA.S9 Replace variables with given values and evaluate/simplify (e.g., 2(b) + 3 when b = 4).	**Expressions and Equations**	Evaluate simple expressions containing variables. Simplify expressions using order of operations. Translate words into algebraic expressions or equations.		

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Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values
5.MD.S6 Predict the probability of outcomes of simple experiments (e.g., tossing a coin, rolling a die) and test the predictions. Use appropriate ratios between 0 and 1 to represent the probability of the outcome and associate the probability with the likelihood of the event: certain, likely, unlikely, or impossible.	**Probability**	Predict, test and record the probability of an outcome of an event.		
5.NBT.S1 Select and use appropriate operations to solve problems, including those involving money.	**Problem Solving**	Determine the operations and strategies needed to solve problems.		
5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.		Explain how and why the solution was achieved.

Interpret and solve multi-step problems using a combination of operations.

Apply estimation skills to real-life situations. | | |
| 5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers,(e.g., by using visual fraction models or equations to represent the problem). | | Solve problems involving whole numbers, fractions, and decimals. | | |
| 5.MD.S3 Solve problems involving proportional relationships and units of measurement (e.g., same system unit conversions, scale models, maps, and speed). | | | | |