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.

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 6

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.NS.S2 Demonstrate an understanding of positive integer exponents, in particular, when used in powers of ten (e.g., 10^2, 10^5). 6.NS.S3 Demonstrate an understanding of place value to billions and thousandths. 6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers. a) Write expressions that record operations with numbers and with letters standing for numbers. b) Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.	**Place Value** **Mathematical and Algebraic Expressions**	Compare and order whole numbers and decimals using place value or a number line. Read and write numbers in standard, expanded, and word form. Write expressions in exponential form and write numbers in expanded form using exponents. Round whole numbers and decimals to a particular place value or greatest place value. Translate words to mathematical and algebraic expressions and equations. Read mathematical and algebraic expressions and equations using the correct terminology.	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: Teacher created quizzes Review of homework Class participation Games for concept review Web-based Math programs Spiral review Teacher observation Peer collaboration Exit tickets Projects Chapter tests Pre/Post assessment of skills Final exam (3^{rd} trimester) Standardized Test	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 some 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 6

First Trimester: September-November

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 6.NS.2 Fluently divide multi-digit numbers using the standard algorithm. 6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 6.EE.1 Write and evaluate numerical expressions involving whole-number exponents. 6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers. 6.NS.S2 Demonstrate an understanding of positive integer exponents, in particular, when used in powers of ten (e.g., 10^2, 10^5).	**Whole numbers and decimals** **Scientific Notation**	Perform computations with whole numbers and decimals using the four operations and order of operations. Identify, interpret, and extend patterns. Write and evaluate expressions involving whole number exponents Represent numbers by using scientific notation. Convert numbers expressed in scientific notation to standard form.	Use of manipulative Review of notebooks Cross-curriculum activities Journals Oral quizzes	In trying to bring in the concept of social justice, we discuss the Parish Lunch Program for the homeless. The students are asked to create a monthly budget for a food pantry that serves about 30 to 40 people a day. In creating a budget, they must use store circulars to find the better buy for the groceries and other necessities. Once the budget is established and weekly grocery list is created, the students are to present their information as a circle graph using percentages. **Sequence** Fibonacci sequence - Use the sequence to study the occurrence of patterns in nature

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6.EE.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	**Algebraic Expressions**	Simplify and evaluate algebraic expressions.		
6.EE.3 Apply the properties of operations to generate equivalent expressions.	**Properties**	Recognize and apply the properties of operations.		
6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.				
6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	**Problem Solving**	Develop strategies to solve word problems related to various math topics.		

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First Trimester: September-November				
Standards	**Content**	**Skills**	**Assessment**	**Gospel Values & Faith Connections**
6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. 6.NS.S1 Apply number theory concepts (including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2, 3, 4, 5, 6, 9, and 10) to the solution of problems.	**Divisibility rules**	Apply the rules for determining divisibility by 2, 3, 4, 5, 6, 9, and 10.		

Archdiocese of Newark Catholic Schools
Curriculum Map for Mathematics
Grade 6

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.NS.S1 Apply number theory concepts (including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2, 3, 4, 5, 6, 9, and 10) to the solution of problems. 6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *Example: Express 36 + 8 as 4 (9 + 2).* 6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions (e.g., by using visual fraction models and equations to represent the problem).	**Number Theory** **Fraction Operations**	Distinguish between prime and composite numbers. Represent a number using prime factorization. Identify the Least Common Multiple (LCM) and Greatest Common Factor (GCF) of two or more numbers. Relate mixed numbers and improper fractions. Simplify, compare, and order fractions. Perform computations with fractions using the four operations.	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: Teacher created quizzes Review of homework Class participation Games for concept review Web-based Math programs Spiral review Teacher observation Peer collaboration Exit tickets Projects Chapter tests Pre/Post assessment of skills Final exam (3rd trimester) Standardized test	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 some 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 6

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
	Fraction/Decimal equivalence	Relate fractions and decimals. Compare and convert fractions and decimals.	Use of manipulative Review of notebooks Cross-curriculum activities Journals Oral quizzes	
	Terminating & Repeating decimals	Distinguish between terminating and repeating decimals.		
6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. 6.RP.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. 6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a) Make tables of equivalent ratios relating quantities with whole	**Ratio/Proportion**	Describe the relationship between ratio, proportion, and percent Apply ratio, rates, and percent to real world problems i.e. sales tax, mark ups, and interest. Apply the percent formula to find the unknown rate, the unknown base, or the unknown amount (part of a given number) in percent problems		**Connecting to Church and Parish** When doing problems involving percents, or measurement use places and things that are part of the parish or connected to the Catholic faith. Scale Drawings –Make models of the church or parish center.

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Second Trimester: December-February

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number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b) Solve unit rate problems including those involving unit pricing and constant speed. c) Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole when given a part and the percent. d) Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities; solve problems involving proportional relationships (e.g. scale models, maps, speed).	**Measurement**	Express quantities as ratios and rates. Solve problems involving proportional relationships. Convert among percents, decimals and fractions. Identify and convert units of length, capacity, and weight. Convert measurement units. Apply knowledge of units of measure to real world situations.		

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Grade 6

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. 6.SP.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. 6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. 6.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box-and- whisker plots. 6.SP.5 Summarize numerical data sets in relation to their context: a) Reporting the number of observations. b) Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c) Giving quantitative measures of center (median and/or mean) and variability (interquartile range	**Data Analysis** **Mean, Median, Range, and Mode**	Collect and interpret statistical data. Identify and utilize the various forms of graphs to display and interpret data. Determine the mean, median, mode, and range of a set of data. Apply measures of central tendencies to real life situations.		**Data, Statistics, & Graphs** Have students do research to gather statistics about homelessness, poverty rates, etc. Create graphs to present the statistics. Find out about programs that address these needs in your local community and ways students can support these programs. **Graphs** Create bar graphs showing the average monthly precipitation and line graphs showing the average monthly temperature in various biomes. Discuss diversity in God's creation.

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Grade 6

Second Trimester: December-February

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d) Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	**Geometry**	Identify and classify geometric shapes based on attributes.		
6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	**Problem Solving**	Apply various strategies to solve word problems relating to each topic.		**Problem Solving** Calculate fundraising contributions or charitable collections. Example if 10% of a group of 545 people each gave $5.00 and 5% each gave $10.00 how much would be collected? Is this more or less than the amount collected if 12% of the 545 people gave $7.00?

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Grade 6

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.EE.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). 6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. 6.G.S1 Identify, measure, and describe circles and the relationship between the radius, and the diameter (e.g., d = 2r, π = C/d), and use these concepts to solve problems involving circumference and area.	**Geometry**	Identify and apply formulas to determine area, perimeter, volume, and surface area of two- and three-dimensional figures. Perform transformations, reflections, and rotations on a 2D plane. Analyze relationships of angles. Identify parts of a circle. Classify solid figures.	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: Teacher created quizzes Review of homework Class participation Games for concept review Web-based Math programs Spiral review Teacher observation Peer collaboration Exit tickets Projects Chapter tests Pre/Post assessment of skills Final exam (3rd trimester) Standardized test	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 some suggestions for making faith connections within the Math classroom. These suggestions were submitted by teachers.

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Curriculum Map for Mathematics
Grade 6

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.SP.S1 Use tree diagrams and other models (e.g., lists and tables) to represent possible or actual outcomes of trials. Analyze the outcomes. 6.SP.S2. 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. 6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. 6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a) Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and	**Probability** **Integers**	Determine and apply basic concepts of probability using tree diagrams permutations and combinations. Find the probability of independent or dependent events. Locate integers and their opposite on a number line. Identify and graph integers, find opposites, and absolute value. Compare and order integers. Construct a coordinate grid and plot the points in all four quadrants. Add, subtract, multiply, and divide integers.	Use of manipulative Review of notebooks Cross-curriculum activities Journals Oral quizzes	

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
that 0 is its own opposite. b) Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c) Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. 6.NS.7 Understand ordering and absolute value of rational numbers. a) Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. b) Write, interpret, and explain statements of order for rational numbers in real-world contexts. *Example: Write –3 °C > –7 ° C to express the fact that –3 °C is warmer than –7 °C.* c) Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a				

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
positive or negative quantity in a real-world situation. d) Distinguish comparisons of absolute value from statements about order. *Example: Recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.* 6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. 6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.				

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Curriculum Map for Mathematics
Grade 6

Third Semester: March-June

Standards	Content	Skills	Assessment	Gospel Values & Faith Connections
6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). 6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all non-negative rational numbers.	**Solving equations**	Identify equivalent expressions. Use the properties of equality to balance equations. Use inverse operations to isolate the variable.		

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Third Semester: March-June				
Standards	**Content**	**Skills**	**Assessment**	**Gospel Values & Faith Connections**
6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	**Inequalities**	Solve and graph inequalities.		
6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	**Problem Solving**	Develop strategies to solve word problems relating to each topic.		
6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.				