## 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.

Pre-Algebra
July 2014

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 7.EE.S1 Apply the rule for Order of Operations to solve numerical and algebraic equations and to simplify and evaluate expressions. <br> 7.EE. 4 Use variables to represent quantities in a real world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. <br> 7.NS. 1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. <br> 7.NS. 2 Apply and extend previous understandings of multiplication, division, and fractions to multiply and divide rational numbers. <br> 7.EE. 1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. <br> 7.EE. 2 Understand that rewriting an expression in different forms may enhance the interpretation of the problem and how the quantities in it are related. | Variables and Algebraic Expressions | Evaluate algebraic expressions. <br> Translate verbal phrases into algebraic expressions. <br> Identify and use properties of addition and multiplication. <br> Use properties of addition and multiplication to simplify algebraic expressions. <br> Apply order of operations to expressions with rational 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: <br> Chapter Tests <br> Quizzes <br> Homework Assignments <br> Cumulative Assessments <br> In-class Observations <br> Projects <br> Writing in Math <br> Mental Math Assessments <br> Math Discussions <br> Group Interaction/Work <br> Math Games <br> Teacher for the Day <br> Student Response Systems <br> Board Work <br> Online Math Programs <br> Worksheets | Gospel values should be evident in the classroom environment and referenced and reinforced throughout the curriculum. <br> Gospel Values <br> Community <br> Compassion <br> Faith in God <br> Forgiveness <br> Hope <br> Justice <br> Love <br> Peace <br> Respect For Life <br> Service <br> Simplicity <br> Truth <br> Included in this column are several suggestions for making faith connections within the Math classroom. These suggestions were submitted by teachers. |

Pre-Algebra

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 7.EE. 3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. <br> 7.EE.4a Solve word problems leading to equations of the form $p x+q=r$ and $\mathrm{p}(\mathrm{x}+\mathrm{q})=\mathrm{r}$, where $\mathrm{p}, \mathrm{q}$, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. <br> 7.EE.4b Solve word problems leading to inequalities of the form $\mathrm{px}+\mathrm{q}>\mathrm{r}$ or $\mathrm{px}+\mathrm{q}<\mathrm{r}$, where $\mathrm{p}, \mathrm{q}$, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. | Equations <br> Inequalities | Solve one and two-step equations by adding and subtracting. <br> Solve one and two-step equations by multiplying and dividing. <br> Combine like terms. <br> Solve and graph simple inequalities. | Vocabulary <br> Standardized Testing <br> Final Exams <br> Performance Tasks <br> Summer Packets |  |

## Archdiocese of Newark Catholic Schools

## Curriculum Map for Mathematics

## Pre-Algebra (Grade 7 or 8)

First Trimester: September-November

| Standards | Content | Skills | Assessment <br> Gospel Values \& Faith <br> Connections |  |
| :--- | :--- | :--- | :--- | :--- |
| 8.EE.5 Graph proportional relationships, <br> interpreting the unit rate as the slope of <br> the graph. Compare two different <br> proportional relationships represented in <br> different ways. | Coordinate Plane | Locate points on a <br> coordinate plane using <br> ordered pairs. <br> Represent relations using <br> tables and graphs. |  |  |

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## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 8.EE. 1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. | Exponents | Write expressions containing exponents. |  |  |
| 7.NS.S1 Represent numbers in scientific notation and use them in calculations and problem situations. |  | Evaluate expressions containing exponents. |  |  |
| 7.NS.S2 Apply the rules of powers and roots to the solution of problems. Extend the Order of Operations to include positive integer exponents and square roots. |  | Apply the properties of exponents. |  |  |
|  |  | Evaluate the zero exponent. |  |  |
|  |  | Evaluate numerical expressions containing negative exponents. |  |  |
| 8.EE. 3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. | Scientific <br> Notation | Express large and small numbers in scientific notation. |  |  |
| 8.EE. 4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use |  | Express numbers written in scientific notation in standard form. |  |  |
| scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., |  | Compare and order numbers written in scientific notation. |  |  |
| use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology. |  | Explore operations with scientific notation. |  |  |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 7.NS.1b Understand $\mathrm{p}+\mathrm{q}$ as the number located a distance $\|q\|$ from $p$, in the positive or negative direction depending on whether $q$ is positive or negative. Show that a number and its opposite have a sum of zero (additive inverses). Interpret sums of rational numbers by describing real world contexts. <br> 7.NS.1c Understand subtraction of rational numbers as adding the additive inverse, $p-q=p+(-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real world contexts. <br> 7.NS. 2 Apply and extend previous understandings of multiplication, division, and fractions to multiply and divide rational numbers. <br> a) Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1)=1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real world contexts. | Rational Numbers | Add and subtract rational numbers. <br> Multiply and divide rational numbers. <br> Write rational numbers as fractions. <br> Identify and classify rational numbers. <br> Express repeating decimals as fractions using the equation. <br> Solve equations involving rational numbers. <br> Solve inequalities involving rational numbers. <br> Evaluate squares and square and cubed roots. |  |  |

Pre-Algebra
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## Archdiocese of Newark Catholic Schools

## Curriculum Map for Mathematics

Pre-Algebra (Grade 7 or 8)
First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| b) Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If $p$ and $q$ are integers, then: $-(\mathrm{p} / \mathrm{q})=(-\mathrm{p}) / \mathrm{q}=$ $\mathrm{p} /(-\mathrm{q})$. Interpret quotients of rational numbers by describing real world contexts. |  |  |  |  |
| c) Apply properties of operations as strategies to multiply and divide rational numbers. |  |  |  |  |
| 7.NS.S3 Compare and order fractions, decimals, and percents efficiently and find their approximate locations on a number line. |  |  |  |  |
| 8.NS. 1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. |  |  |  |  |
| 7.EE. 3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to |  |  |  |  |

## Archdiocese of Newark Catholic Schools

## Curriculum Map for Mathematics

Pre-Algebra (Grade 7 or 8)
First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. |  |  |  |  |
| 7.EE. 4 Use variables to represent quantities in a real world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. |  |  |  |  |
| 8.EE. 2 Use square root and cube root symbols to represent solutions to equations of the form $x^{2}=p$ and $x^{3}=p$, where $p$ is a positive rational number. Evaluate square roots of small perfect squares (at least up to 225) and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational. |  |  |  |  |
| 7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers. | Properties of Real Numbers | Demonstrate knowledge of all properties of real numbers including Identity, Zero, Distributive, Associative, Commutative, and Equality with regard to addition and multiplication. |  |  |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

First Trimester: September-November

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 7.SP. 5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $1 / 2$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. <br> 7.SP. 6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. <br> 7.SP. 7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. <br> 7.SP. 8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. | Probability <br> Word Problems: Strategies and Applications in All Topics | Predict the outcome of theoretical and experimental probability. <br> Apply the fundamental counting principle. <br> Investigate permutations and combinations. <br> Hypothesize and calculate independent and dependent events. <br> Calculate the odds of a specific outcome. <br> Develop and apply strategies to solve real-life word problems. |  |  |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

## Second Trimester: December-February

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 7.G. 5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. | Angles | Classify and name figures including points, lines, planes, and angles. | Student learning will be assessed on a continual basis using various types of formal and informal assessments. A list of | Gospel values should be evident in the classroom environment and referenced and reinforced throughout the curriculum. |
| 8.G. 5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. | Lines | Identify parallel and perpendicular lines. | possible assessment methods is provided below: | Gospel Values |
|  |  | Identify the relationship between parallel and intersecting lines. | Chapter Tests | Community |
|  |  |  | Quizzes | Compassion |
|  |  |  | Homework Assignments | Faith in God |
|  |  |  |  | Forgiveness |
|  |  |  | Cumulative Assessments | Hope |
| 7.G. 2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. | Triangles | Find unknown angles in triangles. | In-class Observations | Justice |
|  |  |  | Projects | Love |
|  |  |  | Writing in Math | Peace |
|  |  | Classify triangles by properties and attributes. | Mental Math Assessments | Respect For Life |
|  |  |  | Math Discussions | Service |
|  | Polygons |  | Group Interaction/Work | Truth |
|  |  | polygons. | Math Games |  |
|  |  | Determine the sum of the | Teacher for the Day | several suggestions for |
|  |  | measures of the interior and exterior angles of a | Student Response Systems | making faith connections within the Math classroom. |
|  |  | polygon. | Board Work | These suggestions were submitted by teachers. |

## Pre-Algebra

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## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

## Second Trimester: December-February

| Standards | Content | Skills | Assessment <br> Connections |  |
| :--- | :--- | :--- | :--- | :--- |
| 7.G.6 Solve real world and mathematical <br> problems involving area, volume, and <br> surface area of two- and three- <br> dimensional objects composed of <br> triangles, quadrilaterals, polygons, cubes, <br> and right prisms. | Perimeter and <br> Area | Apply formulas to find <br> perimeter and area of <br> rectangles, parallelograms, <br> triangles, trapezoids. <br> Calculate area of complex <br> figures. |  |  |
| 8.G.7 Apply the Pythagorean Theorem to <br> determine the unknown side lengths in <br> right triangles in real-world and <br> mathematical problems in two and three <br> dimensions. | Pythagorean <br> Theorem | Recognize right triangles <br> and apply the Pythagorean <br> Theorem to problems <br> involving right triangles. |  |  |
| 7.G.4 Know the formulas for the area and <br> circumference of a circle and use them to <br> solve problems. Give an informal <br> derivation of the relationship between the <br> circumference and area of a circle. | Circles | Calculate the circumference <br> and area of circles. |  |  |
| 7.G.3 Describe the two-dimensional <br> figures that result from slicing three- <br> dimensional figures, as in plane sections <br> of right rectangular prisms and right <br> rectangular pyramids. | Volume | Compare three-dimensional <br> figures and describe two- <br> dimensional figures <br> resulting from slicing three- <br> dimensional figures. |  |  |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

Second Trimester: December-February

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 7.G.6 Solve real world and mathematical problems involving area, volume, and surface area of two- and threedimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. <br> 8.EE. 2 Use square root and cube root symbols to represent solutions to equations of the form $x^{2}=p$ and $x^{3}=p$, where $p$ is a positive rational number. Evaluate square roots of small perfect squares (at least up to 225) and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational. <br> 8.G. 9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. <br> 7.RP. 1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <br> 7.RP. 2 Recognize and represent proportional relationships between quantities. <br> a) Decide whether two quantities are in a proportional relationship, e.g., | Ratios and Proportions | Investigate volume by creating and comparing containers of various shapes. <br> Calculate volume of prisms, pyramids, cylinders, cones, spheres. <br> Apply formulas to find surface area of threedimensional figures. <br> Use division to find unit rates and ratios in proportional relationships. <br> Solve proportions and ratios. |  |  |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8 )

Second Trimester: December-February

| Standards | Content | Skills | Gssespel Values \& Faith <br> Connections |
| :--- | :--- | :--- | :--- | :--- |
| by testing for equivalent ratios in a <br> table or graphing on a coordinate <br> plane and observing whether the <br> graph is a straight line through the <br> origin. |  |  |  |
| b)Identify the constant of <br> proportionality (unit rate) in tables, <br> graphs, equations, diagrams, and <br> verbal descriptions of proportional <br> relationships. |  |  | Similar Figures <br> A fractal is a geometric <br> image that can be divided <br> into parts that are smaller <br> copies of the whole. The |
| c)Represent proportional <br> relationships by equations. |  | image repeats itself <br> infinitely many times. A <br> fractal is considered to be <br> self-similar. In <br> mathematics, a self-similar <br> object is exactly or <br> approximately similar to a <br> part of itself. Show <br> students examples of <br> fractals in nature and |  |
| have them create their own |  |  |  |
| definition of the term self- |  |  |  |
| similar. |  |  |  |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8 )

Second Trimester: December-February

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| 8.EE. 6 Use similar triangles to explain why the slope $m$ is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y=m x$ for a line through the origin and the equation $y=m x+b$ for a line intercepting the vertical axis at $b$. <br> 8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. <br> 7.RP. 2 Recognize and represent proportional relationships between quantities. <br> a) Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. | Scale Drawings | Solve problems involving indirect measurement using similar triangles. <br> Find solutions to applications problems involving other proportional relationships such as similarity. |  | Scale <br> When working with problems involving scale use places and things that are part of our Catholic faith such as the Sistine chapel or Vatican City or holy places in Jerusalem. |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

Second Trimester: December-February

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| b) Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. <br> c) Represent proportional relationships by equations. <br> 7.G. 1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a drawing at a different scale. <br> 7.G. 3 Describe the two-dimensional figures that result from slicing threedimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. | Word Problems: Strategies \& Applications in all topics | Make comparisons between and find dimensions of scale drawing and actual objects. <br> Describe two dimensional figures resulting from slicing three dimensional figures. <br> Compare and contrast proportional and nonproportional linear relationships. <br> Develop and apply strategies to solve real-life word problems. |  | Develop word problems involving social justice issues. |

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

Third Trimester: March - June
Standards
8.NS.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS. 2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., $\pi^{2}$ ).
7.SP. 1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

| Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: |
| Squares and Square roots | Find square roots and squares. <br> Define real numbers. | Student learning will be assessed on a continual basis using various types of formal and informal assessments. A list of possible assessment | Gospel values should be evident in the classroom environment and referenced and reinforced throughout the curriculum. |
| Real Numbers | Determine if a number is rational or irrational. | methods is provided below: <br> Chapter Tests <br> Quizzes | Gospel Values Community Compassion |
|  | Locate irrational and | Homework Assignments | Faith in God |
|  | rational numbers on a |  | Forgiveness |
|  | number line. | Cumulative Assessments | Hope |
|  |  | In-class Observations | Justice |
|  |  | Projects | Love |
| Samples and Surveys | Create and investigate | Writing in Math | Peace |
|  | samples and surv | Mental Math Assessments | Respect For Life |
|  | Determine the validity of a | Math Discussions | Service |
|  | sample and predict the |  | Simplicity |
|  | actions of a larger group. | Group Interaction/Work | Truth |
|  |  | Math Games |  |
|  |  | Teacher for the Day <br> Student Response <br> Systems | Included in this column are several suggestions for making faith connections within the Math classroom. |
|  |  | Board Work | These suggestions were submitted by teachers. |
|  |  | Online Math Programs |  |

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## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

Third Trimester: March - June

| Standards |
| :--- |
| 7.SP.2 Use data from a random sample to <br> draw inferences about a population with | an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

7.SP. 3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
7.SP. 4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

| Content | Skills | Assessment | $\begin{array}{l}\text { Gospel Values \& Faith } \\ \text { Connections }\end{array}$ |
| :--- | :--- | :--- | :--- |
| $\begin{array}{l}\text { Data and } \\ \text { Graphing }\end{array}$ | $\begin{array}{l}\text { Organize data. } \\ \text { Classify, compare, and } \\ \text { contrast appropriate data } \\ \text { displays. } \\ \text { Graph linear equations. } \\ \text { Use fractions, ratios, and } \\ \text { proportions to calculate a } \\ \text { percent of a circle graph. }\end{array}$ | $\begin{array}{l}\text { Worksheets } \\ \text { Vocabulary } \\ \text { Standardized Testing } \\ \text { Final Exams } \\ \text { Performance Tasks } \\ \text { Summer Packets }\end{array}$ | $\begin{array}{l}\text { Graphing Linear } \\ \text { Equations } \\ \text { Graphing linear equations } \\ \text { and learning that lines and } \\ \text { planes extend forever in all } \\ \text { directions allows students } \\ \text { to relate this to the vastness } \\ \text { of God's Universe. }\end{array}$ |
| Measures of |  |  |  |
| Central |  |  |  |
| Tendency | $\begin{array}{l}\text { Analyze measures of } \\ \text { central tendency. } \\ \text { Recognize measures of } \\ \text { statistics. } \\ \text { Choose an appropriate } \\ \text { measure of central tendency } \\ \text { (mean, median, or mode). }\end{array}$ | $\begin{array}{l}\text { Circle Graph of the } \\ \text { Liturgical Year }\end{array}$ |  |
| Determine the length of |  |  |  |
| days of each liturgical |  |  |  |
| season. Calculate the |  |  |  |
| percentage of a full year for |  |  |  |
| each season. Rename the |  |  |  |
| percent as fractions and |  |  |  |
| decimals. Calculate the |  |  |  |
| degrees of the central angle |  |  |  |
| representing each season. |  |  |  |
| Construct the circle graph. |  |  |  |
| Color the seasons correctly. |  |  |  |$\}$

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

## Third Trimester: March - June

| Standards | Content | Skills | Assessment <br> Consel Values \& Faith <br> Connections |  |
| :--- | :--- | :--- | :--- | :--- |
| 7.RP.3 Use proportional relationships to <br> solve multi-step ratio and percent <br> problems. Examples: Simple interest, tax, <br> markups and markdowns, gratuities and <br> commissions, fees, percent of change <br> (increase and decrease), percent error. | Percent Increase <br> and Decrease | Calculate the percent of <br> increase or decrease. | When working with <br> problems involving percent <br> of increase or decrease use <br> statistics related to the <br> Catholic Church or parish. |  |
| 7.NS.S3. Compare and order fractions, <br> decimals, and percents efficiently and <br> find their approximate locations on a <br> number line. | Percents | Calculate and compare <br> simple and compound <br> interest. | Relate decimals, fractions, <br> and percents. | Use a percent model to find <br> a percent or a part. |
| Interest | Use percent proportions <br> and equations to find the <br> percent of a number, what <br> percent a number is of <br> another, and the whole <br> when the percent or part is <br> given. |  |  |  |

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## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

Third Trimester: March - June

| Standards |
| :---: |
| 7.EE.3 Solve multi-step real-life and | mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

7.EE. 4 Use variables to represent quantities in a real world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
8.EE. 7 Solve linear equations in one variable.
a) Give examples of linear equations in one variable with one solution (x $=\mathrm{a}$ ), infinitely many solutions ( $\mathrm{a}=$ a), or no solutions ( $\mathrm{a}=\mathrm{b}$ where a and $b$ are different numbers). Show which of these possibilities is the case by successively transforming the given equation into simpler forms.
b) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the

## Archdiocese of Newark Catholic Schools <br> Curriculum Map for Mathematics <br> Pre-Algebra (Grade 7 or 8)

Third Trimester: March - June

| Standards | Content | Skills | Assessment | Gospel Values \& Faith Connections |
| :---: | :---: | :---: | :---: | :---: |
| distributive property and collecting like terms. <br> 8.EE. 5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. <br> 8.EE.S1 Recognize and understand the forms of linear equation: slope-intercept form as $y=m x+b$, and standard form as $A x+B y=C$. <br> 7.EE.4a Solve word problems leading to equations of the form $p x+q=r$ and $p(x+q)=r$, where $p, q$, and $r$ are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. <br> 7.EE.4b Solve word problems leading to inequalities of the form $p x+q>r$ or $p x+q<r$, where $p, q$, and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. | Word Problems: Strategies and Applications in all topics | Solve equations with variables on both sides. <br> Solve for a variable. <br> Recognize a system of equations. <br> Recognize and create scatter plots. <br> Develop and apply strategies to solve real-life word problems. |  |  |

