# Mathletics Florida Program of Studies 

Activities


Grades 7-8
September 2023
Mathletics

## Mathletics

Florida Program of Studies
Classic Courses
September, 2023
Grade 7 ..... 4
Number Sense and Operations ..... 4
MA.7.NSO. 1 Rewrite numbers in equivalent forms ..... 4
MA.7.NSO. 2 Add, subtract, multiply and divide rational numbers. ..... 5
Algebraic Reasoning ..... 7
MA.7.AR. 1 Rewrite algebraic expressions in equivalent forms. ..... 7
MA.7.AR. 2 Write and solve equations and inequalities in one variable. ..... 7
MA.7.AR. 3 Use percentages and proportional reasoning to solve problems. ..... 8
MA.7.AR. 4 Analyze and represent two-variable proportional relationships. ..... 9
Geometric Reasoning ..... 11
MA.7.GR. 1 Solve problems involving two-dimensional figures, including circles. ..... 11
MA.7.GR. 2 Solve problems involving three-dimensional figures, including right circular cylinders. ..... 12
Data Analysis and Probability. ..... 13
MA.7.DP. 1 Represent and interpret numerical and categorical data. ..... 13
MA.7.DP. 2 Develop an understanding of probability. Find and compare experimental and theoretical probabilities ..... 14
Grade 8 ..... 15
Number Sense and Operations ..... 15
MA.8.NSO. 1 Solve problems involving rational numbers, including numbers in scientific notation, and extend the understanding of rational numbers to irrational numbers. ..... 15
Algebraic Reasoning ..... 17
MA.8.AR. 1 Generate equivalent algebraic expressions. ..... 17
MA.8.AR. 2 Solve multi-step one-variable equations and inequalities ..... 18
MA.8.AR. 3 Extend understanding of proportional relationships to two-variable linear equations. ..... 19
MA.8.AR. 4 Develop an understanding of two-variable systems of equations. ..... 20
Functions ..... 21
MA.8.F. 1 Define, evaluate and compare functions. ..... 21
Geometric Reasoning ..... 22
MA.8.GR. 1 Develop an understanding of the Pythagorean Theorem and angle relationships involving triangles. ..... 22
MA.8.GR. 2 Understand similarity and congruence using models and transformations. ..... 23
Data Analysis and Probability. ..... 25
MA.8.DP. 1 Represent and investigate numerical bivariate data ..... 25
MA.8.DP. 2 Represent and find probabilities of repeated experiments. ..... 25

## Grade 7

## Number Sense and Operations

## MA.7.NSO. 1 Rewrite numbers in equivalent forms.

| MA.7.NSO.1.1 <br> Know and apply the Laws of Exponents to evaluate numerical expressions and <br> generate equivalent numerical expressions, limited to whole-number exponents and <br> rational number bases. |  |  |
| :---: | :---: | :---: |
| Course Topic | Activities Title |  |
| NSO: Laws of exponents | Exponent Notation |  |
|  | Simplifying with Exponent Laws 1 |  |
|  | Properties of Exponents |  |
|  | Powers of Integers |  |
|  | The Zero Exponent |  |
|  | Exponent Form to Numbers |  |


| Course Topic | Activities Title |
| :--- | :--- |
| REVIEW: Converting <br>  <br> percentages | Shading Equivalent Fractions |
|  | The Equivalent Fraction |
|  | Simplify Fractions |
|  | Fractional to Terminating Decimal |
|  | Convert Decimals to Fractions 2 |
|  | Percents to Fractions |
|  | Fractions to Percentages (Non-Calculator) |

## MA.7.NSO.1.2

Rewrite rational numbers in different but equivalent forms including fractions, mixed numbers, repeating decimals and percentages to solve mathematical and real-world problems.

Course Topic
NSO: Converting fractions, decimals \& percentages

## Activities Title

Mixed to Improper Fractions
Improper Fraction to Mixed Numeral
Recurring Decimals
Percentages to Fractions (with and without simplification)
Common Fractions as Percentages
Fractions to Percentages (Calculator)
Percentages greater than 100\% to Mixed Numerals
Decimals to Percentages
Percentages to Decimals

## MA.7.NSO. 2 Add, subtract, multiply and divide rational numbers.

| MA.7.NSO.2.1 <br> Solve mathematical problems using multi-step order of operations with rational numbers including grouping symbols, whole-number exponents and absolute value. |  |
| :---: | :---: |
| Course Topic | Activities Title |
| NSO: Order of operations | Operations Order 1 (PEDMAS) |
|  | Order of Operations 2 (PEDMAS) |
|  | Integers: Order of Operations (PEDMAS) |
|  | Integers: Operations Order |
|  | Identifying errors in applying the order of operations |
|  | Absolute Value |

Course Topic
REVIEW: Operations with fractions

Activities Title
Comparing Fractions with Signs
Add Like Fractions
Subtract Like Fractions
Add Like Mixed Numbers
Unit Fractions
Multiply Fraction by Whole Number
Estimate Products with Fractions
Using Reciprocals
Divide by a Unit Fraction
Divide Whole Number by Fraction
Divide Fractions Visual Model
Adding Decimals
Decimal Complements
Subtract Decimals 2
Adding and Subtracting Decimals
Estimate Decimal Sums 1
Estimate Decimal Differences 1
Multiply Decimals: 10, 100, 1000
Divide by Powers of 10
Multiply Decimal by Whole Number
Divide Decimal by Whole Number

## MA.7.NSO.2.2

Add, subtract, multiply and divide rational numbers with procedural fluency.

| Course Topic |  |
| :--- | :--- |
| NSO: Operations with <br> fractions | Add Unlike Fractions |
|  | Subtract Unlike Fractions |
|  | Add Mixed Numbers: Same Sign |
|  | Add Mixed Numbers: Signs Can Differ |
|  | Add Unlike Mixed Numbers |
|  | Subtract Mixed Numbers: Signs Differ |



| MA.7.NSO.2.3 |  |
| :--- | :--- |
| Solve real-world problems involving any of the four operations with rational numbers. |  |
| Course Topic | Activities Title |
| NSO: Operations with <br> fractions | Fraction Word Problems |
|  | More Fraction Problems |

## Algebraic Reasoning

| Course Topic | Activities Title |
| :---: | :---: |
| REVIEW: Expressions \& equations | Multiplication Properties |
|  | Arithmetic Laws |
|  | Writing Algebraic Expressions |
|  | Simple Substitution 2 |
|  | Simple Substitution 1 |
|  | Pattern Rules and Tables |
|  | Find the Pattern Rule |
|  | Missing Numbers: Variables |
|  | Solve Equations: Multiply, Divide 1 |
|  | Write an Equation: Word Problems |

## MA.7.AR. 1 Rewrite algebraic expressions in equivalent forms.

| MA.7.AR.1.1 <br> Apply properties of operations to add and subtract linear expressions with rational <br> coefficients. |  |
| :--- | :--- |
| Course Topic | Activities Title |
|  <br> equations | Recognising Like Terms |
|  | Like Terms: Add, Subtract |

## MA.7.AR.1.2

Determine whether two linear expressions are equivalent.

## Course Topic

Activities Title
AR: Expressions \& equations

Using the Distributive Property
Expanding Brackets
Expand then Simplify
Factorising Expressions
Factorising

## MA.7.AR. 2 Write and solve equations and inequalities in one variable.

## MA.7.AR.2.1

Write and solve one-step inequalities in one variable within a mathematical context and represent solutions algebraically or graphically.

## Course Topic

AR: Expressions \& equations

## Activities Title

Solve One-Step Inequalities 1
Solve One-Step Inequalities 2
Solving Inequalities 1
Graphing Inequalities on a Number Line

## MA.7.AR.2.2

Write and solve two-step equations in one variable within a mathematical or realworld context, where all terms are rational numbers.

| Course Topic | Activities Title |
| :--- | :--- |
|  <br> equations | I am Thinking of a Number! |
|  | Solve Equations: Add, Subtract 1 |
|  | Solve Equations: Add, Subtract 2 |
|  | Solve Equations: Multiply, Divide 2 |
|  | Solving Simple Equations |
|  | Equations to Solve Problems |


| Course Topic | Activities Title |
| :---: | :---: |
| REVIEW: Percentages \& proportional reasoning | Percent of a Number (Mental) |
|  | Percentage of an amount using fractions (<100\%) |
|  | Percentage of an amount using decimals (calculator) |
|  | Quantities to Percentages (no units) |
|  | Quantities to Percentages (with units) |
|  | Simplify Ratios: 2 Whole Numbers |
|  | Simplify Ratios: 3 Whole Numbers |
|  | Simplify Ratios: Decimals |
|  | Simplify Ratios: Fractions |
|  | Simplify Ratios: Mixed Numbers |
|  | Equivalent Ratios |
|  | Ratios |
|  | Dividing a Quantity Into a Ratio |

## MA.7.AR. 3 Use percentages and proportional reasoning to solve problems.

## MA.7.AR.3.1

Apply previous understanding of percentages and ratios to solve multi-step real-world percent problems.

| Course Topic | Activities Title |
| :---: | :---: |
| AR: Percentages \& proportional reasoning | Percentage Word Problems |
|  | Percentage Composition/What percentage? |
|  | Percent Increase and Decrease |
|  | Solve Percent Equations |
|  | Wages and Salaries |
|  | Working Overtime |
|  | Special Allowances |
|  | Piecework and Royalties |
|  | Commission |
|  | Successive Discounts |
|  | Profit and Loss |
|  | Purchase Options |
|  | Simple Interest |
|  | Percentage Error |
|  | Error in Measurement |


| MA.7.AR.3.2  <br> Apply previous understanding of ratios to solve real-world problems involving  <br> proportions.  |  |
| :--- | :--- |
| Course Topic | Activities Title |
|  <br> proportional reasoning | Word Problems: Ratio |
|  | Ratio and Proportion |

## MA.7.AR.3.3

Solve mathematical and real-world problems involving the conversion of units across different measurement systems.

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed Activities Title |

MA.7.AR. 4 Analyze and represent two-variable proportional relationships.
MA.7.AR.4.1
Determine whether two quantities have a proportional relationship by examining a table, graph or written description.

Course Topic
AR: Proportional relationships

## Activities Title

Solve Proportions
Solve Propotions

## MA.7.AR.4.2

Determine the constant of proportionality within a mathematical or real-world context given a table, graph or written description of a proportional relationship.
Course Topic
Teacher directed

## MA.7.AR.4.3

Given a mathematical or real-world context, graph proportional relationships from a table, equation or a written description.

| table, equation or a written description. |  |
| :--- | :--- |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

## MA.7.AR.4.4

Given any representation of a proportional relationship, translate the representation to a written description, table or equation.

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed Activities Title |

MA.7.AR.4.5
Solve real-world problems involving proportional relationships.

| Course Topic | Activities Title |
| :---: | :---: |
| AR: Proportional relationships | Rate Word Problems |
|  | Rates Calculations |
|  | Rates |
|  | Converting Rates |
|  | Distance Travelled |
|  | Average Speed |
|  | Time Taken |
|  | Travel Graphs |
|  | Best Buy |

## Geometric Reasoning

| Course Topic | Activities Title |
| :---: | :---: |
| REVIEW: 2D \& 3D figures including circular shapes | Properties of Solids |
|  | Perimeter: Squares and Rectangles |
|  | Perimeter: Composite Shapes |
|  | Area of Squares and Rectangles |
|  | Area of Triangles |
|  | Area: Right Angled Triangles |
|  | Area of Quadrilaterals |
|  | Calculate Area of Shapes (inches, feet, yards) |
|  | Surface Area: Rectangular Prisms 1 |
|  | Surface Area: Square Pyramids |
|  | Surface Area: Triangular Prisms 1 |
|  | Volume of Solids and Prisms - 1 $\mathrm{cm}^{3}$ blocks |
|  | Volume: Prisms |
|  | Volume of Rectangular Prisms 1 |
|  | Volume: Rectangular Prisms 2 |
|  | Volume of Triangular Prisms |
|  | Volume: Triangular Prisms 1 |

## MA.7.GR. 1 Solve problems involving two-dimensional figures, including circles.

## MA.7.GR.1.1

Apply formulas to find the areas of trapezoids, parallelograms and rhombi. Course Topic $\quad$ Activities Title
GR: 2D \& 3D figures
Area: Parallelograms
including circular shapes

## MA.7.GR.1.2

Solve mathematical or real-world problems involving the area of polygons or composite figures by decomposing them into triangles or quadrilaterals.

Course Topic
GR: 2D \& 3D figures including circular shapes

Activities Title
Area: Compound Figures
Perimeter, Area, Dimension Change

## MA.7.GR.1.3

Explore the proportional relationship between circumferences and diameters of circles. Apply a formula for the circumference of a circle to solve mathematical and real-world problems.
Course Topic
GR: 2D \& 3D figures including circular shapes

Activities Title
Calculate Circumference of Circles
Circumference: Circles

|  |  |
| :---: | :---: |
| Explore and apply a formula to find the area of a circle to solve mathematical and realworld problems. |  |
| Course Topic | Activities Title |
| GR: 2D \& 3D figures | Area: Circles 1 |
| including circular shapes | Area: Circles 2 |
|  | Area: Annulus |

## MA.7.GR.1.5

Solve mathematical and real-world problems involving dimensions and areas of geometric figures, including scale drawings and scale factors.
Course Topic
Activities Title

| GR: 2D \& 3D figures |
| :--- |
| including circular shapes |


| Scale Factor |
| :--- |
| Scale |
| Scale Measurement |
| Floor Plans |

MA.7.GR. 2 Solve problems involving three-dimensional figures, including right circular cylinders.

| MA.7.GR.2.1 |  |
| :--- | :--- |
| Given a mathematical or real-world context, find the surface area of a right circular <br> cylinder using the figure's net. |  |
| Course Topic | Activities Title |
| GR: 2D \& \& D figures <br> including circular shapes | Surface Area: Cylinders |

## MA.7.GR.2. 2

Solve real-world problems involving surface area of right circular cylinders.
Course Topic $\quad$ Teacher directed Activities Title

## MA.7.GR.2.3

Solve mathematical and real-world problems involving volume of right circular cylinders.
Course Topic $\quad$ Activities Title
GR: 2D \& 3D figures
Volume: Cylinders

## Data Analysis and Probability

| Course Topic |  |
| :--- | :--- |
|  <br> catergorical data | Mean |
|  | Mean from Frequency Table |
|  | Median |
|  | Median from Frequency Table Title |
|  | Mode from Frequency Table |
|  | Calculating Interquartile Range |
|  | Understanding Box-and-Whisker Plots |
|  | Box-and-Whisker Plots 1 |
|  | Box-and-Whisker Plots 2 |
|  | Line Plots |

## MA.7.DP. 1 Represent and interpret numerical and categorical data.

| MA.7.DP.1.1 <br> Determine an appropriate measure of center or measure of variation to summarize <br> numerical data, represented numerically or graphically, taking into consideration the <br> context and any outliers. |  |
| :--- | :--- |
| Course Topic | Activities Title |
|  <br> catergorical data | Median from Stem and Leaf Plot |
|  | Mode from Stem and Leaf Plot |
|  | Stem and Leaf Plots with Range |
|  | Data Extremes and Range |
|  | Double Stem and Leaf Plots |

## MA.7.DP.1.4

Use proportional reasoning to construct, display and interpret data in circle graphs.

| Course Topic | Activities Title |
| :--- | :--- |
|  <br> catergorical data | Circle Graphs |
|  | Sector Graph Calculations |

## MA.7.DP.1.5

Given a real-world numerical or categorical data set, choose and create an appropriate graphical representation.

| Course Topic | Activities Title |
| :--- | :--- |
|  <br> catergorical data | Dot Plots |
|  | Divided Bar Graphs |
|  | Histograms |
|  | Histograms for Grouped Data |
|  | Stem and Leaf Plots: Concept |

MA.7.DP. 2 Develop an understanding of probability. Find and compare experimental and theoretical probabilities.

| MA.7.DP.2.1 |  |
| :--- | :--- |
| Determine the sample space for a simple experiment. |  |
| Course Topic | Activities Title |
| DP: Probability of events | Possible Outcomes |
|  | Tree Diagram |
|  | Counting Principle |
|  | Counting Techniques 1 |

## MA.7.DP.2.2

Given the probability of a chance event, interpret the likelihood of it occurring.
Compare the probabilities of chance events.

| Course Topic | Activities Title |
| :--- | :--- |
| DP: Probability of events | Chance Dial |
|  | Most Likely and Least Likely |
|  | Probability Scale |
|  | Introductory probability |
|  | Simple Probability |

## MA.7.DP.2.3

Find the theoretical probability of an event related to a simple experiment.

Course Topic
DP: Probability of events

Activities Title
Dice and coins
Find the Probability
Probability With Replacement
Probability Tables
Tree Diagrams

| MA.7.DP.2.4 |  |  |  |
| :--- | :--- | :---: | :---: |
| Use a simulation of a simple experiment to find experimental probabilities and |  |  |  |
| compare them to theoretical probabilities. |  |  |  |

## Grade 8

## Number Sense and Operations

| Course Topic |  |
| :--- | :--- |
|  <br> irrational numbers | Square Roots 1 Activities Title |
|  | Square Roots |
|  | Square and Cube Roots |
|  | Index Notation/Exponent notation |
|  | Properties of Exponents |
|  | Simplifying with Exponent Laws 1 |
|  | Simplifying with Exponential Laws 2 |
|  | The Zero Exponent |

MA.8.NSO. 1 Solve problems involving rational numbers, including numbers in scientific notation, and extend the understanding of rational numbers to irrational numbers.

| MA.8.NSO.1.1 <br> Extend previous understanding of rational numbers to define irrational numbers within the real number system. Locate an approximate value of a numerical expression involving irrational numbers on a number line. |  |
| :---: | :---: |
|  |  |
| Course Topic | Activities Title |
| NSO: Rational \& irrational numbers | Estimate Square Roots |
|  | Estimating Cube Roots |
|  | Irrational Numbers |

## MA.8.NSO.1.2

Plot, order and compare rational and irrational numbers, represented in various forms.

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed |

## MA.8.NSO.1.3

Extend previous understanding of the Laws of Exponents to include integer exponents.
Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to integer exponents and rational number bases, with procedural fluency.

## Course Topic

NSO: Rational \& irrational numbers

## Activities Title

Fractional Exponents
Negative Indices
Integer Exponents

| MA.8.NSO.1.4 <br> Express numbers in scientific notation to represent and approximate very large or very <br> small quantities. Determine how many times larger or smaller one number is compared <br>  <br>  <br> to a second number. |  |
| :---: | :---: |
| Course Topic | Activities Title |
| NSO: Scientific notation | Scientific Notation 1 |
|  | Scientific Notation |
|  | Scientific Notation 2 |
|  | Scientific Notation to Decimal |
|  | Ordering Scientific Notation |

## MA.8.NSO.1.5

Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.
Course Topic
Activities Title

Teacher directed
Teacher directed

## MA.8.NSO.1.6

Solve real-world problems involving operations with numbers expressed in scientific notation.

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed Activities Title |

## MA.8.NSO.1.7

Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed Activities Title |

## Algebraic Reasoning

| Course Topic | Activities Title |
| :--- | :--- |
| REVIEW: Equivalent <br> algebraic expressions | Recognising Like Terms |
|  | Like Terms: Add, Subtract |
|  | Simplifying Expressions |
|  | Algebraic Multiplication |

## MA.8.AR. 1 Generate equivalent algebraic expressions.

## MA.8.AR.1.1

Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

Course Topic
AR: Equivalent algebraic expressions

Activities Title
Exponent Notation and Algebra
Multiplication with exponents
Exponent Laws and Algebra
Exponent Laws with Brackets
Zero Exponent and Algebra

## MA.8.AR.1.2

Apply properties of operations to multiply two linear expressions with rational coefficients.

## Course Topic <br> Activities Title

AR: Equivalent algebraic expressions

Using the Distributive Property
Expanding with Negatives
Expanding Brackets
Expand then Simplify

## MA.8.AR.1.3

Rewrite the sum of two algebraic expressions having a common monomial factor as a common factor multiplied by the sum of two algebraic expressions.

Course Topic
AR: Equivalent algebraic expressions

## Activities Title

| Factorising Expressions |
| :--- |
| Factorising |
| Factorising with Indices |
| Factorising with Negative |

Factorising Expressions
Factorising
Factorising with Indices
Factorising with Negatives

Course Topic
REVIEW: Solving equations

## Activities Title

Solving Simple Equations
Solve One-Step Equations
Solving More Equations
Solve Equations: Add, Subtract 1

|  | Solve Equations: Add, Subtract 2 |
| :--- | :--- |
|  | Solve Equations: Multiply, Divide 1 |
|  | Solve Equations: Multiply, Divide 2 |
|  | Solve One-Step Inequalities 1 |
|  | Solve One-Step Inequalities 2 |
|  | Inequalities on a Number Line: Mixed Basics |
|  | Inequalities on a Number Line: Basics |
|  | Graphing Inequalities 2 |

## MA.8.AR. 2 Solve multi-step one-variable equations and inequalities.

| MA.8.AR.2.1 |  |
| :---: | :---: |
| Solve multi-step linear equations in one variable, with rational number coefficients. Include equations with variables on both sides. |  |
| Course Topic | Activities Title |
| AR: Solving equations | Solve Multi-Step Equations |
|  | Equations with Grouping Symbols |
|  | Equations with Decimals |
|  | Equations: Variables, Both Sides |
|  | Equations with Fractions |
|  | Equations with Fractions 2 |
|  | Equations to Solve Problems |

## MA.8.AR.2.2

Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.

| Course Topic | Activities Title |
| :--- | :--- |
| AR: Solving equations | Solving Inequalities 1 |
|  | Solving Inequalities 2 |
|  | Solving Inequalities 3 |
|  | Graphing Inequalities on a Number Line |
|  | Graphing Inequalities 3 |

## MA.8.AR.2.3

Given an equation in the form of $x^{2}=p$ and $x^{3}=q$, where $p$ is a whole number and $q$ is an integer, determine the real solutions.

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed |


| Course Topic |  |
| :--- | :--- |
| REVIEW: Proportional <br> relationships | Solve Proportions Activities Title |
|  | Rate Word Problems |
|  | Distance Travelled |
|  | Average Speed |
|  | Time Taken |

## MA.8.AR. 3 Extend understanding of proportional relationships to two-variable linear equations.

| MA.8.AR.3.1 |  |
| :--- | :--- |
| Determine if a linear relationship is also a proportional relationship. |  |
| Course Topic | Activities Title |
| AR: Proportional <br> relationships | Direct Variation |
|  | Indirect Variation |

## MA.8.AR.3.2

Given a table, graph or written description of a linear relationship, determine the slope.
Course Topic


Activities Title
AR: Proportional
Gradient
Slope of a Line

## MA.8.AR.3.3

Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.

| Course Topic |  |
| :--- | :--- |
| AR: Proportional <br> relationships | Equation of a Line 1 |
|  | Equation of a Line 2 |
|  | Equation of a Line 3 |
|  | Equation from Point and Gradient |
|  | y = ax |
|  | Which Straight Line? |

## MA.8.AR.3.4

Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.

## Course Topic

Activities Title
Teacher directed
Teacher directed

## MA.8.AR.3.5

Given a real-world context, determine and interpret the slope and $y$-intercept of a two-variable linear equation from a written description, a table, a graph or an equation in slope-intercept form.
Course Topic $\quad$ Activities Title
AR: Proportional relationships

Conversion Graphs
Modeling Linear Relationships

MA.8.AR. 4 Develop an understanding of two-variable systems of equations.
MA.8.AR.4.1
Given a system of two linear equations and a specified set of possible solutions, determine which ordered pairs satisfy the system of linear equations.

Course Topic

Activities Title
AR: Simulataneous equations

Simultaneous Equations 1
Simultaneous Equations 2

## MA.8.AR.4.2

Given a system of two linear equations represented graphically on the same coordinate plane, determine whether there is one solution, no solution or infinitely many solutions.

| Course Topic | Activities Title |
| :---: | :--- |
| Teacher directed | Teacher directed |

## MA.8.AR.4.3

Given a mathematical or real-world context, solve systems of two linear equations by graphing.
Course Topic
Activities Title
AR: Simultaneous equations
Simultaneous Linear Equations

## Functions

## MA.8.F. 1 Define, evaluate and compare functions.

## MA.8.F.1.1

Given a set of ordered pairs, a table, a graph or mapping diagram, determine whether the relationship is a function. Identify the domain and range of the relation.

Course Topic
Activities Title
Teacher directed

## MA.8.F.1.2

Given a function defined by a graph or an equation, determine whether the function is a linear function. Given an input-output table, determine whether it could represent a linear function.
Course Topic
Activities Title
F: Functions
Find the Function Rule
Determining a Rule for a Line
Function Rules and Tables
Pattern Rules and Tables
Graphing from a Table of Values
Reading Values from a Line

## MA.8.F.1.3

Analyze a real-world written description or graphical representation of a functional relationship between two quantities and identify where the function is increasing, decreasing or constant.

| Course Topic |  |
| :---: | :--- |
| Teacher directed | Teacher directed |

## Geometric Reasoning

## MA.8.GR. 1 Develop an understanding of the Pythagorean Theorem and angle relationships involving triangles.

## MA.8.GR.1.1

Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.

| Course Topic | Activities Title |
| :--- | :--- |
| GR: Pythagoras' theorem | Pythagorean Theorem |
|  | Pythagorean Triads |
|  | Hypotenuse of a Right Triangle |
|  | Pythagoras: Find a Short Side (integers only) |
|  | Pythagoras: Find a short side (rounding needed) |
|  | Pythagoras: Find a Short Side (decimal values) |
|  | Pythagoras and Perimeter |

## MA.8.GR.1.2

Apply the Pythagorean Theorem to solve mathematical and real-world problems involving the distance between two points in a coordinate plane.
Course Topic $\quad$ Activities Title
GR: Pythagoras' theorem $\quad$ Distance Between Two Points

## MA.8.GR.1.3

Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides. Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides.

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed |

MA.8.GR.1.4
Solve mathematical problems involving the relationships between supplementary, complementary, vertical or adjacent angles.

| Course Topic | Activities Title |
| :---: | :--- |
| GR: Angle relationships | Equal, Complementary or Supplementary Angles |
|  | Complementary, Supplementary or Neither |
|  | Vertically Opposite Angles: Unknown Values |
|  | Vertically Opposite: Value of $x$ |


| MA.8.GR.1.5 |  |
| :--- | :--- |
| Solve problems involving the relationships of interior and exterior angles of a triangle. |  |
| Course Topic | Activities Title |
| GR: Angle relationships | Angle Sum of a Triangle |
|  | Angle Measures in a Triangle |
|  | Exterior Angles of a Triangle |

## MA.8.GR.1.6

Develop and use formulas for the sums of the interior angles of regular polygons by decomposing them into triangles.

| Course Topic |  |
| :---: | :--- |
| GR: Angle relationships | Interior Angles Activities Title |

MA.8.GR. 2 Understand similarity and congruence using models and transformations.

| MA.8.GR.2.1 |  |  |
| :--- | :--- | :---: |
| Given a preimage and image generated by a single transformation, identify the <br> transformation that describes the relationship. |  |  |
| Course Topic | Activities Title |  |
|  <br> similar triangles | Transformations |  |

## MA.8.GR.2. 2

Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship.

| Course Topic | Activities Title |
| :---: | :--- |
|  <br> similar triangles | Scale Factor |

## MA.8.GR.2.3

Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.

| Course Topic | Activities Title |
| :--- | :--- |
|  <br> similar triangles | Transformations: Coordinate Plane |
|  | Rotations: Coordinate Plane |

MA.8.GR.2.4
Solve mathematical and real-world problems involving proportional relationships between similar triangles.

Course Topic
GR: Transformations \& similar triangles

Activities Title

| Congruent Triangles |
| :--- |
| Congruent Figures |
| Congruent Figures: Find Values |
| Similar Figures |
| Similar triangles |
| Using Similar Triangles 1 |
| Similar Figures 1 |
| Similarity Proofs |

## Data Analysis and Probability

## MA.8.DP. 1 Represent and investigate numerical bivariate data.

| MA.8.DP.1.1 <br> Given a set of real-world bivariate numerical data, construct a scatter plot or a line <br> graph as appropriate for the context. |  |
| :--- | :--- |
| Activities Title |  |
| Course Topic | Data Analysis: Scatter Plots |

## MA.8.DP.1.2

Given a scatter plot within a real-world context, describe patterns of association.

Course Topic
Activities Title
DP: Bivariate data

## MA.8.DP.1.3

Given a scatter plot with a linear association, informally fit a straight line.

| Course Topic |  |
| :--- | :--- |
| Teacher directed | Teacher directed |

Course Topic
REVIEW: Probability of repeated experiments

Activities Title
Simple Probability
Introductory probability
Find the Probability
Probability Scale
Probability Tables
Two-Way Table Probability
Dice and coins
Tree Diagrams

MA.8.DP. 2 Represent and find probabilities of repeated experiments.

| MA.8.DP.2.1 |  |
| :--- | :--- |
| Determine the sample space for a repeated experiment. |  |
| Course Topic | Activities Title |
| Teacher directed | Teacher directed |

MA.8.DP.2.2
Find the theoretical probability of an event related to a repeated experiment. Course Topic $\quad$ Activities Title

| DP: Probability of repeated | Probability without Replacement |
| :--- | :--- |
|  | Probabiliy with | experiments

Probability with Replacement
Probability with Replacement 1

## MA.8.DP.2.3

Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability.

Course Topic
DP: Probability of repeated experiments

Activities Title
Relative Frequency

## Mathletics

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