Mathletics

Common Core

Activities (Courses), Skill Quests and eBooks

Grades 7-8

August, 2025

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Grade 7

7.RP Ratios & Proportional Relationships

A. Analyze proportional relationships and use them to solve real-world and mathematical problems

7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units	
Activities	
Ratios & Proportional Relationships	Proportional Relationships
	Rate Word Problems
	Rates
	Average Speed
	Time Taken
Skill Quests	
Identify proportional relationships	Identifying proportional relationships
Constant of proportionality	Identifying the constant of proportionality
Represent proportional relationships	Representing proportional relationships: equations
Graphs of proportional relationships	Interpreting graphs of proportional relationships
Ebooks	
Grade 8, Series I: Ratio, Rates and The Number Plane	Graphing ordered pairs and number patterns

7.RP.A.2 Recognize and represent proportional relationships between quantities.	
Activities	
Ratios & Proportional Relationships	y=ax
	Conversion Graphs
Skill Quests	
Unit rates with fractions	Solving unit rate problems involving fractions
Ebooks	
Grade 8, Series I: Ratio, Rates and The Number Plane	Using ratios
	Rates

7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	
Activities	
Ratios & Proportional Relationships	Best Buy
	Commission
	Percent Increase and Decrease
	Percentage Word Problems
	Percentage Error
	Successive Discounts

	Profit and Loss
	Simple Interest
Skill Quests	
Ratio & percent problems	Solving multi-step ratio & percent problems
Ebooks	
Grade 8, Series I: Percentages	Unitary method and percentages
	Problem solving and percentages
Grade 8, Series I: Percentages 2	Unitary method and percentages
	Problem solving and percentages
Grade 8, Series I: Ratio, Rates and The Number Plane	Problem solving

7.NS The Number System

A. Apply and extend previous understandings of operations with fractions

7.NS.A.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.	
Activities	
The Number System	Integers: Add and Subtract
	More with Integers
	Add Unlike Fractions
	Add Mixed Numbers: Signs Can Differ
	Subtract Unlike Fractions
	Subtract Mixed Numbers: Signs Differ
	Subtract Negative Mixed Numbers
Skill Quests	
Opposites	Describing situations involving opposites
Add rational numbers	Opposites & absolute value
	Adding rational numbers
	Adding positive & negative fractions
	Adding positive & negative decimals
	Adding integers
Subtract rational numbers	Subtracting rational numbers: adding the inverse
	Subtracting positive & negative fractions
	Subtracting positive & negative decimals
	Subtracting integers
	Subtracting rational numbers: absolute value
Rational numbers: addition properties	Add & subtract rational numbers: properties
Ebooks	
Grade 7, Series H: Directed Numbers	Addition of directed numbers
	Subtraction of directed numbers
Grade 7, Series H: Directed Numbers 2	Addition of directed numbers
	Subtraction of directed numbers
Grade 7, Series H: Fractions	Addition and subtraction of fractions with different denominators
Grade 7, Series H: Fractions	Addition and subtraction of fractions with different denominators

7.NS.A.2

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

Activities	
The Number System	Integers: Multiplication and Division
	Multiplying and Dividing Integers
	Multiply Two Fractions 2
	Divide Fractions by Fractions 2
	Divide Mixed Numbers with Signs
	Fractions to Decimals 2
Skill Quests	
Multiply rational numbers	Multiplying rational numbers
	Multiplying positive & negative fractions
	Multiplying positive & negative decimals
	Multiplying integers
	Products of rational numbers: real-world contexts
Divide integers	Dividing integers
	Quotients of rational numbers: real-world contexts
Rational numbers: properties	Multiply & divide rational numbers: properties
Convert rational numbers to decimals	Use long division to convert rationals to decimals
Ebooks	
Grade 7, Series H: Directed Numbers	Multiplication of directed numbers
	Division of directed numbers
Grade 7, Series H: Directed Numbers 2	Multiplication of directed numbers
	Division of directed numbers
Grade 7, Series H: Fractions	Multiplication of fractions
Grade 7, Series H: Fractions	Division of fractions
Grade 7, Series H: Fractions	Multiplication of fractions
	Division of fractions

7.NS.A.3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Activities	
The Number System	More Fraction Problems
	Integers: Order of Operations (PEDMAS)
	Integers: Operations Order
Skill Quests	
Rational numbers problems: 4 operations	Rational numbers problems: 4 operations
Ebooks	
Grade 7, Series H: Directed Numbers	The four operations with directed numbers
Grade 7, Series H: Directed Numbers 2	The four operations with directed numbers
Grade 7, Series H: Fractions	Fractions with mixed numbers
	Problem solving with fractions
Grade 7, Series H: Fractions	Fractions with mixed numbers
	Problem solving with fractions

7.EE Expressions & Equations

A. Use properties of operations to generate equivalent expressions

7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	
Activities	
Expressions & Equations	Using the Distributive Property
	Factoring
Skill Quests	
Linear expressions: properties	Simplify algebraic expressions: add & subtract
	Distributive property: algebraic expressions
	Factoring algebraic expressions
Ebooks	
Grade 7, Series H: Algebra Basics	

7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	
Activities	
Teacher directed	
Skill Quests	
Interpret expressions	Rearranging expressions to interpret quantities
Ebooks	
Grade 7, Series H: Algebra Basics	

B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations

7.EE.B.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.	
Activities	
Teacher directed	
Skill Quests	
Problems with rational numbers	Solving problems with rational numbers
	Converting terminating decimals
Ebooks	
Grade 7, Series H: Algebra Basics	
Grade 8, Series I Curriculum Ready: Equations	

7.EE.B.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.	
Activities	
Expressions & Equations	Write an Equation: Word Problems
	Writing Equations
	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Solve Equations: Multiply, Divide 2
	Solve Two-Step Equations
	Solve Multi-Step Equations
	Inequalities on a Number Line: Mixed Basics
	Graphing Inequalities on Number Line
	Solve One-Step Inequalities 1
	Solve One-Step Inequalities 2
Skill Quests	
Solve 2-step equations	Solving 2-step equations: word problems
	2-step equations, positive integer coefficients
	2-step equations, integer coefficients
	2-step equations, positive rational coefficients
	2-step equations, rational coefficients
	2-step equations, distributive property
Solve 2-step inequalities	Creating & solving 2-step inequalities
	Representing inequalities
	Graphing the solution of an inequality
	Solving 2-step inequalities
Ebooks	
Grade 8, Series I Curriculum Ready: Simplifying Algebra	

7.G Geometry

A. Draw construct, and describe geometrical figures and describe the relationships between them

7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	
Activities	
Teacher directed	
Skill Quests	
Scale drawings	Scale drawings
Ebooks	
Grade 7, Series H: Algebra Basics	Scale and distance

7.G.A.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.	
Activities	
Teacher directed	
Skill Quests	
Construct triangles	Triangle Inequality Theorem
	Constructing triangles with given conditions

7.G.A.3	
Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	
Activities	
Teacher directed	
Skill Quests	
Cross sections of 3-D figures	Describing cross sections of 3-D figures

B. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume

7.G.B.4	
Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	
Activities	
Geometry 4-6	Calculate Circumference of Circles
	Area: Circles 2
	Area: Annulus
Skill Quests	
Circles: area & circumference	Finding the area of a circle
	Introducing the parts of a circle
	Finding the circumference of a circle
Ebooks	
Grade 8, Series I: Circles and Cylinders	Parts of a circle
	The circumference of a circle
	The area of a circle

7.G.B.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.	
Activities	
Geometry 4-6	Equal, Complement, or Supplement?
	Vertically Opposite: Value of x
Skill Quests	
Using angle facts to solve problems	Supplementary angles

	Complementary angles
	Adjacent angles
	Vertical angles
Ebooks	
Grade 8, Series I: Circles and Cylinders	Parts of a circle
	The circumference of a circle
	The area of a circle

7.G.B.6

Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Activities	
Geometry 4-6	Area: Triangles
	Area: Squares and Rectangles
	Area: Parallelograms
	Area: Quadrilaterals
	Area: Compound Figures
	Area: Composite Shapes
	Nets
	Surface Area: Cuboids
	Surface Area: Rectangular Prisms
	Surface Area: Triangular Prisms 1
	Volume of Rectangular Prisms 1
	Volume of Triangular Prisms
	Volume: Prisms
Skill Quests	
Area, volume & surface area	Area: polygons
	Solving real-life problems: area of polygons
	Volume: right prisms
	Surface area: rectangular & triangular prisms
Ebooks	
Grade 7, Series H: Area, Volume and Capacity	Composite areas
	Volume of rectangular prisms
	Volume of triangular prisms
Grade 7, Series H Curriculum Ready: Area and Perimeter	Area of composite shapes
Grade 7, Series H Curriculum Ready: Solids	Volume of right prisms
	Volume of rectangular prisms
Grade 9, Series J: Surface Area and Volume	Surface area of a right prism

7.SP Statistics & Probability

A. Use random sampling to draw inferences about a population

7.SP.A.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.	
Activities	
Teacher directed	
Skill Quests	
Understand sampling	Understanding sampling

7.SP.A.2 Use data from a random sample to 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.	
Activities	
Teacher directed	
Skill Quests	
Draw inferences from samples	Drawing inferences from samples

B. Draw informal comparative inferences about two populations

7.SP.B.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.	
Activities	
Teacher directed	
Skill Quests	
Compare data distributions	Comparing data distributions

7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	
Activities	
Statistics & Probability	Mean
	Median
	Mode
	Data Extremes and Range
Skill Quests	
Draw comparative inferences	Drawing comparative inferences
Ebooks	
Grade 7, Series H Curriculum Ready: Data for statistics	Measures of central tendency

C. Investigate chance processes and develop, use, and evaluate probability models

7.SP.C.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.	
Activities	
Statistics & Probability	Probability Scale
Skill Quests	
Introduction to probability	Introducing probability
Ebooks	
Grade 6, Series G: Chance and Probability	Chance and data

7.SP.C.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.	
Activities	
Statistics & Probability	Find the Probability
Skill Quests	
Probability of chance events	Probability of chance events: relative frequency
Ebooks	
Grade 6, Series G: Chance and Probability	Chance and data

7.SP.C.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.	
Activities	
Statistics & Probability	Probability Tables
Skill Quests	
Determine the probability of events	Theoretical probability
	Predicting outcomes of chance experiments
	Finding the complement of an event
Observe frequencies in data	Finding the approximate probability
	Comparing observed frequency & expected frequency
Ebooks	
Grade 6, Series G: Chance and Probability	Chance and data

7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	
Activities	
Statistics & Probability	Counting Principle
	Counting Techniques 1
	Dice and Coins

	Probability- Replacement
	Probability-No Replacement
Skill Quests	
Probability: compound events	Investigating mutually exclusive events
	Calculating probabilities of compound events
Sample spaces for compound events	Representing sample spaces & identifying outcomes
Independent & dependent compound events	Independent & dependent compound events
Ebooks	
Grade 6, Series G: Chance and Probability	Chance and data
Grade 8, Series I Curriculum Ready: Probability	Independent and dependent events

Grade 8

8.NS The Number System

A. Know that there are numbers that are not rational, and approximate them by rational numbers

8.NS.A.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.	
Activities	
The Number System	Irrational Numbers
Skill Quests	
Rational & irrational numbers	Describing properties of irrational numbers
	Classifying real numbers
	Converting repeating decimals to rational numbers
	Repeating & terminating decimals as fractions
Ebooks	
Grade 9 Curriculum Ready: Decimals	Recurring decimals

8.NS.A.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., π^2).	
Activities	
The Number System	Estimating Square Roots
Skill Quests	
Approximate irrational numbers	Comparing irrational numbers
	Locating irrational numbers on a number line
	Approximating the value of an irrational number
	Finding square roots of non-perfect squares

8.EE Expressions & Equations

A. Work with radicals and integer exponents

8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	
Activities	
Expressions & Equations 1-3	Exponent Notation
	Properties of Exponents
	Exponent Laws with Brackets
	The Zero Exponent
	Negative Exponents
	Integer Exponents
	Multiplication with Exponents

	Simplifying with Exponent Laws 1
	Exponent Laws and Algebra
	Exponent Form to Numbers
Skill Quests	
Properties of integer exponents	Using exponent notation
	Product of powers, numerical base
	Product of powers, algebraic base
	Quotient of powers, numerical base
	Quotient of powers, algebraic base
	Power of a power, numerical base
	Power of a power, algebraic base
	Zero exponents, numerical base
	Zero exponents, algebraic base
	Negative exponents, numerical base
	Negative exponents, algebraic base
	Simplifying expressions, numerical base
	Simplifying expressions, algebraic base
Ebooks	
Grade 9 Curriculum Ready: Indices	

8.EE.A.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 and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

Activities	
Expressions & Equations 1-3	Square Roots 1
	Square and Cube Roots
Skill Quests	
Square & cube roots	Investigating square roots & cube roots
	Squares & square roots
	Evaluating expressions with square & cube roots
	Square roots of fractions & decimals
	Cubes & cube roots
Ebooks	
Grade 7, Series H: Special Numbers, Factors and Multiples	Square numbers
	Triangular numbers

8.EE.A.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.

Activities	
Expressions & Equations 1-3	Scientific Notation 1
	Scientific Notation 2
	Scientific notation to decimal
	Ordering Scientific Notation
Skill Quests	
Write numbers in scientific notation	Introducing scientific notation

	Converting scientific notation to standard form
	Converting standard form to scientific notation
Ebooks	
Grade 9 Curriculum Ready: Indices	Using our knowledge

8.EE.A.4

Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Activities	
Teacher directed	
Skill Quests	
Calculations in scientific notation	Calculations in scientific notation
Ebooks	
Grade 9 Curriculum Ready: Indices	Using our knowledge

B. Understand the connections between proportional relationships, lines, and linear equations

8.EE.B.5

Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

Activities	
Expressions & Equations 5-8	y=ax
Skill Quests	
Proportional relationships	Graphing proportional relationships
	Comparing proportional relationships
Ebooks	
Grade 8, Series I Curriculum Ready: Linear Relationships	

8.EE.B.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 = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

Activities	
Expressions & Equations 5-8	Determining a Rule for a Line Gradient
	Slope of a Line
	Equation of a Line 1
	Which Straight Line?
	Modeling Linear Relationships
Skill Quests	
Understand slope & y-intercept	Using similar triangles to understand slope
	Writing equations of proportional relationships
	Writing equations of nonproportional relationships
	Identifying the slope in an equation or graph
	Identifying the y-intercept on a graph

	Graphing equations in slope-intercept form
	Graphing equations not in slope-intercept form
	Finding the y-intercept algebraically
Ebooks	
Grade 8, Series I Curriculum Ready: Linear Relationships	

C. Analyze and solve linear equations and pairs of simultaneous linear equations

8.EE.C.7 Solve linear equations in one variable.	
Activities	
Expressions & Equations 5-8	Solve Multi-Step Equations
	Equations with Fractions
	Equations with Decimals
	Equations to Solve Problems
	Equations: Variables, Both Sides
	Solving More Equations
Skill Quests	
Solution types of linear equations	Solution types of linear equations
Solve linear equations	Solving 3-step linear equations
	Solving linear equations, variables on both sides
	Solving linear equations, distributive property
	Using substitution to check solutions
Ebooks	
Grade 8, Series I Curriculum Ready: Equations	

8.EE.C.8 Analyze and solve pairs of simultaneous linear equations.	
Activities	
Expressions & Equations 5-8	Solve Systems by Graphing
	Linear Modelling
	Simultaneous Equations 1
	Simultaneous Equations 2
	Simultaneous Linear Equations
Skill Quests	
Identify solutions, systems of equations	Identifying solutions, systems of equations
Solve systems of equations	Solving systems of equations graphically
	Solving systems of equations using elimination
	Solving systems of equations using substitution
	Checking the solution of a system of equations
Write & solve systems of equations	Writing & solving systems of equations
Ebooks	
Grade 9 Curriculum Ready: Linear Relationships	Thinking more

8.F Functions

A. Define, evaluate, and compare functions

8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	
Activities	
Functions	Vertical Line Test
Skill Quests	
Identify functions	Identifying functions
Ebooks	
Grade 6, Series G Curriculum Ready: Patterns and Algebra	Patterns and functions
Grade 10 Curriculum Ready: Functions	Definition of functions

8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	
Activities	
Teacher directed	
Skill Quests	
Compare functions	Comparing functions represented in different ways

8.F.A.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	
Activities	
Functions	Find the Function Rule
Skill Quests	
Interpret y = mx + b as linear	Represent linear relationships in different forms
	Equations of linear & non-linear relationships
Ebooks	
Grade 9: Linear and Non-linear Relationships	

B. Use functions to model relationships between quantities

8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
Activities
Teacher directed
Skill Quests

Rate of change & initial value	Rate of change & initial value
Ebooks	
Grade 8, Series I Curriculum Ready: Linear Relationships	
Grade 8, Series I Curriculum Ready: Straight Lines	

8.F.B.5

Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Activities	
Functions	Travel Graphs
	Line Graphs: Interpretation
Skill Quests	
Identify functions	Identifying functions
Ebooks	
Grade 8, Series I Curriculum Ready: Linear Relationships	
Grade 8, Series I Curriculum Ready: Straight Lines	

8.G Geometry

A. Understand congruence and similarity using physical models, transparencies, or geometry software

8.G.A.1

Verify experimentally the properties of rotations, reflections, and translations.

Activities	
Geometry 1-5	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Skill Quests	
Introduction to rigid transformations	Translating points on the coordinate plane
	Reflecting points across the x- or y-axis
	Rotating points about the origin
Preserved properties: length	Preserved properties: length
Preserved properties: angles	Preserved properties: angles
Preserved properties: parallel lines	Preserved properties: parallel lines

8.G.A.2

Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

Activities	
Geometry 1-5	Congruent Figures (Dot Grid)
	Congruent Figures (Grid)
Skill Quests	
Congruency: rigid transformations	Congruency: rigid transformations

8.G.A.3

Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

Activities	
Geometry 1-5	Transformations: Coordinate Plane
	Scale Factor
Skill Quests	
Transformations, coordinates	Dilations, coordinates
	Translations, coordinates
	Rotations, coordinates
	Reflections, coordinates
	Sequences of transformations
Ebooks	
Grade 7, Series H Curriculum Ready: Polygons	Transformations
	Transformations on the Cartesian Plane

8.G.A.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.

Activities	
Geometry 1-5	Similar Figures 1
Skill Quests	
Similarity: transformations	Introducing similarity
	Similarity: transformations
Ebooks	
Grade 7, Series H Curriculum Ready: Polygons	Transformations
	Transformations on the Cartesian Plane

8.G.A.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.

Activities	
Geometry 1-5	Angles on Parallel Lines
	Introduction to Angles on Parallel Lines 1
	Parallel Lines
	Vertically Opposite: Value of x
	Using Similar Triangles
	Similar Triangles
	Angle Measures in a Triangle
	Exterior Angles of a Triangle
	Angle Sum of a Triangle
Skill Quests	
Triangles & angle relationships	Angle sum theorem
	Exterior angle theorem
	Angle relationships: parallel lines, transversal

	Using scale to analyze similar triangles
	Identifying similar triangles
Ebooks	
Grade 7, Series H Curriculum Ready: Angles and Polygons	Angle sum of a triangle
	External angle of a triangle

B. Understand and apply the Pythagorean Theorem

8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.	
Activities	
Geometry 6-9	Pythagorean Triads
Skill Quests	
The Pythagorean Theorem & its converse	Identifying the hypotenuse, right triangles
	Identifying right triangles, Pythagorean Theorem
	Pythagorean triples
Ebooks	
Grade 8, Series I: Pythagoras' theorem	

8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	
Activities	
Geometry 6-9	Pythagorean Theorem
	Pythagorean: Find a Short Side (integers only)
	Pythagorean: Find a Short Side (decimal values)
	Find Slant Height
Skill Quests	
Apply the Pythagorean Theorem	Pythagorean Theorem: missing short side
	Pythagorean Theorem: missing hypotenuse
	Pythagorean Theorem: missing side
	Pythagorean Theorem in 2-D & 3-D
Ebooks	
Grade 8, Series I: Pythagoras' theorem	

8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	
Activities	
Geometry 6-9	Distance Between Two Points
Skill Quests	
Distance between two points	Finding the distance between two points
Ebooks	
Grade 8, Series I: Pythagoras' theorem	

C. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres

8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	
Activities	
Geometry 6-9	Volume: Cylinders
	Volume: Cones
	Volume: Spheres
Skill Quests	
Volume: cones, cylinders & spheres	Volume: cones
	Volume: cylinders
	Volume: spheres
Ebooks	
Grade 8, Series I: Circles and Cylinders	The volume of a cylinder
Grade 9 Curriculum Ready: Measuring Solids	Volume of basic solids
	Cones
	Spheres

8.SP Statistics & Probability

A. Investigate patterns of association in bivariate data

8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	
Activities	
Statistics & Probability	Data Analysis: Scatter Plots
	Scatter Plots
Skill Quests	
Use & interpret scatter plots	Using & interpreting scatter plots

8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	
Activities	
Teacher directed	
Skill Quests	
Estimate the line of best fit	Estimating the line of best fit

8.SP.A.3	
Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	
Activities	
Teacher directed	
Skill Quests	
Interpret the line of best fit	Interpreting the line of best fit
Ebooks	
Grade 8, Series I Curriculum Ready: Straight Lines	

8.SP.A.4	
Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	
Activities	
Statistics & Probability	Probability Tables
	Relative Frequency
	Two-way Table Probability
Skill Quests	
Two-way tables	Constructing & interpreting two-way tables
Ebooks	
Grade 8, Series I Curriculum Ready: Probability	Two-way table probabilities

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