

Mathletics

Arizona Standards

Activities (Courses), Skill Quests
and eBooks



Grades 7-8

September, 2025

Mathletics

Mathletics

Arizona Standards

Activities (Courses), Skill Quests and eBooks

September, 2025

Grade 7.....	3
7.RP Ratios & Proportional Relationships	3
A. Analyze proportional relationships and use them to solve mathematical problems and problems in real-world context.	3
7.NS The Number System	4
A. Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers except division by zero.	4
7.EE Expressions & Equations	6
A. Apply and extend previous understanding of arithmetic to algebraic expressions	6
B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations	6
7.G Geometry.....	7
A. Draw construct, and describe geometrical figures and describe the relationships between them.....	7
B. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume	8
7.SP Statistics & Probability.....	9
A. Use random sampling to draw inferences about a population	9
B. Draw informal comparative inferences about two populations	10
C. Investigate chance processes and develop, use, and evaluate probability models	10
Grade 8.....	12
8.NS The Number System	12
A. Understand that there are irrational numbers, and approximate them using rational numbers.....	12
8.EE Expressions & Equations	12
A. Work with radicals and integer exponents.....	12
B. Understand the connections between proportional relationships, lines, and linear equations	14
C. Analyze and solve linear equations and pairs of simultaneous linear equations	15
8.F Functions.....	16
A. Define, evaluate, and compare functions	16
B. Use functions to model relationships between quantities.....	17
8.G Geometry.....	17
B. Understand and apply the Pythagorean Theorem	19
C. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres	20
8.SP Statistics & Probability.....	20
A. Investigate patterns of association in bivariate data	20
B. Investigate chance processes and develop, use, and evaluate probability models	21

Grade 7

7.RP Ratios & Proportional Relationships

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

7.RP.A.1

Compute unit rates associated with ratios involving both simple and complex fractions, including ratios of quantities measured in like or different units.

Activities

Ratios & Proportional Relationships

Proportional Relationships

Rate Word Problems

Rates

Average Speed

Time Taken

Skill Quests

Unit rates with fractions

Solving unit rate problems involving fractions

7.RP.A.2

Recognize and represent proportional relationships between quantities.

Activities

Ratios & Proportional Relationships

$y=ax$

Conversion Graphs

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

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 understanding of operations with fractions to add, subtract, multiply, and divide rational numbers except division by zero.

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	Negative or Positive?
	Integers: Add and Subtract
	Add Integers
	Adding Integers: Positive, Negative or Zero
	Subtract Integers
	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

Multiply and divide integers and other 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 mathematical problems and problems in real-world context involving the four operations with rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions where $a/b \div c/d$ when a , b , c , d are all integers and b , c and $d \neq 0$.

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. Apply and extend previous understanding of arithmetic to algebraic 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	
Rewrite an expression in different forms, and understand the relationship between the different forms and their meanings in a problem context.	
 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 mathematical problems and problems in real-world context posed with positive and negative rational numbers in any form. Convert between forms as appropriate and assess the reasonableness of answers.	
 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 One-Step Equations
Solving Simple Equations
Inequalities on a Number Line: Basics
Inequalities on a Number Line: Mixed Basics
Graphing Inequalities 2
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

Geometry 1 & 3

Scale Factor
Scale Measurement
Floor Plans
Perimeter, Area, Dimension Change

Skill Quests

Scale drawings

Scale drawings

Ebooks

Grade 7, Series H: Algebra Basics

Scale and distance

7.G.A.2

Draw geometric shapes with given conditions using a variety of methods. 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

Geometry 1 & 3

Relate Shapes and Solids

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

Understand and use the formulas for the area and circumference of a circle 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 1

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 mathematical problems and problems in a real-world context involving area of two-dimensional objects composed of triangles, quadrilaterals, and other polygons. Solve mathematical problems and problems in real-world context involving volume and surface area of three-dimensional objects composed of 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	Chance Dial
	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	
Teacher directed	
 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	Find the Probability
	Simple Probability
	Introductory Probability
	Probability Tables
	Dice and Coins
 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

Grade 8

8.NS The Number System

A. Understand that there are irrational numbers, and approximate them using 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. Know that numbers whose decimal expansions do not terminate in zeros or in a repeating sequence of fixed digits are called irrational.	
Activities	
The Number System	Irrational Numbers
	Fraction to Terminating Decimal
	Repeating Decimals
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	Irrational Numbers
	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. Know that $\sqrt{2}$ is irrational. a. Evaluate square roots of perfect squares less than or equal to 225. b. Evaluate cube roots of perfect cubes less than or equal to 1000.	
 Activities	
Expressions & Equations 1-3	Square Roots
	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
	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 $(0, b)$.	
 Activities	
Expressions & Equations 5-8	Determining a Rule for a Line Gradient
	Gradient
	Slope of a Line
	Equation of a Line 1
	Which Straight Line?
	Equation from Point and Slope

	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	
Fluently solve linear equations and inequalities in one variable.	
 Activities	
Expressions & Equations 5-8	Solve Multi-Step Equations
	Equations with Grouping Symbols
	Equations with Fractions
	Equations with Decimals
	Equations to Solve Problems
	Equations: Variables, Both Sides
	Solve Two-Step Inequalities
	Solving Inequalities 2
	Graphing Inequalities 3
	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
Solve linear inequalities	Solving 2-step inequalities
	Solving 3-step inequalities
 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	Function Rules and Tables
	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

Given a description of a situation, generate 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 a graph. Track how the values of the two quantities change together. Interpret the rate of change and initial value of a linear function in terms of the situation it models, its graph, or its 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

8.G.A.1

Verify experimentally the properties of rotations, reflections, and translations. Properties include: lines are taken to lines, line segments are taken to line segments of the same length, angles are taken to angles of the same measure, parallel lines are taken to parallel lines.

Activities

Geometry 1-5

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



Angles and Parallel Lines

Introduction to Angles on Parallel Lines 1

	Parallel Lines
	Vertically Opposite Angles: Unknown Values
	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	
Understand 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 (rounding needed)
	Pythagorean: Find a Short Side (decimal values)
	Pythagorean' Theorem
	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	
<p>8.G.B.8</p> <p>Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p>	
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

<p>8.G.C.9</p> <p>Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p>	
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

<p>8.SP.A.1</p> <p>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.</p>	
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

Teacher directed

Skill Quests

Two-way tables

Constructing & interpreting two-way tables

Ebooks

Grade 8, Series I Curriculum Ready: Probability

Two-way table probabilities

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

8.SP.B.5

Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using organized lists, tables, tree diagrams and other methods. Identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events.

Activities

Statistics & Probability

Probability – Replacement

Probability – No Replacement

Tree Diagrams

Skill Quests

Compound events & probability

Sample space of compound events

Probabilities of compound events



For more information about Mathletics,
contact our friendly team.

www.mathletics.com/contact

