CARNEGIE LEARNING

1 Transforming Geometric Objects

MATHia Unit	MATHia Workspace	Overview	TEKS	Concept Builder	Mastery	Strategies: Animations	Classifications	Explore Tools	Graphing Tools	Interactive Diagrams	Interactive Worksheets	Proof	Real-World Scenarios	Solvers	Worked Example
Topic 1: Rigid Motion Transformations															
Rigid Motions on the Coordinate Plane	Experimenting with Rigid Motions	Students use an interactive Explore Tool to perform translations, reflections, and rotations. Students also identify vertical and horizontal symmetry and describe sequences of rigid motions that map one figure onto a congruent figure. Students observe that, after rigid motions, parallel lines remain parallel and angle measures and line segments do not change their measure.	8.10A 8.10C	✔				•							
	Translating Plane Figures	Students will select translations that match a pre-image to a target image figure, given a reference point.	8.10A 8.10C		✔				•						
	Reflecting Plane Figures	Students will select reflections over lines that match a pre-image to target image figure, given a reference point.	8.10A 8.10C		✔				•						
	Rotating Plane Figures	Students will select rotations that match a pre-image to a target image figure, given a reference point. Rotations are limited to 90-degree increments.	8.10A 8.10C		✔				•						
	Describing Rigid Motions Using Coordinates	Students watch an animation showing how rigid motions--translations, reflections, and rotations--are defined on the coordinate plane using algebraic notation. Students identify and produce rigid motions of shapes using coordinates and the coordinate plane.	8.10A 8.10C	✔		•									

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Topic 2: Similarity															
Dilating Figures on the Coordinate Plane	Defining Similarity	Students watch an animation showing how similar figures can be created by drawing and measuring lines from a point of dilation. Students distinguish between enlargement and reduction dilations and use the corresponding side length ratios to determine the scale factors of dilations. Students learn that shapes created by dilations are similar figures, which have congruent corresponding angle measures and proportional corresponding side lengths.	8.3A 8.3B	✔		•					•				
	Dilating Plane Figures	Students will select dilations that match a pre-image to target image figures, given a reference point.	8.3C		✔				•						
Mapping Similar Figures Using Transformations	Performing One Transformation	Students will select a translation, rotation, reflection, or dilation that matches a pre-image to a target image figure, given a reference point. Rotations are limited to 90-degree increments.	8.3C 8.10A 8.10C		✔				•						
	Performing Multiple Transformations	Students will select multiple transformations from translation, rotation, reflection, and dilation to match a pre-image to a target image figure, given a reference point. Rotations are limited to 90-degree increments.	8.3C 8.10A 8.10C		✔				•						

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Mapping Similar Figures Using Transformations (continued)	Describing Transformations Using Coordinates	Students watch a brief animation showing how dilations are defined on the coordinate plane using algebraic notation. They compare and contrast shapes and their dilations on the coordinate plane and then define a similar figure as one which is obtained from an original figure by a sequence of dilations and rigid motions. Students also define a congruent figure as one which is obtained from an original figure by a sequence of rigid motions. Finally, students identify sequences of rigid motions or rigid motions and dilations which produce a transformed figure and differentiate between transformations that produce congruent figures and those that produce similar figures that are not congruent.	8.3B 8.3C 8.10B 8.10C	✔		•					•				
Topic 3: Line and Angle Relationships															
Special Angle Relationships	Calculating Angles	Students use an interactive circular protractor to measure angles and determine angle sums.	7.11C	✔				•			•				
	Exploring Angle Relationships	Students use the definitions of complementary and supplementary angles to sort pairs of angles. They use the definition of adjacent angles, linear pairs, and vertical angles to determine whether given statements are true or false. Students use an explore tool to identify angle relationships created from two intersecting lines.	7.11C	✔			•	•							
	Solving for Angle Measures	Students write and solve equations to solve for unknown angle measures.	7.11C		✔					•				•	
Triangle Sum and Exterior Angle Theorems	Introduction to Triangle Sum and Exterior Angle Theorems	Students are informally introduced to the Triangle Sum Theorem. They derive the Exterior Angle Theorem using the Triangle Sum Theorem and substitution.	8.8D	✔											•

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Triangle Sum and Exterior Angle Theorems (continued)	Solving Problems Using Triangle Sum and Exterior Angles	Students determine the remote interior angles of a triangle given an exterior angle. They use the Triangle Sum and Exterior Angle Theorems to calculate unknown angle measures in diagrams.	8.8D		✔					•				•	
Angle Relationships Formed by Lines Intersected by a Transversal	Classifying Angles Formed by Transversals	Students follow Worked Examples and complete sorting activities as they learn to identify angles and angle pairs formed by lines cut by a transversal.	8.8D	✔		•	•								
	Reasoning about Angles Formed by Transversals	Students solve reasoning problems involving angle measures formed by lines cut by a transversal.	8.8D	✔											•
	Calculating Angle Measures Formed by Transversals	Calculate the measure of the sought angle by using angle relationships formed by two lines cut by a single transversal.	8.8D		✔					•					
The Angle-Angle Similarity Theorem	Introduction to the Angle-Angle Similarity Theorem	Students revisit the definition of similarity and how dilations produce similar figures. Students then recall what they have learned about corresponding angles when two parallel lines are crossed by a transversal. These facts are combined to suggest the Angle-Angle Similarity Theorem. Students then use the theorem to identify similar and non-similar triangles.	8.8D	✔			•								
	Applying Triangle Similarity Theorems	Students construct informal arguments to establish facts about the congruence between pairs of angles. Then they use the angle-angle criterion to decide if two triangles are similar (or not).	8.8D		✔						•				

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2 Developing Function Foundations

MATHia Unit	MATHia Workspace	Overview	TEKS	Concept Builder	Mastery	Strategies: Animations	Classifications	Explore Tools	Graphing Tools	Interactive Diagrams	Interactive Worksheets	Proof	Real-World Scenarios	Solvers	Worked Example
Topic 1: From Proportions to Linear Relationships															
Representations of Proportional Relationships	Representing Proportional Relationships Algebraically	Students identify a constant of proportionality from a scenario. They use the constant of proportionality to select an equation that models a proportional relationship in a scenario. Students use an equation modeling a proportional relationship to determine a value for an independent variable when the value for the dependent variable is given.	8.5A 8.5E	✔									•		•
	Modeling the Constant of Proportionality	Given a scenario, students complete a table of values, write a direct variation equation, plot values from the table, and draw the line representing the direct variation equation.	8.4B 8.5A 8.5E		✔				•		•		•	•	
	Comparing Proportional Relationships in Different Forms	Given two proportional relationships in different representations -- equation, graph, table, or description -- students compare the relationships' rate of change in a contextual or noncontextual scenario.	8.4C		✔				•				•		
Using Similar Triangles to Describe the Steepness of a Line	Understanding the Slopes of Lines	Students watch an animation which shows that the unit rate and constant of proportionality for a situation are both equivalent to the slope of a line representing the situation. Students answer questions, demonstrating with similar triangles that the slope of a straight line is the same between any two points on the line. They interpret the slopes of lines representing different real-world scenarios. Finally, students use an interactive Explore Tool, which helps students to build the linear equation representing a straight line on a coordinate plane.	8.4A 8.4B	✔		•									

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Using Similar Triangles to Describe the Steepness of a Line (continued)	Writing Equations for Lines	Students use slope triangles to determine the slopes of lines graphed on the coordinate plane. They then use the slope of the line, including slopes of 0, to write the equation for the line. Students then translate the line and write the equation for the translated line. Students learn that equations of the form $y = mx$ represent straight lines graphed through the origin and equations of the form $y = mx + b$ represent translations of those lines.	8.4C 8.5B 8.5I		✔					•					
Exploring Slopes	Graphing Linear Relationships	Students will graph proportional and non-proportional linear relationships. They will examine and compare unit rates.	8.4B 8.5A 8.5B 8.5F 8.5H	✔					•						
	Comparing Proportional and Non-Proportional Relationships	Students are given two linear relationships in two different representations -- equation, graph, table, or description -- of. They compute the *y*-intercept and rate of change. Then they determine if one, both, or neither of the equations is a proportional relationship.	8.4C 8.5F 8.5H		✔				•				•		

Topic 2: Two-Step Equations and Inequalities

Modeling Equations by Equal Expressions	Using Picture Algebra with Equations	Students will create visual models for given scenarios, write two-step expressions and equations, and then use mental math to solve for unknown values.	7.11A		✔								•		
	Identifying Attributes of Linear Relationships	Students identify attributes of linear relationships from a scenario and from a graph by determining whether the starting value is positive or negative and whether the rate of change is positive or negative. They interpret the model of a two-step linear equation.	7.11A	✔			•				•		•		•

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2 Developing Function Foundations

MATHia Unit	MATHia Workspace	Overview	TEKS	Concept Builder	Mastery	Strategies: Animations	Classifications	Explore Tools	Graphing Tools	Interactive Diagrams	Interactive Worksheets	Proof	Real-World Scenarios	Solvers	Worked Example
Modeling Equations by Equal Expressions (continued)	Analyzing Models of Two-Step Linear Relationships	Students analyze scenarios of two-step linear relationships. They are given an equation that models the scenario. Students then match the different expressions in the equation to verbal descriptions of these quantities in the context of the scenario.	7.10A 7.11A		✔		•						•		
	Modeling Two-Step Expressions	From given scenarios, students determine unknown values and enter values into tables to recognize patterns. Students express these patterns in two-step expressions.	7.10A 7.11A		✔						•		•		
	Checking Solutions to Linear Equations	Students substitute given values into two-step equations to determine the values are solutions to the equations.	7.11B		✔									•	
Solving Equations on a Double Number Line	Exploring Two-Step Equations with Double Number Lines	Students use a double number line tool to explore solving two-step equations graphically. The two sides of an equation are modeled as vertically aligned points on a double number line. Students move the points left and right to represent inverse operations and then answer questions about the model.	7.10B 7.11A	✔											
	Using Double Number Lines to Solve Two-Step Equations (No Type-In)	Students use a double number line and inverse operations to solve a variety of two-step equations.	7.10B 7.11A		✔				•						
	Using Double Number Lines to Solve Two-Step Equations (Type-In)	Students use a double number line and inverse operations to solve a variety of two-step equations.	7.10B 7.11A		✔				•						
Using Inverse Operations to Solve Equations	Exploring Two-Step Equations	Students use a balance tool to explore two-step equations. They use a general strategy to solve any two-step equation.	7.11A	✔			•	•							•
	Solving with Multiplication (No Type In)	Students solve two-step equations involving multiplication using the solver.	7.11A		✔									•	
	Solving with Multiplication (Type In)	Students solve two-step equations involving multiplication.	7.11A		✔									•	
	Solving with Division (No Type In)	Students solve two-step equations involving division using the solver.	7.11A		✔									•	

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2 Developing Function Foundations

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Using Inverse Operations to Solve Equations (continued)	Solving with Division (Type In)	Students solve two-step equations involving division using the solver.	7.11A		✔									•	
	Solving Two-Step Equations	Students solve two-step equations involving all four operations.	7.11A		✔									•	
Solving Inequalities with Inverse Operations	Graphing Inequalities with Rational Numbers	Students graph simple inequalities involving rational numbers on a number line.	6.9A 6.9B 6.10B		✔				•						
	Solving One-Step Linear Inequalities	Students solve one-step inequalities algebraically. The inequalities include all four operations but are restricted to positive integers.	6.9.B		✔				•					•	
	Solving Two-Step Linear Inequalities	Students solve two-step linear inequalities.	7.10B 7.11B		✔				•					•	

Topic 3: Multiple Representations of Equations

Representing Equations with Tables and Graphs	Graphs of Equations	Students model and analyze the graphs of linear equations. Students identify key characteristics of the graphs and use them to interpret problem situations.	7.7A 7.11A	✔							•		•		•
	Using Graphs to Solve Equations	Students watch an animation as they learn how to model the solution of a linear equation graphically. Students practice solving problems by modeling linear equations.	7.7A 7.11A	✔		•							•		
Using Equations and Inequalities to Solve Problems	Determining the Value of an Independent Variable	Students start with a scenario, a table, and a graph to determine the value of an independent variable given the value of the dependent variable.	7.7A 7.10A 7.11A	✔							•		•		•
	Writing Linear Equations and Inequalities from a Scenario	Students translate between verbal phrases in scenarios to statements using mathematical symbols. They write inequalities to model scenarios.	7.10A	✔									•		•
	Using Linear Equations and Inequalities	Students write equations and inequalities to represent problem situations. Students solve and interpret the solutions to the equations and inequalities in the context of the problem.	7.10A 7.11A		✔								•	•	

2 Developing Function Foundations

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Using Multiple Representations to Solve Problems	Solving Problems with Integers	Students write algebraic expressions involving integers to represent problem scenarios and to determine output values. Students solve equations to determine input values.	7.10A 7.11A		✔						•		•	•	
	Solving Problems with Decimals and Fractions	Students write algebraic expressions involving decimals and fractions to represent problem scenarios and to determine output values. Students solve equations to determine input values.	7.10A 7.11A		✔						•		•	•	
Topic 4: Linear Relationships															
Using Tables, Graphs, and Equations	Multiple Representations of Linear Equations	Students represent scenarios with linear expressions. They compare multiple representations of linear functions and determine whether a table, graph, or equation match a given scenario. Students match graphed lines and equations to given scenarios.	8.4C 8.5B 8.5I	✔			•						•		
	Modeling Linear Relationships Using Multiple Representations	Students model problems using expressions, tables, and graphs. Students use number properties to evaluate and solve one-step and two-step equations.	8.5B 8.5I		✔				•		•		•	•	
Linear Relationships in Tables	Calculating Slopes	Students are given a relation and a choice as to which method to use to graph it. Students are then given information about the line appropriate to the chosen method.	8.4C		✔				•		•		•		
Graphing Linear Equations Using Slope and *y*-Intercept	Graphing Given an Integer Slope and *y*-Intercept	Students will write the equations of lines given an integer slope and a *y*-intercept.	8.5B 8.5I		✔				•		•		•		
	Graphing Given a Decimal Slope and *y*-Intercept	Students will write the equations of lines given a decimal-value slope and a *y*-intercept.	8.5B 8.5I		✔				•		•		•		
Topic 5: Introduction to Functions															
Defining Functional Relationships	Classifying Relations and Functions	Students watch an animation and follow worked examples as they learn how to classify relations as functions or non-functions.	8.5G	✔		•							•		•

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2	Developing Function Foundations					Strategies									
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Defining Functional Relationships (continued)	Exploring Functions	Students use an interactive function machine to explore mystery functions. Students use the function machine and a table to identify functions. They also use the machine along with sorting activities to identify the domain and range of different functions.	8.5G	✔			•	•							
Describing Graphs of Functions	Exploring Graphs of Functions	Students use an interactive function machine and a graph to identify and analyze function equations and graphs. Students identify intercepts of the graphs.	8.5G	✔				•							
Comparing Functions Using Different Representations	Comparing Linear Relationships in Different Forms	Given two linear functions in different representations -- equation, graph, table, or description -- with a contextual or noncontextual scenario, students compare the equations' slopes or *y*-intercepts.	8.4C 8.5B		✔				•				•		

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3 Modeling Linear Equations

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Topic 1: Patterns in Bivariate Data															
Analyzing Patterns in Scatterplots	Estimating Lines of Best Fit	Students describe the patterns of association in scatter plots and select the most appropriate line of best fit for a scatterplot. They use an interactive Explore Tool to plot, analyze, interpret, and reason with lines of best fit using real-world data.	8.5C 8.11A	✔			•	•					•		
	Using Lines of Best Fit	Students practice interpreting the meaning of lines of best fit and using the lines to make predictions.	8.5D	✔									•		
Topic 2: Solving Linear Equations															
Solving Multi-Step Equations	Solving Multi-Step Equations	Students practice solving equations algebraically using a variety of strategies, including using a balance tool.	8.8C	✔				•							•
	Solving by Combining Like Variable Terms and a Constant with Integers (No Type In)	Students combine like terms and then solve for a variable given an equation with integer coefficients and constants.	8.8C		✔									•	
	Solving by Combining Like Variable Terms and a Constant with Integers (Type In)	Students combine like terms and then solve for a variable given an equation with decimal coefficients and constants.	8.8C		✔									•	
	Solving by Combining Like Variable Terms and a Constant with Decimals (No Type In)	Students combine like terms and then solve for a variable given an equation with decimal coefficients and constants.	8.8C		✔									•	
	Solving by Combining Like Variable Terms and a Constant with Decimals (Type In)	Students combine like terms and then solve for a variable given an equation with decimal coefficients and constants.	8.8C		✔									•	
Interpreting the Number of Solutions to Equations	Solving Equations with One Solution, Infinite, and No Solutions	Students follow Worked Examples as they learn to identify equations with one solution, no solutions, and infinite solutions. Students also check the solutions to equations.	8.8C	✔											•

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3 Modeling Linear Equations

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Interpreting the Number of Solutions to Equations (continued)	Sorting Equations by Number of Solutions	Students complete sorting activities to practice identifying linear equations with one, no, and infinite solutions.	8.8C	✔			•								
Solving Linear Equations with Variables on Both Sides	Solving with the Distributive Property Over Multiplication	Students will solve equations with variables embedded in distribution expressions.	7.11A		✔									•	
	Solving with the Distributive Property Over Division	Students will solve equations with variables embedded in distribution expressions in fractions.	7.11A		✔									•	
	Solving with Variables on Both Sides with Rationals (No Type In)	Students will solve equations with variables on both sides of the equals sign.	8.8C		✔									•	
	Solving with Variables on Both Sides with Rationals (Type In)	Students will solve equations with variables on both sides of the equals sign.	8.8C		✔									•	

Topic 3: Systems of Linear Equations

Systems of Linear Equations	Introduction to Systems of Linear Equations	Students watch an animation introduces systems of linear equations and demonstrating that linear systems may have one solution, no solutions, or an infinite number of solutions. Students represent systems with one solution graphically and algebraically in order to understand that the solution to such a system is represented by a point of intersection of the graphs of the two linear equations. Students verify solutions to systems and interpret a system in context, making sense of the point of intersection as the break-even point in a cost-income situation.	8.9A	✔		•			•						
	Modeling Linear Systems Involving Integers	Students will write multiple expressions with integer coefficients and use equations to solve systems and determine break-even points in the context of real-world problems.	8.5I 8.9A		✔				•		•		•	•	

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3	Modeling Linear Equations					Strategies									
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Systems of Linear Equations (continued)	Modeling Linear Systems Involving Decimals	Students will write multiple expressions with decimal coefficients and use equations to solve systems and determine break-even points in the context of real-world problems.	8.5I 8.9A		✔				•		•		•	•	

CARNEGIE LEARNING

4 Applying Powers

MATHia Unit	MATHia Workspace	Overview	TEKS	Concept Builder	Mastery	Strategies: Animations	Classifications	Explore Tools	Graphing Tools	Interactive Diagrams	Interactive Worksheets	Proof	Real-World Scenarios	Solvers	Worked Example
Topic 1: Real Numbers															
The Real Numbers	Introduction to Irrational Numbers	Students determine perfect squares and their square roots. They use rational approximations to determine decimal approximations of square roots of non-perfect squares. Students watch an animation about the real number system and classify real numbers as rational or irrational.	8.2A 8.2B	✔		•	•				•				•
	Graphing Real Numbers on a Number Line	Students practice plotting various real numbers on a number line. Students approximate, if necessary, and plot decimals, percents, fractions, square roots, and pi.	8.2B 8.2D		✔				•						
	Ordering Rational and Irrational Numbers	Students use a number line tool to plot approximate values of real numbers and then compare and order the numbers.	8.2B 8.2D	✔					•						
Scientific Notation	Using Scientific Notation	Students write numbers in standard form as numbers in scientific notation and write numbers in scientific notation as numbers in standard form.	8.2C	✔							•				
Topic 2: The Pythagorean Theorem															
The Pythagorean Theorem	Exploring the Pythagorean Theorem	Students explore a variety of right triangles and answer questions about proofs of the Pythagorean Theorem and its converse.	8.6C 8.7C	✔			•	•							
	Using the Pythagorean Theorem	Students increase their familiarity with using the Pythagorean Theorem by analyzing Worked Examples.	8.7C		✔					•				•	
	Problem Solving Using the Pythagorean Theorem	Students solve for an unknown side length of a right triangle in real-world problems by using the Pythagorean Theorem.	8.7C	✔									•		
Distances in a Coordinate System	Calculating Distances on the Coordinate Plane	Students determine distances on the coordinate plane using the Pythagorean Theorem.	8.7D	✔				•							

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4 Applying Powers

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Topic 3: Three-Dimensional Figures															
Volume of Prisms and Pyramids	Calculating Volume of Right Prisms	Students determine the volume of right prisms.	7.9A		✔						•		•		
	Understanding Volume Formulas for Right Prisms	Students relate the variables in the volume formula for a right prism to measurements shown in a diagram of a triangular prism. They map the parts of a triangular prism to the variables in the volume formula for a right prism. They then reason about how to determine an unknown measurement of a triangular prism given its volume.	7.9A	✔											
	Using Volume of Right Prisms	Students use the volume of right prisms to solve for unknown values.	7.9A		✔						•		•	•	
	Relating Volumes of Prisms and Pyramids	Students watch an animation that shows that a pyramid with the same base and height as a corresponding prism has one-third the volume. They relate the formula for the volume of a prism and the volume of a pyramid. Students identify and calculate the volumes of different prisms and pyramids given different measurements. Students then work backwards from the volume to determine unknown measures of different prisms and pyramids.	7.8A 7.8B	✔		•									
	Calculating Volume of Pyramids	Students calculate the volume of pyramids in mathematical and real-world contexts using given measurements.	7.9A		✔						•		•	•	
Surface Area	Determining Surface Area Using Nets	Students watch an animation showing how real-world objects can be represented by three-dimensional solid figures and how solid figures can be taken apart to create two-dimensional nets. Students use nets to determine the surface areas of right rectangular prisms and square pyramids, and they identify faces, edges, and vertices of solid figures.	7.9D	✔		•							•		

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4 Applying Powers

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Surface Area (continued)	Calculating Surface Area of Prisms and Pyramids Using Nets	Students identify the number of unique shapes that make up the net of a prism or pyramid. They use the shapes to determine the surface area of the solid.	7.9D		✔						•				
Topic 4: Volume of Curved Figures															
Volume of a Cylinder	Relating Volumes of Cylinders, Cones, and Spheres	Students analyze a cylinder and its circular bases to understand the volume formulas $V = Bh$ and $V = \pi \cdot r^2$ for the cylinder. They watch an animation that shows filling a cone with liquid and pouring its volume into a cylinder and then a hemisphere. Students infer the volume formulas for the cone and sphere. Finally, students solve mathematical problems related to the volumes of cylinders, cones, and spheres.	8.6A 8.6B 8.7A	✔		•									
	Calculating Volume of Cylinders	Students will use mathematical and real-world objects to determine the volume of cylinders.	8.7A		✔						•		•	•	
	Using Volume of Cylinders	Students will apply the formula for the volume of a cylinder to solve a variety of different problems.	8.7A		✔						•		•	•	
Volume of a Cone	Calculating Volume of Cones	Students will use mathematical and real-world objects to determine the volume of cones.	8.7A		✔						•		•	•	
	Using Volume of Cones	Students will apply the formula for the volume of a cone to solve a variety of different problems.	8.7A		✔						•		•	•	
Volume of a Sphere	Calculating Volume of Spheres	Students will use mathematical and real-world objects to determine the volume of spheres.	8.7A		✔						•		•	•	
	Using Volume of Spheres	Students will apply the formula for the volume of a sphere to solve a variety of different problems.	8.7A		✔						•		•	•	

5 Analyzing Populations, Probabilities, and Potential

MATHia Unit	MATHia Workspace	Overview	TEKS	Concept Builder	Mastery	Strategies: Animations	Classifications	Explore Tools	Graphing Tools	Interactive Diagrams	Interactive Worksheets	Proof	Real-World Scenarios	Solvers	Worked Example
Topic 1: Introduction to Probability															
Introduction to Probability	Determining Probabilities	Students build probability models and determine probabilities of simple and disjoint events. They use proportions to make predictions based on samples and theoretical probabilities.	7.6D 7.6E	✔			•				•		•		•
	Modeling Simple Events	Students build a probability model and then use it to reason about the probability of a single event and its complement.	7.6D 7.6E		✔						•		•		
	Comparing Experimental and Theoretical Probabilities	Students examine data from probability experiments and compare with theoretical probabilities. They use results of probability experiments to make conjectures about theoretical probabilities.	7.6C 7.6D 7.6I	✔			•								
	Simulating Simple Events	Students use simulations to model real-world scenarios.	7.6B	✔							•		•		
Topic 2: Compound Probability															
Compound Probability	Introduction to Compound Events	Students will extend what they know about simple events to compound events in the context of the game "Rock, Paper, Scissors."	7.6I	✔		•									
	Determining Compound Probabilities Using Data Tables	Students construct a data table of two independent events. They then use the data table to determine the probability of a compound event.	7.6A 7.6I		✔						•		•		
	Calculating Compound Probabilities	Students use simulation, tree diagrams, organized lists, and tables to determine compound probabilities.	7.6A 7.6B 7.6I	✔		•							•		
	Determining Compound Probabilities Using Tree Diagrams	Students construct a tree diagram and organized list to represent the sample space of a compound event. They use the representations to determine the probabilities of compound events.	7.6A 7.6I		✔								•		

CARNEGIE LEARNING

5	Analyzing Populations, Probabilities, and Potential					Strategies									
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Compound Probability (continued)	Simulating Compound Events	Students will use random number tables to simulate compound events and make inferences about those events.	7.6B	✔							•		•		
Topic 3: Drawing Inferences															
Mean Absolute Deviation	Calculating Mean Absolute Deviation	Students develop an understanding of mean absolute deviation and practice calculating with small data sets.	8.11B	✔									•		
	Using Mean Absolute Deviation	Students compare the mean absolute deviations and spread of similar data sets.	8.11B	✔			•						•		•
Drawing Inferences	Using Statistics to Draw Inferences About a Population	Students will learn how to discriminate between scenarios that belong to a sample versus a population, understand that random sampling tends to produce valid inferences, develop an informal understanding of bias, and see how conclusions about a population are valid only if the sample is representative of that population.	7.6F 7.12B 8.11C	✔			•								
Using Data Displays to Compare Two Populations	Comparing Characteristics of Data Displays	Students compare two data displays based in a context from among a dot plot, histogram, and boxplot. They determine whether they can identify several characteristics from the data displays and then provide either the response or reasoning why it is not possible. In addition, they sort all seven characteristics (the number of data values, mean, median, mode, range, IQR, and MAD) as to whether they can determine them from both data displays.	7.6G 7.12A 7.12B 8.11B 8.11C		✔								•		
	Using Random Samples to Compare Populations	Students use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	7.12A 7.12B 7.12C	✔											

CARNEGIE LEARNING

5 Analyzing Populations, Probabilities, and Potential

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Topic 4: Financial Literacy: Your Financial Future															
Simple and Compound Interest	Calculating Simple Interest	Students will use what they know about proportional reasoning and solving linear equations to compute the amount of interest earned on an investment as well as the final value of the account.	8.12D		✔										
	Calculating and Using Compound Interest	Students solve for an unknown quantity using a worksheet and the formula for compound interest. The unknown quantity can be the balance of an account after a given amount of time. More difficult problems will include calculating the principle given the future balance.	8.12D		✔										
Car, Home, and Other Loans	Monthly Payments and Interest Costs	Students compute payments and costs for pairs of consumer, car, or home loans with differing interest rates, terms, down payments, rebates (for car loans), and/or points (for home loans). Then, students compare the effects of the differences in the loans on monthly and cumulative costs.	8.12A 8.12B 8.12E		✔										
	Using Credit Cards	Students will learn how to use a Credit Card Repayment Calculator to make sound financial decisions.	8.12B		✔										