

1 Fraction and Decimal Operations				Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS					
Fraction Division	Representing Fraction Division	Students watch an animation and answer questions about modeling fraction division.	6.NS.A.1		●			
	Interpreting Remainders using Models	Students solve real-world fraction division problems using models and relate fraction division to fraction multiplication number sentences.	6.NS.A.1	●				
	Developing the Fraction Division Algorithm	Students develop an understanding of the algorithm for fraction division through worked examples and the completion of partial worked examples.	6.NS.A.1			●		
	Multiplying and Dividing Rational Numbers	Students calculate products and quotients of fractions, including mixed numbers and improper fractions.	6.NS.A.1	●				
Decimal Operations	Converting Fractions to Decimals	Students write decimal equivalents to fractional values.	6.NS.B.3	●				
	Adding and Subtracting Decimals	Students review adding and subtracting multi-digit decimals by examining worked examples, completing partially-completed worked examples, and solving problems.	6.NS.B.3			●		
	Decimal Sums and Differences*	Students choose the operation and solve decimal addition and subtraction problems	6.NS.B.3					
	Exploring Decimal Facts	Students use an interactive grid to explore multiplying and dividing with decimals less than 1 to the tenths place.	6.NS.B.3					●
	Multiplying and Dividing Decimals	Students investigate multiplying and dividing multi-digit decimals by following worked examples, completing partially-completed worked examples, and solving problems.	6.NS.B.2 6.NS.B.3			●		
	Decimal Products and Quotients*	Students choose the operation and solve decimal multiplication and division problems.	6.NS.B.3					

*Indicates practice problems

2		Ratios, Rates, and Percents			Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS						
Ratio and Rate Reasoning	Understanding Ratio Relationships	Students develop conceptual understanding of ratio, the multiplicative nature of ratios, the different notation used for ratio, and part-to-part versus part-to-whole ratios.	6.RP.A.1			●	●		
	Equivalent Ratios	Students use a double number line to determine equivalent ratios. Then, they move to tables and scaling up and down to determine equivalent ratios.	6.RP.A.3.a			●			
	Multiple Representations of Ratios	Students add to their list of strategies for determining equivalent ratios by examining equivalent ratios on a coordinate grid. A key understanding in this section is that either quantity can be graphed on either axis; neither quantity is dependent on the other.	6.RP.A.3.a		●	●			
	Fractional Rates	Students consider three different scenarios in which rates that use decimals are misinterpreted.	6.RP.A.3.b			●			
	Comparing Rates	Students develop fluency in determining and comparing unit rates.	6.RP.A.3.b		●				
Problem Solving using Ratio and Rate Reasoning	Problem Solving with Equivalent Ratios and Rates using Tables	Students use a table to solve problems involving equivalent ratios and rates.	6.RP.A.3.a		●				
	Problem Solving with Equivalent Ratios and Rates using Double Number Lines	Students use a double number line to solve problems involving equivalent ratios and rates.	6.RP.A.3.a		●				
	Problem Solving with Equivalent Ratios and Rates using Graphs	Students use a graph to solve problems involving equivalent ratios and rates.	6.RP.A.3.a		●				
Introduction to Percent	Percent Models	Students watch animations and answer questions about percent models. Students write fractional and decimal equivalents of percent models.	6.RP.A.3.c		●				
	Fraction, Decimal, Percent Conversions	Students convert between fractions, decimals, and percents.	6.RP.A.3.c						
	Determining a Part Given a Percent and a Whole	Students solve real-world percent problems by using bar models, using equivalent fractions, and determining a fraction of a quantity. The problems involve determining a part given the whole and a percent.	6.RP.A.3.c			●			
	Determining a Whole Given a Percent and a Part	Students solve real-world ratio problems using equivalent fractions and models. The problems involve determining the whole given a part and a percent.	6.RP.A.3.c			●			

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3		Numeric and Algebraic Expressions			Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS						
Number Properties	Commutative and Associative Properties	Students follow worked examples to rewrite expressions using the commutative and associative properties of addition and multiplication.	6.EE.A.3			●			
	Order of Operations	Students learn about the precedence of different operations through manipulating spacing within expressions.	6.EE.A.1 6.EE.A.3			●			
	Simplifying Numeric Expressions	Students practice rewriting expressions using the order of operations. Students sort the steps of simplifying expressions.	6.EE.A.3				●		
	Exploring the Distributive Property with Numeric Expressions	Students explore modeling the distributive property of multiplication over addition with numeric expressions using an interactive grid.	6.EE.A.3					●	
	Using the Distributive Property with Numeric Expressions	Students practice applying different distributive properties (multiplication over addition, division over addition) to rewrite numeric expressions and calculate efficiently.	6.EE.A.3					●	
Algebraic Expressions	Evaluating Multi-Step Expressions	Students determine relevant information from scenarios and use this information to evaluate algebraic expressions with one or more than one operation.	6.EE.A.2.c	●					
	Evaluating Expressions with Multiple Variables	Students determine relevant information from scenarios and use this information to evaluate algebraic expressions with multiple variables.	6.EE.A.2.c	●					
Equivalent Algebraic Expressions	Modeling Equivalent Algebraic Expressions	Students use an explore tool to model algebraic expressions. They use the interactive tool to create and identify equivalent expressions.	6.EE.A.4					●	
	Exploring the Distributive Property with Algebraic Expressions	Students use an interactive tool to explore the Distributive Property with algebraic expressions. They apply the properties of operations to generate equivalent expressions.	6.EE.A.3					●	
	Simplifying Algebraic Expressions (No Type In)	Students simplify variable expressions by combining like terms, by using the order of operations.	6.EE.A.3 6.EE.A.4	●					
	Simplifying Algebraic Expressions (Type In)	Students simplify variable expressions by combining like terms, by using number properties, and by using the order of operations.	6.EE.A.3 6.EE.A.4	●					

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4 One-Step Equations and Inequalities				Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS					
Reasoning with Expressions and Equations	Using Picture Algebra with Addition, Subtraction, and Multiplication	Students use pictures to represent relationships between two quantities. The relationships may involve addition, subtraction, or multiplication.	6.EE.B.7	●				
	Using Picture Algebra with Multiplication, Total Given	Students use pictures to represent multiplicative relationships between two quantities.	6.EE.B.7	●				
	Using Picture Algebra with Addition and Subtraction, Total Given	Students use pictures to represent additive relationships between two quantities.	6.EE.B.7	●				
	Patterns and One-Step Expressions	Students make tables of values by determining outputs from given inputs. They will use the tables to determine algebraic expressions for the relationships between two quantities.	6.EE.B.6 6.EE.C.9	●				
Solving One-Step Equations	Solving One-Step Equations with a Balance	Students use an interactive balance to explore representing and solving one-step addition and multiplication equations. Students are encouraged to determine solutions using the interactive model.	6.EE.B.7					●
	Representing One-Step Equations	Students examine worked examples and answer questions about using inverse operations to solve one-step addition and multiplication equations.	6.EE.B.7			●		
	Using Substitution to Identify Solutions to Equations	Students determine which given values for a variable are solutions to an equation.	6.EE.B.5			●		
	Solving with Addition and Subtraction (No Type In)	Students use an equation solver to solve one-step equations involving addition and subtraction.	6.EE.B.7	●				
	Solving with Multiplication and Division (No Type In)	Students use an equation solver and inverse operations to solve one-step equations involving multiplication and division.	6.EE.B.7	●				
	Solving One-Step Equations (Type In)	Students use an equation solver and inverse operations to solve a variety of one-step equations.	6.EE.B.7	●				
Solving One-Step Inequalities	Graphing Inequalities with Positive Rational Numbers	Given simple verbal inequality statements, students represent the inequalities in symbols and on number lines. They will determine if given values are solutions to the inequalities.	6.EE.B.8	●				
	Solving One-Step Linear Inequalities	Students solve one-step inequalities algebraically. The inequalities include all four operations but are restricted to positive integers.	6.EE.B.5	●				
Problem Solving with One-Step Equations	Patterns and One-Step Equations	Students make tables of values by determining inputs from given values. They use the tables to determine algebraic expressions for the relationships between two quantities.	6.EE.B.6 6.EE.B.7	●				
	Problem Solving using Multiple Representations in the First Quadrant	Students create tables of values, write and use algebraic expressions with one operation, and create graphs to represent problem scenarios.	6.EE.B.6 6.EE.B.7	●				
	Problem Solving with Decimals	Students create tables of values, write and use algebraic expressions with decimals, and create graphs to represent problem scenarios.	6.EE.B.6 6.EE.B.7	●				

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5 Negative Numbers and the Four Quadrants				Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS					
Integers	Introduction to Negative Numbers	Students learn about numbers and their opposites by watching an animation and answering questions.	6.NS.C.5 6.NS.C.6		●			
	Representing Integers on Number Lines	Students explore integer opposites and inequality statements and relationships involving integers through an interactive tool.	6.NS.C.6.a 6.NS.C.7.a					●
	Using Absolute Value	Students develop an understanding of absolute value as the distance of a number from 0 by watching an animation and answering questions. Students explore this concept in mathematical and real-world situations.	6.NS.C.7.b 6.NS.C.7.c 6.NS.C.7.d		●			
	Graphing Inequalities	Students graph simple inequalities involving rational numbers on a number line.	6.EE.B.8	●				
The Coordinate Plane	Exploring Symmetry on the Coordinate Plane	Students reflect points across the x-axis, across the y-axis, and across both axes using an interactive grapher and consider the impact on the ordered pairs.	6.NS.C.6.c					●
	Identifying and Interpreting Ordered Pairs	Students analyze worked examples and answer questions about points on the coordinate plane in mathematical and real-world contexts.	6.NS.C.6.c			●		
	Plotting Points	Students identify the coordinates of plotted points and sort the points according to their quadrant location.	6.NS.C.6.c				●	
Multiple Representations	Solving One-Step Equations using Multiple Representations in Four Quadrants	Students will create tables of values, write algebraic expressions with one operation, and create graphs to represent and answer questions about problem scenarios.	6.EE.C.9	●				

*Indicates practice problems

6		Geometric Measurement			Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS						
Ratio Reasoning to Convert Units	Converting Within Systems	Students use ratios and dimensional analysis to perform one-step measurement conversions within the Customary and metric measurement systems.	6.RP.A.3.d			●			
	Converting Between Systems	Students use ratios and dimensional analysis to perform one-step and multi-step measurement conversions. Students convert between Customary and metric units.	6.RP.A.3.d			●			
Area	Developing Area Formulas	Students watch animations and answer questions to derive the formulas used to calculate the areas of parallelograms, trapezoids, and triangles.	6.G.A.1		●				
	Calculating Area of Various Figures	Students practice calculating the areas of parallelograms, trapezoids, and triangles in mathematical and real-world situations.	6.G.A.1	●					
	Solving Area Problems*	Students reason with the formulas for the areas of parallelograms, triangles, and trapezoids to determine the areas of figures in mathematical and real-world situations.	6.G.A.1 7.G.B.6						
	Calculating Area of Composite Figures	Students practice calculating the area of various mathematical and real-world composite figures.	6.G.A.1 7.G.B.6	●					
Volume and Surface Area	Calculating Volume of Right Prisms	Students determine the volume of right prisms.	6.G.A.2	●					
	Using Volume of Right Prisms	Students use the volume of right prisms to solve for unknown values.	6.G.A.2	●					
	Calculating Surface Area of Right Prisms	Students determine the surface area of right prisms by determining the areas of the faces of the prisms.	6.G.A.4	●					

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7 Measures of Central Tendency and Data Displays				Problem Solving	Animation	Worked Examples	Classification Tools	Explore
MATHia Unit	MATHia Workspace	Overview	CCSS					
Measures of Central Tendency	Calculating Mean, Median, Mode, and Range	Students calculate the mean, median,, mode, and range from data sets.	6.SP.B.5.c	●				
	Determining Appropriate Measures	Students use their understanding of mean, median, and mode to determine which was used as the measure of central tendency.	6.SP.B.5.d	●				
	Measuring the Effects of Changing Data Sets	Students calculate mean and median, with and without an additional data value, and compare the original and adjusted measures.	6.SP.B.5.c	●				
Displays of Numerical Data	Creating and Interpreting Stem Plots	Students interpret, create, and analyze stem-and-leaf plots as they learn about the features of the plot type. Students summarize and describe the displays according to shape and numerical summaries.	6.SP.B.4 6.SP.B.5.a 6.SP.B.5.b					●
	Creating and Interpreting Dot Plots	Students interpret, create, and analyze dot plots as they learn about the features of the plot type. Students summarize and describe the displays according to shape and numerical summaries.	6.SP.B.4 6.SP.B.5.a 6.SP.B.5.b				●	●
	Creating and Interpreting Histograms	Students watch an animation as they learn how to create a histogram. They also engage with an Explore Tool to determine the effect of changing the bin size of a histogram. Students summarize and describe the displays according to shape.	6.SP.B.4 6.SP.B.5.a 6.SP.B.5.b		●			●
Mean Absolute Deviation	Calculating Mean Absolute Deviation	Students develop an understanding of mean absolute deviation and practice calculating with small data sets.	6.SP.A.3 6.SP.B.5.c				●	
	Using Mean Absolute Deviation	Students compare the mean absolute deviations and spread of similar data sets.	6.SP.A.3 6.SP.B.5.c			●		
Box Plots	Constructing Box Plots	Students examine how to construct box-and-whisker plots and connect the plot to the five-number summary. They use an Explore Tool to construct their own box-and-whisker pots and answer questions about the plots.	6.SP.B.4 6.SP.B.5					●
	Interpreting Box Plots	Students analyze vertical and horizontal box-and-whisker plots to understand the relationship between the shape of the display and the spread of the data set.	6.SP.B.4 6.SP.B.5	●				

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