Middle School Course 1
Khan Academy Video Correlations
By SpringBoard Activity

SB Activity	Khan Academy Video(s)
Unit 1: Number Concepts	
Activity 1 *Whole Numbers and Decimals* 1-1 Learning Targets: • Locate whole numbers and decimals on a number line. • Interpret statements of inequality of whole numbers and positive decimals. • Order a set of positive whole numbers and decimals. 1-2 Learning Targets: • Add and subtract multidigit decimals. • Solve real-world problems by adding and subtracting decimals. 1-3 Learning Targets: • Multiply multidigit decimals. • Estimate products of decimals. • Solve real-world problems by multiplying decimal numbers. 1-4 Learning Targets: • Divide whole numbers by whole numbers. • Estimate quotients of whole numbers. • Solve real-world problems by dividing whole numbers. 1-5 Learning Targets: • Divide decimals by whole numbers. • Divide whole numbers and decimals by decimals. • Estimate quotients. • Solve real-world problems by dividing decimals.	*Comparing and Ordering Whole Numbers and Decimals* **Decimals: Comparing place values** **Comparing decimals: place value difference** **Comparing decimals: difference in largest place value** **Comparing decimals: ordering from least to greatest** **Comparing decimals: ordering from smallest to biggest** *Adding and Subtracting Decimals* **Adding decimals: example 1** **Adding decimals: example 2** **Adding decimals: example 3** **Adding decimals word problem** **Subtracting decimals example 1** **Subtracting decimals example 2** **Adding and subtracting decimals word problem** *Multiplying Decimals* **Multiplying decimals example** **Multiplying challenging decimals** **Multiplying decimals word problem** *Dividing Whole Numbers* **Dividing by two digits example 2** **Dividing completely to get decimal answer** *Dividing Decimals* **Dividing by a multi-digit decimal** **Dividing decimals with hundredths** **Dividing decimals with hundredths example 3**
Activity 2 *Prime Factorization and Exponents* 2-1 Learning Targets: • Determine whether a given whole number is a prime number or a composite number.	*Prime Factorization* **Prime factorization** **Prime factorization exercise** **Recognizing prime and composite numbers** **Prime numbers**

• Express a composite number as a product of prime numbers.
2-2 Learning Targets:
    • Evaluate a whole number or decimal raised to a whole number exponent.
    • Express prime factorization using exponents when a prime factor occurs more than once.
	Exponents
	Introduction to exponents

Activity 3
Greatest Common Factor and Least Common Multiple
3-1 Learning Targets:
    • Find all the factors of a whole number.
    • Find the greatest common factor of two whole numbers.
3-2 Learning Targets
    • Find multiples of a whole number.
    • Find the least common multiple of two or more whole numbers.
	Greatest Common Factor
	Greatest common factor explained
	Greatest common factor exercise
	LCM and GCF word problems
	Least Common Multiple
	Least common multiple exercise
	Least common multiple exercise 2
	Least common multiple exercise: 3 numbers
	LCM and GCF word problems

Activity 4
Fractions and Mixed Numbers
4-1 Learning Targets:
    • Given a proper fraction, find equivalent fractions.
    • Expression proper fractions in simplest form.
    • Locate proper fractions on a number line.
4-2 Learning Targets:
    • Interpret statements of inequality of proper fractions in terms of a number line and in terms of real-world contexts.
    • Compare proper fractions.
    • Order a set of proper fractions.
4-3 Learning Targets:
    • Locate mixed numbers on a number line.
    • Convert an improper fraction to a whole number or mixed number.
    • Converting a whole number or mixed number to an improper fraction.
4-4 Learning Targets:
    • Interpret statements of inequality of mixed numbers in terms of a number line and in terms of real-world contexts.
    • Compare mixed numbers.
    • Order a set of mixed numbers or fractions.
	Meaning of Fractions
	Fractions in lowest terms
	Visualizing equivalent fractions
	Equivalent fraction word problem example
	Equivalent fraction word problem example 2
	Equivalent fraction word problem example 3
	Plotting basic fractions on the number line
	Comparing and Ordering Fractions
	Comparing fractions
	Comparing and ordering fractions
	Comparing fractions with greater than and less than symbols
	Comparing fractions with like numerators and denominators
	Comparing fractions with different denominators
	Mixed Numbers
	Mixed numbers and improper fractions
	Proper and improper fractions
	Converting mixed numbers to improper fractions
	Mixed numbers: changing to improper fractions

	Mixed numbers: changing from an improper fraction
	Comparing and Ordering Mixed Numbers
	Comparing improper fractions and mixed numbers **Mixed number or improper fraction on a number line**
Activity 5 *Multiplying Fractions and Mixed Numbers* 5-1 Learning Targets: • Multiply a whole number by a fraction less than 1. • Multiply two fractions less than 1. • Estimate the product of a fraction and a whole number. 5-2 Learning Targets: • Multiply mixed numbers by fractions, whole numbers, and other mixed numbers. • Estimate products involving mixed numbers.	***Multiplying Fractions***
	Multiplying fractions and whole numbers **Multiplying two fractions: an explanation** **Multiplying two fractions: example** **Multiplying mixed numbers**
	Multiplying Fractions: Word Problems
	Multiplying fractions word problem: movie marathon **Multiplying fractions word problem: milk love** **Multiplying fractions word problem: pigging out on pumpkin pie** **Multiplying fractions word problem: banana oat muffin recipe** **Multiplying fractions word problem: laundry emergency** **Multiplying fractions word problem: bike to a friend**
Activity 6 *Dividing Fractions and Mixed Numbers* 6-1 Learning Targets: • Divide a whole number by a fraction less than 1. • Divide a fraction by a whole number or fraction. • Solve real-world problems by dividing such numbers. 6-2 Learning Targets: • Divide a mixed number, whole number, or fraction by a mixed number. • Estimate such quotients. • Solve real-world problems by dividing such numbers.	***Dividing Fractions***
	Dividing whole numbers and fractions: potpourri **Dividing whole numbers and fractions: studying** **Dividing whole numbers and fractions: t-shirts** **Understanding division of fractions** **Dividing fractions example** **Dividing fractions example 2** **Reciprocal of a mixed number**
Unit 2: Integers	
Activity 7 *Introduction to Integers* 7-1 Learning Targets: • Use integers to represent quantities in real-world contexts. • Position and identify integers on a number	***Negative Numbers***
	Negative numbers introduction **Negative numbers and number line examples** **Opposite of a number** **Negative symbol as opposite**

line. • Find the opposite of an integer. • Find the absolute value of an integer. • Classify whole numbers, integers, and positive rational numbers. 7-2 Learning Targets: • Compare and order integers. • Interpret statements of inequality of integers in terms of a number line and of real-world contexts. • Distinguish comparisons of absolute value from statements about the order of integers.	**Number opposites practice** **Ordering negative numbers**

Absolute Value
Absolute value of integers **Comparing absolute values**

Activity 8	*Adding and Subtracting Integers*
Adding and Subtracting Integers 8-1 Learning Targets: • Using models, create several representations of a given integer. • Using models, add any two integrated with absolute value less than 10. 8-2 Learning Targets: • Add two or more integers. • Solve real-world problems by adding integers. 8-3 Learning Targets: • Use models to subtract one integer with absolute value less than 10 from another. • Subtract integers. • Solve real-world problems by subtracting integers.	**Learn how to add and subtract negative numbers** **Adding/subtracting negative numbers** **Adding negative numbers** **Adding numbers with different signs** **Subtracting a negative = adding a positive** **Negative number word problem**

Activity 9	*Integers in The Coordinate Plane*
The Coordinate Plane 9-1 Learning Targets: • Graph and identify ordered pairs of rational numbers. • Understand and use terms such as *origin, quadrant, x-axis, first coordinate*, and *second coordinate* associated with graphing on the coordinate plane. 9-2 Learning Targets: • Find the distance between points in the coordinate plane with the same first coordinate or the same second coordinate. • Solve real-world and mathematical problems by graphing points in the coordinate plane and finding the distances between them. • Find the reflection of a point over one or both axes.	**The coordinate plane** **Coordinate plane: plot ordered pairs** **Coordinate plane: have all the points been graphed?** **Coordinate plane: quadrants** **Coordinate plane: graphing points and naming quadrants** **Coordinate plane: word problem exercise**
	Reflecting Points on the Coordinate Plane
	Coordinate plane: reflecting points

Activity 10	*Understanding Multiplication of Negative Numbers*
Multiplying and Dividing Integers	**Why a negative times a negative is a positive**

10-1 Learning Targets: • Multiply integers. • Solve real-world problems by multiplying integers. 10-2 Learning Targets: • Divide integers. • Solve real-world problems by dividing integers.	**Why a negative times a negative makes intuitive sense**
	Multiplying Integers
	Multiplying positive and negative numbers **Dividing positive and negative numbers** **Multiplying numbers with different signs**

Unit 3: Expressions and Equations	

Activity 11 *Expressions* 11-1 Learning Targets: • Use the order of operations to simplify expressions involving addition, subtraction, multiplication, and division. • Use the order of operations to simplify expressions involving whole number exponents and parentheses. 11-2 Learning Targets: • Use variables to represent numbers and write expressions to solve problems. • Evaluate expressions containing variables. 11-3 Learning Targets: • Use variables to represent quantities. • Write expressions to represent quantities. 11-4 Learning Targets: • Apply the properties of operations to generate equivalent expressions. • Identify when two expressions are equivalent.	***Order of Operations***
	Introduction to order of operations **Order of operations example** **Order of operations example: putting it all together** **Order of operations: PEMDAS**
	Evaluating Algebraic Expressions
	What is a variable? **Expression terms, factors and coefficients** **Evaluating an expression example** **Evaluating an expression using substitution** **Evaluating an expression with exponents**
	Writing Expressions
	Writing simple algebraic expressions **Writing algebraic expressions** **Writing algebraic expressions example 2**
	Properties of Operations
	Commutative property for addition **Commutative law of addition** **Commutative law of multiplication** **Associative law of addition** **Associative law of multiplication** **Properties of numbers 1** **Number properties terminology 1** **Identity property of 1** **Identity property of 1 (second example)** **Identity property of 0** **Inverse property of addition** **Inverse property of multiplication**

Activity 12	*Equation Basics*
Equations 12-1 Learning Targets: • Write one-variable, one-step equations to represent situations. • Distinguish between expressions and equations. 12-2 Learning Targets: • Understand what it means to solve an equation. • Use substitution to determine which values from a specified set make an equation true.	
Activity 13	*Solving Equations with Addition and Subtraction*
Solving Addition and Subtraction Equations 13-1 Learning Targets: • Write a one-step addition equation to model a situation. • Solve an addition equation of the form x + a = b, where *a, b,* and *x* are all nonnegative integers. 13-2 Learning Targets: • Write addition equations to represent situations. • Solve one-step addition equations of the form x + a = b, where *a, b,* and *x* are all nonnegative rational numbers. • Given an equation of the form x + a = b, where *a, b*, and *x* are all nonnegative rational numbers, write a corresponding real-world problem. 13-3 Learning Targets: • Write a subtraction equation to represent a situation. • Solve a subtraction equation of the form x – a = b, where *a, b,* and *x* are all nonnegative rational numbers. 13-4 Learning Targets: • Write subtraction equations to represent situations. • Solve subtraction equations by adding the same number to both sides of the equation. • Given an equation of the form x – a = b, where *a, b,* and *x* are all nonnegative rational numbers, write a corresponding real-world problem.	
Activity 14	*Solving Equations with Multiplication and Division*

Solving Multiplication and Division Equations 14-1 Learning Targets: • Write a one-step multiplication equation to model a situation. • Solve a multiplication equation of the form ax=b, where *a, b,* and *x* are all positive integers. 14-2 Learning Targets: • Write multiplication equations to represent situations. • Solve a multiplication equation of the form ax=b, where *a, b,* and *x* are all positive rational numbers. • Given an equation of the form ax=b, where *a, b,* and *x* are all positive rational numbers, write a corresponding real-world problem. 14-3 Learning Targets: • Write a division equation to represent a situation. • Solve a division equation by multiplying both sides of the equation by the same number.	**Simple equations of the form ax = b** **Simple equations of the form x/a = b** **Dividing from both sides of an equation**
Activity 15 *Expressions and Equations* 15-1 Learning Targets: • Write inequalities to represent constraints or conditions within problems. • Use substitution to determine whether a given number makes an inequality true. • Graph solution sets of inequalities. • Given an inequality, write a corresponding real-world problem. 15-2 Learning Targets: • Write one-step inequalities to represent constraints or conditions within problems. • Use substitution to determine whether a given number makes an inequality true. • Solve one-step inequalities. • Graph the solution sets of one-step inequalities.	*Representing Situations with Inequalities* **Inequalities: plotting on a number line** **A simple inequality: plotting on a number line** **Testing solutions to inequalities** **Inequality word problems** **Inequality word problem: one variable** **Constructing and solving a one-step inequality** *Solving One-Step Inequalities* **One-step inequality involving addition** **Inequalities using addition and subtraction** **Multiplying and dividing with inequalities** **Multiplying and dividing with inequalities example**
Activity 16 *Expressions and Equations* 16-1 Learning Targets: • Create a table representing a relationship given a verbal description. • Write an equation to represent a relationship given a verbal description or table. • Investigate rate of change. • Graph equations of the form *y=ax*.	*Tables of Values and Graphing* **Dependent and independent variables exercise: the basics** **Dependent and independent variables exercise: graphing the equation** **Dependent and independent variables exercise: express the graph as an equation**

| 16-2 Learning Targets:
• Graph equations of the form $y = kx$ or $y = x + b.$
• Create a table and graph a relationship given a verbal description.
• Explain how one variable depends on another variable.
• Describe a relationship given a graph. | |

| **Unit 4: Ratios** | |

Activity 17 *Understanding Ratios* 17-1 Learning Targets: • Understand the concept of a ratio and use ratio language. • Represent ratios with concrete models, fractions, and decimals. • Give examples of ratios as multiplicative comparisons of two quantities describing the same attribute. 17-2 Learning Targets: • Make tables of equivalent ratios relating quantities. • Use tables to compare ratios. • Plot the pairs of values on the coordinate plane and describe the relationship.	***Understanding Ratio*** **Introduction to ratios** **Ratios as fractions** ***Ratios in Proportional Relationships \: Solving Ratio Problems*** **Ratio word problem: boys to girls** **Ratio word problem: centimeters to kilometers** **Solving ratio problems with tables example 1** **Solving ratio problems with tables example 2** **Solving ratio problems with graph**
Activity 18 *Reasoning with Ratios* 18-1 Learning Targets: • Use ratio and rate reasoning to solve problems. • Use ratio reasoning to convert measurement units. • Apply quantitative reasoning, including predicting and comparing to solve real-world problems involving ratios and rates. 18-2 Learning Targets: • Use ratio and rate reasoning to solve problems by reasoning about double number line diagrams and equations. • Use ratio reasoning to convert measurement units. • Represent mathematical and real-world problems involving ratios and rates using scale factors and proportions.	***Unit Conversions*** **Converting pounds to ounces** **Converting yards to inches** ***Unit Conversions: Real-World Examples*** **Unit conversion word problem: roadtrip** **Unit conversion word problem: drug dosage** **Unit conversion word problem: yards to inches**
Activity 19 *Rates and Unit Rates* 19-1 Learning Targets: • Understand the concept of a unit rate $\frac{a}{b}$ associated with the ratio $a: b$ with b ≠ 0.	***Unit Rates*** **Solving unit rates problem** **Solving unit price problem**

• Use rate language in the context of a ratio relationship. • Give examples of rates at the comparison by division of two quantities having different attributes. 19-2 Learning Targets: • Solve unit rate problems. • Convert units within a measurement system, including the use of proportions and unit rates. 19-3 Learning Targets: • Use ratio and rate reasoning to solve problems. • Represent mathematical and real-world problems involving ratios and rates using scale factors and proportions.	
Activity 20 *Using Models to Understand Percents* 20-1 Learning Targets: • Find a percent of a quantity as a rate per 100. • Represent ratios and percents with concrete models and decimals. • Represent benchmark fractions and percents. • Generate equivalent forms of decimals and percents. 20-2 Learning Targets: • Represent ratios and percents with fractions and decimals. • Represent benchmark percents such as 1%, 10%, 25%, $33\frac{1}{3}$%, and multiples of these values using number lines and numbers. • Use percents, fractions, and decimals to show parts of the same whole. 20-3 Learning Targets: • Find a percent of a quantity as a rate per 100. • Generate equivalent forms of fractions, decimals, and percents using real-world problems. • Represent percents with concrete models, fractions, and decimals.	***Understanding Percent*** **The meaning of percent** **The meaning of percent over 100** **Percentage of a whole number** ***Percent, Fractions, and Decimals*** **Converting percent to decimal and fraction** **Converting decimals to percents** **Converting decimals to percents example 2** **Converting percents to decimals** **Converting percents to decimals example 2** ***Finding Percents*** **Finding a percentage**
Activity 21 *Applying Percents* 21-1 Learning Targets:	***Percents: Real-World Problems*** **Percent word problem example 1**

• Solve real-world problems to find the percent, given the part and the whole. • Use ratio and rate reasoning to solve real-world and mathematical problems . 21-2 Learning Targets: • Solve real-world problems to find the part, given the whole and the percent. • Use ratio and rate reasoning to solve real-world and mathematical problems. 21-3 Learning Targets: • Solve problems to find the whole given a part and the percent. • Represent ratios and percents with fractions and decimals. • Represent benchmark percents such as 1%, 10%, 25%, and $33\frac{1}{3}$%, and multiples of these values using number lines and numbers. • Use equivalent percents, fractions, and decimals to show parts of the same whole.	**Percent word problem example 2** **Percent word problem example 3** **Percent word problem example 4** **Percent word problem example 5**
Unit 5: Geometric Concepts	
Activity 22 *Angles and Triangles* 22-1 Learning Targets: • Determine when three side lengths form a triangle. • Use the Triangle Inequality Property. • Classify triangles by side length. 22-2 Learning Targets • Classify angles by their measures. • Classify triangles by their angles. • Recognize the relationship between the lengths of sides and measures of angles in a triangle. • Recognize the sum of angles in a triangle.	*Properties of Triangles and Side Length* **Triangles: categorization by angle or equal sides.** *Properties of Triangles and Angle Measure* **Triangles: using angles to categorize** *Triangle Inequality Theorem* **Triangle inequality theorem**
Activity 23 *Area and Perimeter of Polygons* 23-1 Learning Targets: • Define and classify quadrilaterals based on their properties. • Use properties of quadrilaterals to determine missing side lengths and angle measures.	*R Quadrilaterals* **Quadrilateral overview** **Quadrilateral properties** **Quadrilaterals: find the type exercise** **Quadrilaterals: classifying shapes** *Quadrilaterals: Perimeter and Area*

23-2 Learning Targets:	Perimeter and area: the basics
• Model the area of a parallelogram by decomposing into triangles.	Area of a parallelogram
• Find the area of special quadrilateral by decomposing into triangles.	Area of a trapezoid
• Write equations that represent problems related to the area of parallelograms and rectangles.	Finding area by rearranging parts
• Solve problems involving the area of parallelograms and rectangles.	Finding area by breaking up the shape
• Find the area of special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes.	Area of strange quadrilateral
23-3 Learning Targets	Perimeter of a parallelogram
• Model area formulas for parallelograms, trapezoids, and triangles.	Perimeter and area of a non-standard polygon
• Write equations that represent problems related to the area of trapezoids and triangles.	
• Find the area of triangles, special quadrilaterals, and polygons.	
• Model area formulas by decomposing and rearranging parts.	

Activity 24	*Quadrilaterals on the Coordinate Plane*
Polygons on the Coordinate Plane	**Parallelogram on the coordinate plane**
24-1 Learning Targets:	**Quadrilateral on the coordinate plane**
• Draw polygons in the coordinate plane given vertex coordinates.	
• Find the length of a segment joining points with the same first coordinate or the same second coordinate.	
• Use coordinate geometry to identify locations on a plane.	
• Graph points in all four quadrants.	
• Solve problems involving the area on the coordinate plane.	
24-2 Learning Targets:	
• Use coordinate geometry to identify locations on a plane.	
• Graph points in all four quadrants.	
• Solve problems involving the area of parallelograms, trapezoids, and triangles.	

Activity 25	*Nets and Surface Area*
Nets and Surface Area	**Nets of polyhedra**
25-1 Learning Targets:	

• Represent three-dimensional figures using nets. • Use nets to find the surface area of figures. • Write equations that represent problems related to the area of rectangles. • Determine solutions for problems involving the area of rectangles. 25-2 Learning Targets: • Represent three-dimensional figures using nets. • Use nets to find the surface area of figures. • Write equations that represent area problems. • Solve problems involving the area of rectangles and triangles.	**Finding surface area: nets of polyhedra**
Activity 26	**_Finding Volume_**
Volume 26-1 Learning Targets: • Find the volume of a right rectangular prism with fractional edge lengths. • Write equations that represent problems related to the volume of right rectangular prisms. 26-2 Learning Targets: • Write equations that represent problems related to the volume of right rectangular prisms. • Apply the formulas _V = lwh_ and _V = bh_ to find the volumes of right rectangular prisms.	**Volume: how measure it** **Volume: measuring with unit cubes** **Volume: measuring as area times length** **Volume of a rectangular prism** **Volume of a rectangular prism: fractional cubes** **Volume word problem**
Unit 6: Data Analysis	
Activity 27	**_Statistical Questions_**
Summarizing Data Graphically 27-1 Learning Targets:	**Statistical and non statistical questions**
	Bar Charts
• Identify statistical questions. • Interpret the variability of data collected from a survey. 27-2 Learning Targets: • Identify types of statistical variables. • Write statistical questions. • Construct graphs to represent statistical data.	**Creating a bar chart** **Reading bar charts: comparing two sets of data** **Reading bar graphs**

27-3 Learning Targets: • Organize data from a statistical question. • Determine appropriate graphical representation of data. • Describe distributions from graphical representation.	
Activity 28 *Measures of Center* 28-1 Learning Targets: • Calculate the mean of a data set. • Identify outliers of a data set. • Construct dot plots. 28-2 Learning Targets: • Find the median. • Determine relative position of the mean and median in a distribution. 28-3 Learning Targets: • Construct dot plots. • Identify whether the mean or the median should be used to summarize the center of a distribution based upon the shape of the distribution.	*Mean, Median, Mode* **Statistics intro: Mean, median and mode** **Finding mean, median and mode** **Exploring the mean and median**
Activity 30 *Summarizing Numerical Data Graphically* 30-1 Learning Targets: • Determine the five-number summary for numerical data. • Construct a box plot to represent numerical data. • Describe numerical data sets using comparative language. 30-2 Learning Targets: • Summarize data using frequency tables. • Construct histograms to represent numerical data. 30-3 Learning Targets: • Create class intervals. • Construct histograms using class intervals.	*Box and Whiskers* **Box and whisker plot** **Constructing a box and whisker plot** *Histograms* **Histograms**