

CURRICULUM GUIDE

SUBJECT: MATH

GRADE: Seventh

TIMELINE: 1st Quarter

Standard	Kid Friendly Learning Objectives	Content (subject or topic covered in enVision Math)	DOK Level	Skills (ability, practice, aptitude that will be learned)	Assessment	Academic Vocabulary
<p>7.NS.A Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers except division by zero.</p> <p>7.NS.A.1 Add and subtract integers and other rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p> <p>a. Describe situations in which opposite quantities combine to make 0.</p> <p>b. Understand $p + q$ as the number located a distance q from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world context.</p> <p>c. Understand subtraction of rational numbers as adding</p>	<p>I can relate integers, their opposites, and their absolute values.</p> <p>I can recognize rational numbers and write them in decimal form.</p> <p>I can add integers.</p> <p>I can subtract integers.</p> <p>I can add and subtract rational numbers.</p> <p>I can multiply integers.</p> <p>I can multiply rational numbers.</p> <p>I can divide integers.</p> <p>I can divide rational numbers.</p> <p>I can solve problems with rational numbers.</p>	<p>Topic 1: Integers and Rational Numbers</p>	<p>1, 2, & 3</p>	<p>*Relate Integers and Their Opposites</p> <p>* Understand Rational Numbers</p> <p>* Add Integers</p> <p>* Subtract Integers</p> <p>* Add and Subtract Rational Numbers</p> <p>* Multiply Integers</p> <p>* Multiply Rational Numbers</p> <p>* Divide Integers</p> <p>* Divide Rational Numbers</p> <p>* Solve Problems with Rational Numbers</p>	<p>*Topic Assessment</p> <p>*Quiz</p> <p>*Exit Ticket</p> <p>*Dot Check</p> <p>*Doc Cam Student Work</p>	<p>Absolute value</p> <p>Associative Property</p> <p>Commutative Property</p> <p>Distributive Property</p> <p>Integers</p> <p>Rational number</p> <p>terminating decimal</p> <p>repeating decimal</p> <p>additive inverse</p> <p>complex fraction</p> <p>multiplicative inverse</p>

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<p>the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world context.</p> <p>d. Apply properties of operations as strategies to add and subtract rational numbers.</p> <p><u>7.NS.A.2</u> Multiply and divide integers and other rational numbers.</p> <p>a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world context.</p>						

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<p>b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world context.</p> <p>c. Apply properties of operations as strategies to multiply and divide rational numbers.</p> <p>d. Convert a rational number to decimal form using long division; know that the decimal form of a rational number terminates in 0's or eventually repeats.</p> <p><u>7.NS.A.3</u></p> <p>Solve mathematical problems and problems in real-world context involving the four operations with rational numbers. Computations with rational numbers extend the rules for</p>						

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manipulating fractions to complex fractions where $a/b \div c/d$ when a,b,c,and d are all integers and b,c, and d $\neq 0$.						
<p><u>7.RP.A</u> Analyze proportional relationships and use them to solve mathematical problems and problems in real-world context.</p> <p><u>7.RP.A.1</u> Compute unit rates associated with ratios involving both simple and complex fractions, including ratios of quantities measured in like or different units.</p> <p><u>7.RP.A.2</u> Recognize and represent proportional relationships between quantities.</p> <p>a. Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin).</p>	<p>I can use ratio concepts and reasoning to solve multi-step problems.</p> <p>I can find unit rates with ratios of fractions and use them to solve problems.</p> <p>I can test for equivalent ratios to decide whether quantities are in a proportional relationship.</p> <p>I can use the constant of proportionality in an equation to represent a proportional relationship.</p> <p>I can use a graph to determine whether two quantities are proportional.</p> <p>I can determine whether a relationship is proportional and use representations to solve problems.</p> <p>I can understand, find, and analyze percents of</p>	<p>Topic 2: Analyze and Use Proportional Relationships</p>	<p>1, 2, & 3</p>	<ul style="list-style-type: none"> * Connect Ratios, Rates, and Unit Rates * Determine Unit Rates with Ratios of Fractions * Understand Proportional Relationships: Equivalent Ratios * Describe Proportional Relationships: Constant of Proportionality * Graph Proportional Relationships * Apply Proportional Reasoning to Solve Problems 	<ul style="list-style-type: none"> *Topic Assessment *Quiz *Exit Ticket *Dot Check *Doc Cam Student Work 	<p>Constant of proportionality Proportion Proportional relationship</p>

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<p>b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p>c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$.</p> <p>d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.</p> <p><u>7.RP.A.3</u> Use proportional relationships to solve multi-step ratio and percent problems (e.g., simple interest, tax, markups and</p>	<p>numbers.</p> <p>I can use proportions to solve percent problems.</p> <p>I can represent and solve percent problems using equations.</p> <p>I can solve problems involving percent change and percent error.</p> <p>I can solve problems involving percent mark up and mark down.</p> <p>I can apply percent reasoning to solve simple interest problems.</p>					

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markdowns, gratuities and commissions, fees, percent increase and decrease, percent error).						
<p>7.EE.A Use properties of operations to generate equivalent expressions.</p> <p>7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>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. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."</p> <p>7.EE.B Solve mathematical problems and problems in real-world context using numerical and algebraic expressions and equations.</p>	<p>I can write and evaluate algebraic expressions.</p> <p>I can write equivalent expressions for given expressions.</p> <p>I can use properties of operations to simplify expressions.</p> <p>I can expand expressions using the Distributive Property.</p> <p>I can use common factors and the Distributive Property to factor expressions.</p> <p>I can add expressions that represent real-world problems.</p> <p>I can subtract expressions using properties of operations.</p> <p>I can use an equivalent expression to find new information.</p>		1, 2, & 3			<p>Percent equation</p> <p>Percent change</p> <p>Percent error</p> <p>Markup</p> <p>Markdown</p> <p>Interest rate</p> <p>Principal</p> <p>Simple interest</p>

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<p><u>7.EE.B.3</u> 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. For example, If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50 per hour.</p> <p><u>7.EE.B.4</u> Use variables to represent quantities in mathematical problems and problems in real-world context, and construct simple equations and inequalities to solve problems. a. Solve word problems leading to equations of the form $px+q = r$ and $p(x+q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an</p>						
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arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities of the form $px+q > r$ or $px+q < r$, where p , q , and r are rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.						