



Course Name: Math, Grade 7/8	Teachers: D. Corwin, J. Polise, TBD	School Year 2023-2024
Course Summary: The major work of grade 7 math is: The Number System (addition, subtraction, multiplication, and division of integers; operations with rational numbers), Ratios and Proportional Relationships (rates and proportionality; and relationships between proportions and percent), and Expressions, Equations, and Inequalities (writing and solving two-step equations; and writing and solving two-step inequalities). The major work of math 8 is: Expressions and Equations (writing and solving multi-step equations), Exponents (laws of exponents, squares and cubes, roots), and Linear Equations (solving linear equations, systems of equations, equations including exponents).		
Topic 1: Rational Number Operations		Unit Length (weeks): Approx. 4-5 weeks, every other day Anticipated dates: August 16th-Sept 9th, 2023
Summary: Students will 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. Students will apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers. Students will solve real-world and mathematical problems involving the four operations with rational numbers.		
Priority Standards	7.NS.A. The Number System: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	

	EO: 7.NS.A.a.c- Demonstrate subtraction of rational numbers as adding 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 contexts. (CCSS: 7.NS.A.1.c)
Essential Vocabulary	Absolute value, Associative Property, Commutative, Property ,Distributive Property, integers, rational number, opposite, Terminating vs repeating Decimal, Rational numbers, Negative numbers
Statement of Inquiry (MYP) / Compelling Question	<ul style="list-style-type: none"> • How can the properties of operations be used to solve problems involving integers and rational numbers? • How are numbers and symbols similar or different from a language?
Curriculum Resources (Textbooks, novels, labs, music, etc.)	<p>enVision Math 2.0, Grade 7/8</p> <p>Topic 1: Integers and Rational Numbers</p> <ul style="list-style-type: none"> • 1-1 Relate Integers and Their Opposites • 1-2 Understand Rational Numbers • 1-3 Add Integers • 1-4 Subtract Integers • 1-5 Add and Subtract Rational Numbers • 1-6 Multiply Integers • 1-7 Multiply Rational Numbers • 1-8 Divide Integers • 1-9 Divide Rational Numbers • 1-10 Solve Problems with Rational Numbers <p>Desmos Hot Air Balloon Model for Integer Operations</p>
Performance Tasks	Formative Assessments for personalized feedback: Observational, Individual Practice Checks, Assignments, Exit Tickets, Quizzes, and more Topic 1 Integers and Rational Numbers - Lesson Quizzes & Final Test

Topic 2: Real Numbers		Unit Length (weeks): 4-6 weeks, every other day Anticipated dates: April 24th-May 31st, 2024
Summary: Students understand how to classify numbers in the Real Number System. They understand squaring a number, finding the square root of a number, cubing a number, and finding the cubed root of a number.		
Priority Standards	<p>8.NS.A: Know that there are numbers that are not rational, and approximate them by rational numbers.</p> <p>EO: 8.NS.A.1- Demonstrate informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. Define irrational numbers as numbers that are not rational.</p> <p>8.EE.A: Work with radicals and integer exponents.</p> <p>EO: 8.EE.A.1- Know and apply the properties of integer exponents to generate equivalent numerical expressions.</p> <p>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. Evaluate square roots of small perfect squares (up to 100) and cube roots of small perfect cubes (up to 64). Know that $\sqrt{2}$ is irrational.</p>	
Essential Vocabulary	Real number, rational number, irrational number, perfect square, square root, cube root, perfect cube, power of products, product of powers, quotient of powers, negative exponent, zero exponent	
Statement of Inquiry (MYP) / Compelling Question	What are real numbers? How are real numbers used to solve problems?	

<p>Curriculum Resources (Textbooks, novels, labs, music, etc.)</p>	<p>enVision Math 2.0, Grade 7/8 Unit 2: Real Numbers</p> <ul style="list-style-type: none"> ● 2-1 Rational Numbers as Decimals ● 2-2 Understand Irrational Numbers ● 2-4 Evaluate Square Roots and Cube Roots ● 2-5 Solve Equations Using Square Roots and Cube Roots ● 2-6 Use Properties of Integer Exponents ● 2-7 Properties of Exponents <p>Play-posit video, useful</p>
<p>Performance Tasks</p>	<p>Formative Assessments for personalized feedback: Observational, Individual Practice Checks, Assignments, Exit Tickets, Quizzes, and more Topic 2 Real Numbers - Lesson Quizzes & Final Test</p>

<p>Topic 3: Analyze & Use Proportional Relationships Topic 4: Analyze and Solve Percent Problems</p>		<p>Unit Length (weeks): Approx. 8-10 weeks, every other day</p> <p>Anticipated dates: Sept 12th- Nov 11th, 2023</p>
<p>Summary: Students will compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. Students will identify and represent proportional relationships between quantities.</p>		
<p>Priority Standards</p>	<p>7.RP.A. Ratios & Proportional Relationships: Analyze proportional relationships and use them to solve real-world and mathematical problems.</p> <p>EO: 7.RP.A.2.b- Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. (CCSS: 7.RP.A.2.b)</p>	

	7.RP.A.3- Use proportional relationships to solve multistep ratio and percent problems. (CCSS: 7.RP.A.3)
Essential Vocabulary	Proportion, Constant of Proportionality, Proportional Relationship, Unit Rate, Ratios, Equivalent Ratios, Compound Fraction, Percents, Markdown, Markup, Interest
Statement of Inquiry (MYP) / Guiding Question	<ul style="list-style-type: none"> • How can you recognize and represent proportional relationships and use them to solve problems? • How can percents show proportional relationships between quantities and be used to solve problems? • How can numbers be used to argue fairness?
Curriculum Resources (Textbooks, novels, labs, music, etc.)	<p>enVision Math 2.0, Grade 7/8</p> <p>Topic 3: Analyze & Use Proportional Relationships</p> <ul style="list-style-type: none"> • 3-1 Connect Ratios, Rates, & Unit Rates • 3-2 Determine Unit Rates with Ratios of Fractions • 3-3 Understand Proportionals: Equivalent Ratios • 3-4 Describe Proportional Relationships: Constant of Proportionality • 3-5 Graph Proportional Relationships • 3-6 Apply Proportional Reasoning to Solve Problems <p>Topic 4: Analyze & Solve Percent Problems</p> <ul style="list-style-type: none"> • 4-1 Analyze Percents of Numbers • 4-2 Connect Percent and Proportion • 4-3 Represent and Use the Percent Equation • 4-4 Solve Percent Change and Percent Error Problems • 4-5 Solve Markups and Markdowns • 4-6 Solve Simple Interest Problems <p>3 Act Math- Sugar Packets</p>
Performance Tasks	<p>Formative Assessments for personalized feedback: Observational, Individual Practice Checks, Assignments, Exit Tickets, Quizzes, and more</p> <p>Topic 3: Analyze & Use Proportional Relationships Final Test</p> <p>Topic 4: Analyze and Solve Percent Problems Final Test</p>

Topic 5: Generate Equivalent Expressions		Unit Length (weeks): Approx. 4-5 weeks, every other day
		Anticipated dates: Nov 14th- Dec 16th, 2023
Summary: Students will apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. Students will demonstrate that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.		
Priority Standards	7.EE.A. Expressions & Equations: Use properties of operations to generate equivalent expressions. EO: 7.EE.A.1- Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. (CCSS: 7.EE.A.1)	
Essential Vocabulary	Evaluate, Expression, Factor, Order of operations, Substitute, Term, Variable, Coefficient, Equivalent, Simplify, Factor, Greatest Common Factor, Constant	
Statement of Inquiry (MYP) / Guiding Question	<ul style="list-style-type: none"> How can properties of operations help to generate equivalent expressions that can be used in solving problems? 	
Curriculum Resources (Textbooks, novels, labs, music, etc.)	enVision Math 2.0, Grade 7/8 Topic 5: Generate Equivalent Expressions <ul style="list-style-type: none"> 5-1 Write and Evaluate Algebraic Expressions 5-2 Generate Equivalent Expressions 5-3 Simplify Expressions 5-4 Expand Expressions 5-5 Factor Expressions 5-6 Add Expressions 	

	<ul style="list-style-type: none"> • 5-7 Subtract Expressions • 5-8 Analyze Equivalent Expressions
Performance Tasks	Formative Assessments for personalized feedback: Observational, Individual Practice Checks, Assignments, Exit Tickets, Quizzes, and more Topic 5 Generate Equivalent Expressions Lesson Quizzes & Final Test

Topic 6: Solve Problems Using Equations & Inequalities		Unit Length (weeks): Approx. 6-8 weeks, every other day
		Anticipated dates: Jan 2nd- March 3rd, 2024
Summary: Students will write, read, and evaluate expressions and equations with variables. Students will apply the properties of operations to generate equivalent expressions and solve equations.		
Priority Standards	7.EE.B. Expressions & Equations: Solve real-life and mathematical problems using numerical and algebraic expressions and equations. EO: 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. (CCSS: 7.EE.B.4)	
Essential Vocabulary	Inequalities, Equations, Inverse operations	
Statement of Inquiry (MYP) / Guiding Question	<ul style="list-style-type: none"> • How can you solve real-world and mathematical problems with numerical and algebraic equations and inequalities? 	
Curriculum Resources (Textbooks, novels, labs,	enVision Math 2.0, Grade 7/8	

<p>music, etc.)</p>	<p>Topic 5: Solve Problems Using Equations and Inequalities</p> <ul style="list-style-type: none"> ● 6-1 Write Two-Step Equations ● 6-2 Solve Two-Step Equations ● 6-3 Solve Equations Using the Distributive Property ● 6-4 Solve Inequalities Using Addition or Subtraction ● 6-5 Solve Inequalities Using Multiplication or Division ● 6-6 Solve Two-Step Inequalities ● 6-7 Solve Multi-Step Inequalities
<p>Performance Tasks</p>	<p>Formative Assessments for personalized feedback: Observational, Individual Practice Checks, Assignments, Exit Tickets, Quizzes, and more Topic 6 Solve Problems Using Equations & Inequalities Lesson Quizzes & Final Test</p>

<p>Topic 7: Analyze and Solve Linear Equations</p>		<p>Unit Length (weeks): 4-6 weeks, every other day</p> <p>Anticipated dates: March 6th-April 14th, 2024</p>
<p>Summary: Students will solve single variable multi-step equations. Students will understand proportional relationships and their relationship with linear equations. Students will graph linear equations and analyze linear equations in the form of $y=mx+b$.</p>		
<p>Priority Standards</p>	<p>8.EE.B Understand the connections between proportional relationships, lines, and linear equations.</p> <p>EO:</p> <p>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.</p> <p>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</p>	

	<p>the vertical axis at b.</p> <p>8.EE.C Analyze and Solve Linear equations and pairs of simultaneous linear equations</p> <p>EO:</p> <p>8.EE.C.7.a- Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms.</p> <p>8.EE.C.8.a- Explain that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.</p>
<p>Essential Vocabulary</p>	<p>Slope, y-intercept, slope-intercept form</p>
<p>Statement of Inquiry (MYP) / Guiding Question</p>	<p>How can we analyze connections between linear equations, and use them to solve problems?</p> <p>Solving equations allows us to determine equivalence, identify patterns, and represent real-world problems mathematically in order to problem solve and make educated decisions. For example, it helps people choose cell phone plans, calculate credit card interest and payments, and determine health insurance costs.</p>
<p>Curriculum Resources (Textbooks, novels, labs, music, etc.)</p>	<p>enVision Math 2.0, Grade 7/8 Unit 7: Analyze and Solve Linear Equations</p> <ul style="list-style-type: none"> ● 7-1 Combine Like Terms ● 7-2 Solve Equations with Variables on Both Sides ● 7-3 Solve Multi Step Equations ● 7-4 Equations with No Solutions ● 7-5 Proportional Relationships ● 7-6 Proportional Relationships and Slope ● 7-7 Analyze Linear Equations: $y=mx$ ● 7-8 Understand the y-Intercept ● 7-9 Analyze Linear Equations: $y=mx+b$ <p>Equations Jeopardy Simplifying Expressions: Triples</p>

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Performance Tasks	Formative Assessments for personalized feedback: Observational, Individual Practice Checks, Assignments, Exit Tickets, Quizzes, and more Topic 7 Analyze and Solve Linear Equations - Lesson Quizzes & Final Test

**Content and pacing has been submitted at the beginning of the 2021-2022 school year and is subject to change based on need, pacing, and/or professional judgment.*