



Park Hill School District

Building Successful Futures • Each Student • Every Day

7th Grade Accelerated Mathematics Curriculum

Course Description: Seventh Grade Accelerated Math is aligned to the Missouri Learning Standards and emphasizes developing strong mathematical understanding through real-world problem solving. Instruction focuses on working with algebraic expressions, equations, and inequalities, including modeling and solving linear relationships. Students deepen their understanding of ratios and proportions and how they connect to equations. The course also explores geometry, where students analyze two- and three-dimensional figures using concepts of angles, similarity, and congruence. In addition, students investigate statistics and probability by comparing data distributions and using probability models to draw informal inferences about populations, strengthening overall mathematical reasoning and communication skills.

Curriculum Standards: Missouri Department of Elementary and Secondary Education (DESE)

Scope and Sequence:

Timeframe	Unit	Instructional Topics
10 blocks	Unit 1: Rational Numbers	Topic 1: Adding & Subtracting Rational Numbers Topic 2: Multiplying & Dividing Rational Numbers
13 blocks	Unit 2: Algebra	Topic 1: Expressions Topic 2: Equations Topic 3: Inequalities
18 blocks	Unit 3: Ratios/Proportions /Percents	Topic 1: Ratios & Proportions Topic 2: Graphing and Writing Linear Equations Topic 3: Percents

6 blocks	<u>Unit 4: Probability and Statistics</u>	<u>Topic 1: Probability</u> <u>Topic 2: Statistics</u>
13 blocks	<u>Unit 5: Geometry</u>	<u>Topic 1: Geometric Shapes & Angles</u> <u>Topic 2: Surface Area & Volume</u>
10 blocks	<u>Unit 6: Application of Exponential Properties</u>	<u>Topic 1: Exponents & Scientific Notation</u> <u>Topic 2: Real Numbers & the Pythagorean Theorem</u>
6 blocks	<u>Unit 7: Transformations & Triangles and Transversals</u>	<u>Topic 1: Transformations</u> <u>Topic 2: Triangles and Transversals</u>

Unit 1: Rational Numbers

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Rational Numbers

Length of Unit: 10 Blocks

Overview of Unit: Students develop a unified understanding of rational numbers by recognizing fractions, decimals (both terminating and repeating), and percents as different representations of the same values. They extend the operations of addition, subtraction, multiplication, and division to all rational numbers while maintaining the properties and relationships between operations. Using real-world contexts such as debt and temperature, students explain and interpret the rules for operating with negative numbers. They apply rational number operations to write and solve expressions and one-variable equations in order to solve meaningful problems.

Priority Standards for unit:

- 7.NS.A.1c Apply and extend previous understandings of numbers to add and subtract rational numbers.(Describe situations and show that a number and its opposite have a sum of 0 (additive inverses).)
- 7.NS.A.1f Apply and extend previous understandings of numbers to add and subtract rational numbers.(Interpret sums and differences of rational numbers.)
- 7.NS.A.2b Apply and extend previous understandings of numbers to multiply and divide rational numbers. (Determine that a number and its reciprocal have a product of 1 (multiplicative inverse)).
- 7.NS.A.2f Apply and extend previous understandings of numbers to multiply and divide rational numbers. (Interpret products and quotients of rational numbers by describing real-world contexts.)
- 7.NS.A.3: Solve problems involving the four arithmetic operations with rational numbers.

Supporting Standards for unit:

- 7.NS.A.1a: Apply and extend previous understandings of numbers to add and subtract rational numbers.(Add and subtract rational numbers.)
- 7.NS.A.1b: Apply and extend previous understandings of numbers to add and subtract rational numbers.(Represent addition and subtraction on a horizontal or vertical number line.)
- 7.NS.A.1d: Apply and extend previous understandings of numbers to add and subtract rational numbers.(Understand subtraction of rational numbers as adding the additive inverse.)
- 7.NS.A.1e: Apply and extend previous understandings of numbers to add and subtract rational numbers.(Determine the distance between two rational numbers on the number line is the absolute value of their difference.)
- 7.NS.A.2a Apply and extend previous understandings of numbers to multiply and

divide rational numbers. (Multiply and divide rational numbers.)

- 7.NS.A.2c Apply and extend previous understandings of numbers to multiply and divide rational numbers.(Understand that every quotient of integers (with non-zero divisor) is a rational number.)
- 7.NS.A.2d Apply and extend previous understandings of numbers to multiply and divide rational numbers.(Convert a rational number to a decimal.)
- 7.NS.A.2e Apply and extend previous understandings of numbers to multiply and divide rational numbers.(Understand that all rational numbers can be written as fractions or decimal numbers that terminate or repeat.)

Essential Questions:

1. How can absolute value be used to reason about sums, differences, and distance?
2. How can we use numblines to order rational numbers?
3. How can you identify different types of rational numbers?
4. How can you solve problems by adding the different types of rational numbers?
5. How can you solve problems by subtracting the different types of rational numbers?
6. How can models and relationships help you make sense of multiplying and dividing positive and negative rational numbers?

Enduring Understanding/Big Ideas:

1. Absolute value helps us understand sums, differences, and distance by showing how far numbers are from zero.
2. We use number lines to order rational numbers by placing them in their correct positions from least to greatest.
3. We identify different types of rational numbers by recognizing that they can all be written as a ratio of two integers.
4. We solve addition problems with rational numbers by rewriting them in a common form and applying the rules for adding positives and negatives.
5. We solve subtraction problems with rational numbers by rewriting them as adding the opposite and following the rules for signed numbers.
6. Models and relationships help us understand multiplying and dividing signed rational numbers by showing why the rules for positive and negative values work.

Unit Engaging Scenario

Engaging Scenario 2 blocks

(An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Unit 1 Project Overview: Your class wants to take a field trip, but there's one problem - there isn't enough money! Luckily, you and your classmates have a sweet solution: running a Lemonade Stand! Together, you'll serve the tastiest lemonade to raise funds for your trip. To make your stand a success, you'll need to calculate costs, track earnings, and use smart decision-making to manage your business effectively.

Unit 1 Project can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Scenarios → Unit 1)

Topic 1: Adding and Subtracting Rational Numbers

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
absolute value integers rational number simplify	additive inverse additive inverse property

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
<i>7.NS.A.1a</i> <i>7.NS.A.1b</i> 7.NS.A.1c <i>7.NS.A.1e</i> 7.NS.A.3	The student will understand absolute values and ordering of rational numbers.	- I can graph rational numbers on a number line. - I can find the absolute value of a rational number. - I can use a number line to compare rational numbers.	1.1 Rational Numbers
<i>7.NS.A.1a</i> <i>7.NS.A.1b</i> 7.NS.A.1c <i>7.NS.A.1d</i> 7.NS.A.1f 7.NS.A.3	The student will find sums of integers. The student will find sums of rational numbers.	- I can explain how to model addition of integers on a number line. - I can find sums of integers by reasoning about absolute values. - I can explain why the sum of a number and its opposite is 0. - I can explain how to model addition of rational numbers on a number line. - I can find sums of rational numbers by reasoning about absolute values. - I can use properties of addition to	1.2 Adding Integers & 1.3 Adding Rational Numbers

		efficiently add rational numbers.	
7.NS.A.1a 7.NS.A.1b 7.NS.A.1c 7.NS.A.1d 7.NS.A.1e 7.NS.A.1f 7.NS.A.3	The student will find differences of integers. The student will find differences of rational numbers and find distances between numbers on a number line.	● I can explain how subtracting integers is related to adding integers. ● I can explain how to model subtraction of integers on a number line. ● I can find differences of integers by reasoning about absolute values. ● I can explain how to model subtraction of rational numbers on a number line. ● I can find differences of rational numbers by reasoning about absolute values. ● I can find distances between numbers on a number line.	1.4 Subtracting Integers & 1.5 Subtracting Rational Numbers

Engaging Experience 1

Title: Adding & Subtracting Rational Numbers		Blocks: ½
Learning Target(s): ● The student will find the sum and differences of rational numbers.	Success Criteria: ● I can use properties of addition to efficiently add rational numbers. ● I can find differences of rational numbers by reasoning about absolute values.	
Rich Task: ● Mission Objective: A mad mathematician trapped your whole class in the classroom. In order to escape, you must use your knowledge of rational numbers to convince him to let you go. Answer the questions at each level and be sure to record each answer.	Instructional Suggestions: ● Encourage students to make sense of each level's objective before computing, prompting them to plan a strategy and determine which rational number operations are required. ● Have students check answers for reasonableness (e.g., sign, relative size) before recording them as part of the	

Once all levels are complete, retrieve the completion code to break out and save the day. You must hurry and escape before you remain trapped in math class forever!	completion code. Promote mathematical discourse and precision by asking students to justify their reasoning and use appropriate rational number vocabulary as they progress through the mission.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Escape Room - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 1 → Adding & Subtracting Rational N umbers → EE 1)	

Engaging Experience 2

Title: Adding and Subtracting Rational Numbers		Blocks: ½
Learning Target(s): The student will find the sum and differences of rational numbers.	Success Criteria: - I can use properties of addition to efficiently add rational numbers. - I can find differences of rational numbers by reasoning about absolute values.	
Rich Task: This structured Solve and Color task gives students repeated opportunities to practice adding and subtracting rational numbers, including fractions and decimals, while emphasizing accuracy and perseverance. Students must compute each expression, locate the corresponding value, and use that result to determine the correct color, providing immediate visual feedback that helps students self-monitor for errors. The task supports sense-making, precision, and sustained engagement, and can be used to reinforce procedural fluency during independent work, stations, or small-group instruction.	Instructional Suggestions: - Encourage students to justify their computations, especially when working with negative values, fractions, and decimals. - Ask students to predict whether results will be positive or negative before solving, and reflect on whether their answers make sense. - Have students compare answers or completed color patterns with a partner to identify and correct errors in reasoning or calculation. - Be sure to encourage students to use precise mathematical vocabulary (e.g., rational numbers, additive inverse, sum, difference) when discussing their work.	

Student Math Practices:

●MP1

●MP2

●MP3

●MP4

●MP5

●MP6

●MP7

●MP8

Resources:

- Rational Numbers - Solve & Color - can be found in the shared 7th grade drive
([Updated 2026 Curriculum Resources](#) → Engaging Experiences → Unit 1 → Adding & Subtracting Rational Numbers → EE 2)

Topic 2: Multiplying & Dividing Rational Numbers

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
<i>None</i>	complex fraction repeating decimal terminating decimal

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.NS.A.2a 7.NS.A.2b 7.NS.A.2c 7.NS.A.2f 7.NS.A.3	The student will find products of integers. The student will find quotients of integers.	• I can explain the rules for multiplying integers. • I can find products of integers with the same sign. • I can find products of integers with different signs. • I can explain the rules for dividing integers. • I can find quotients of integers with the same sign. • I can find quotients of integers with different signs.	2.1 Multiplying Integers 2.2 Dividing Integers
7.NS.A.2d 7.NS.A.2e	The student will convert between different forms of rational numbers.	• I can explain the difference between terminating and repeating decimals. • I can write fractions and mixed numbers as decimals. • I can write decimals as fractions and mixed numbers.	2.3 Converting Between Fractions and Decimals

7.NS.A.2a 7.NS.A.2b 7.NS.A.2c 7.NS.A.2f 7.NS.A.3	The student will find products of rational numbers. The student will find quotients of rational numbers.	● I can explain the rules for multiplying rational numbers. ● I can find products of rational numbers with the same sign. ● I can find products of rational numbers with different signs. ● I can explain the rules for dividing rational numbers. ● I can find quotients of rational numbers with the same sign. ● I can find quotients of rational numbers with different signs. I can explain the rules for dividing rational numbers. ● I can find quotients of rational numbers with the same sign. ● I can find quotients of rational numbers with different signs.	2.4 Multiplying Rational Numbers & 2.5 Dividing Rational Numbers
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Engaging Experience 1

Title: Multiplying/Dividing Rational Numbers		Blocks: $\frac{1}{2}$
Learning Target(s): ● The student will find the products and quotients of rational numbers.	Success Criteria: ● I can find products of rational numbers with the same sign. ● I can find products of rational numbers with different signs. ● I can find quotients of rational numbers with the same sign. ● I can find quotients of rational numbers with different signs.	

Rich Task: - Match the word problem with the equation and the answer card. Students will see how positive and negative numbers are described in the real world. - Students will solve complex multiplication/ division problems using skills learned in the topic	Instructional Suggestions: - Encourage students to analyze the context of each word problem to determine how positive and negative values are represented before matching it to an equation. - Have students justify their matches by explaining how the equation and solution accurately model the situation described. - Prompt students to attend to precision when solving multiplication and division problems, particularly when determining the sign of the product or quotient. - Encourage the use of mathematical vocabulary (e.g., factors, quotient, positive/negative value, real-world context) during partner or whole-class discussions.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Matching - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 1 → Multiplying & Dividing Rational Numbers → EE 1)	

Engaging Experience 2

Title: Multiplying & Dividing Rational Numbers		Blocks: ½
Learning Target(s): The student will find the products and quotients of rational numbers.	Success Criteria: - I can find products of rational numbers with the same sign. - I can find products of rational numbers with different signs. - I can find quotients of rational numbers with the same sign. - I can find quotients of rational numbers with different signs.	

Rich Task: • A math scavenger hunt is an interactive activity where students solve a series of math problems placed around a room, with each correct answer directing them to the next problem.	Instructional Suggestions: • Encourage students to make sense of each problem before moving on, using prior answers to determine the correct path and next location. • Have students check solutions for reasonableness and accuracy, emphasizing that precision is necessary to advance through the scavenger hunt. • Promote mathematical discourse and collaboration as students explain their reasoning and strategies while navigating the activity.
<u>Student Math Practices:</u> •MP1 •MP2 •MP3 •MP4 •MP5 •MP6 •MP7 •MP8	
Resources: • Scavenger Hunt - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 1 → Multiplying & Dividing Rational Numbers → EE 2)	

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Adding & Subtracting Rational Numbers	Rational Numbers	Big Ideas: 1.1: Rational Numbers	1 block
	Adding Integers & Rational Numbers	Big Ideas: Combine 1.2: Adding Integers & 1.3: Adding Rational Numbers	1 block
	Subtract Integers & Rational Numbers	Big Ideas: - Combine: 1.4: Subtracting Integers & 1.5: Subtracting Rational Numbers Engaging Experiences: - EE1 - Adding and Subtracting Rational Numbers - EE2 - Adding and Subtracting Rational Numbers	1 block
		Review/Flex Days	1 block
		Test Day	1 block
Multiplying & Dividing Rational Numbers	Multiplying & Dividing Integers	Big Ideas: Combine 2.1 Multiplying Integers and 2.2 Dividing Integers	1 block
	Converting Between Fractions & Decimals	Big Ideas: 2.3 Converting Between Fractions and Decimals	1 block
	Multiplying & Dividing Rational Numbers	Big Ideas: - Combine: 2.4 Multiplying Rational Numbers & 2.5 Dividing Rational Numbers Engaging Experiences: - EE1 - Multiplying & Dividing Rational Numbers - EE2 - Multiplying & Dividing Rational Numbers	1 block

		Review/Flex Days	1 block
		Test Day	1 block
Unit Engaging Scenario: Rational Numbers			1 block

Unit 2: Algebra

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Expressions, Equations, and Inequalities

Length of Unit: 13 Blocks

Overview of Unit: Students extend their understanding of integers while developing algebraic reasoning through expressions, equations, and inequalities. They learn to simplify and rewrite algebraic expressions by identifying terms, combining like terms, applying properties of operations, using the Distributive Property, and factoring expressions. Students then build on this foundation by expanding expressions into one-step and two-step equations and inequalities, solving them using all four operations. Solutions are represented symbolically and graphically, particularly on number lines, and applied to real-world problem situations. Emphasis is placed on producing equivalent expressions, equations, and inequalities and clearly explaining mathematical reasoning with precision.

Priority Standards for unit:

- 7.EE1.A.1: Apply properties of operations to simplify and to factor linear algebraic expressions with rational coefficients.
- 7.EE1.A.2: Understand how to use equivalent expressions to clarify quantities in a problem.
- 7.EE1.B.4b Write and/or solve linear equations and inequalities in one variable. (Write and/or solve two-step equations of the form $px + q = r$ and $p(x + q) = r$, where p , q and r are rational numbers, and interpret the meaning of the solution in the context of the problem.)
- 7.EE1.B.4c Write and/or solve linear equations and inequalities in one variable. (Write, solve and/or graph inequalities of the form $px + q > r$ or $px + q < r$, where p , q and r are rational numbers.)

Supporting Standards for unit:

- 7.EE1.B.4a Write and/or solve linear equations and inequalities in one variable. (Write and/or solve equations of the form $x + p = q$ and $px = q$ in which p and q are rational numbers.)

Essential Questions:

1. Why is it important to do the same thing to one side of an equation or inequality as you do to the other?
2. How can algebraic expressions be simplified and rewritten without changing their value?
3. How does the Distributive Property help us expand and factor expressions?
4. How are equations and inequalities similar, and how are they different?
5. Why are inverse operations important when solving equations and inequalities?

6. How can equations and inequalities be used to model and solve real-world problems?
7. How can solution sets be represented and interpreted using number lines?

Enduring Understanding/Big Ideas:

1. Doing the same operation to both sides keeps the equation or inequality balanced and true.
2. Expressions can be simplified by combining like terms and using properties of operations to create equivalent expressions.
3. The Distributive Property lets us multiply a factor across terms or factor out a common term to rewrite an expression without changing its value.
4. Both compare expressions, but equations have one solution while inequalities have a range of solutions.
5. Inverse operations are used to undo operations and isolate the variable.
6. They represent real situations and help find exact answers or possible ranges of answers.
7. Number lines show solutions visually, making it easier to understand values or ranges that satisfy the equation or inequality.

Unit Engaging Scenario

Engaging Scenario 1 block

(An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Zoo Exhibit Project: You will be making a budget for your zoo exhibit and solving yearly and seasonal expenses for a specific animal that you researched within the zoo. Students will use equations to model different expenses and use inequalities to model different situations

Unit 2 Project can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Scenarios → Unit 2)

Rubric for Engaging Scenario: [Curriculum Resources](#)

Topic 1: Expressions

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
factoring an expression distributive property like terms evaluate substitute	linear expression simplest form (of an algebraic expression)

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.EE1.A.1 7.EE1.A.2	The student will simplify algebraic expressions.	- I can identify terms and like terms of algebraic expressions. - I can combine like terms to simplify algebraic expressions. - I can write and simplify algebraic expressions to solve real-life problems.	3.1 Algebraic Expressions
7.EE1.A.1 7.EE1.A.2	The student will find sums and differences of linear expressions.	- I can explain the difference between linear and nonlinear expressions. - I can find opposites of terms that include variables. - I can apply properties of operations to add and subtract linear expressions.	3.2 Adding and Subtracting Linear Expressions
7.EE1.A.1 7.EE1.A.2	The student will apply the Distributive Property to generate equivalent expressions.	- I can explain how to apply the Distributive Property. - I can use the Distributive Property to simplify algebraic expressions.	3.3 The Distributive Property
7.EE1.A.1 7.EE1.A.2	The student will factor algebraic expressions.	- I can identify the greatest common factor of terms, including variable terms. - I can use the Distributive Property to factor algebraic expressions. - I can write a term as a product	3.4 Factoring Expressions

		involving a given factor.	
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Engaging Experience 1

Title: Expressions		Blocks: 1
Learning Target(s): • The student will simplify algebraic expressions. • The student will find sums and differences of linear expressions. • The student will apply the Distributive Property to generate equivalent expressions. • The student will factor algebraic expressions.		Success Criteria: • I can identify terms and like terms of algebraic expressions. • I can combine like terms to simplify algebraic expressions. • I can write and simplify algebraic expressions to solve real-life problems. • I can explain the difference between linear and nonlinear expressions. • I can find opposites of terms that include variables. • I can apply properties of operations to add and subtract linear expressions. • I can explain how to apply the Distributive Property. • I can use the Distributive Property to simplify algebraic expressions. • I can identify the greatest common factor of terms, including variable terms. • I can use the Distributive Property to factor algebraic expressions. • I can write a term as a product involving a given factor.
Rich Task: • Students will work with a team to solve math problems, getting the opportunity to select from the Whammy Board, for correct answers. Students will take a chance on where they select from the board, where there will be opportunities to earn points, loose points, or switch points with another team. Random outcomes add excitement and reinforce engagement while reviewing key math concepts.		Instructional Suggestions: • Encourage students to justify their solutions before selecting from the Whammy Board, reinforcing accurate reasoning and computation. • Have teams discuss strategies and reflect on outcomes, analyzing how correct answers and random events impact overall results. • Promote the use of precise mathematical language and collaborative decision-making as students explain their thinking and support team choices.

Student Math Practices:

●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8

Resources:

- Whammy Board - can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Experiences → Unit 2 → Expressions → EE 1)

Engaging Experience 2

Title: Expressions		Blocks: $\frac{1}{2}$
Learning Target(s): ● The student will simplify algebraic expressions. ● The student will find sums and differences of linear expressions. ● The student will apply the Distributive Property to generate equivalent expressions. ● The student will factor algebraic expressions.	Success Criteria: ● I can identify terms and like terms of algebraic expressions. ● I can combine like terms to simplify algebraic expressions. ● I can write and simplify algebraic expressions to solve real-life problems. ● I can explain the difference between linear and nonlinear expressions. ● I can find opposites of terms that include variables. ● I can apply properties of operations to add and subtract linear expressions. ● I can explain how to apply the Distributive Property. ● I can use the Distributive Property to simplify algebraic expressions. ● I can identify the greatest common factor of terms, including variable terms. ● I can use the Distributive Property to factor algebraic expressions. ● I can write a term as a product involving a given factor.	
Rich Task: ● Each level is printed on a different color. ● As students work through the level, they check their answers with the teacher. If correct, they are handed a new half sheet, bringing them to a more challenging level/ learning target. ● If incorrect, teacher marks the one incorrect, and the student must use their notes to try again.	Instructional Suggestions: ● Use the leveled, color-coded structure to provide immediate feedback, allowing students to promptly confirm understanding or revisit misconceptions using their notes before advancing. ● Encourage students to reflect	

	on errors by identifying what went wrong and which strategy or concept needs revisiting prior to reattempting the problem. ● Leverage the progression of levels to promote perseverance and goal-setting, as students work toward increasingly challenging learning targets at their own pace.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: ● Levels - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 2 → Expressions → EE 2)	

Topic 2: Equations

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
addition property of equality addition property of inequality division property of equality division property of inequality graph of an inequality multiplication property of equality multiplication property of inequality solution of an inequality solution set subtraction property of equality subtraction property of inequality solve	equivalent equations inequality

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
<i>7.EE1.B.4a</i>	The student will write and solve equations using addition or subtraction.	- I can apply the Addition and Subtraction Properties of Equality to produce equivalent equations. - I can solve equations using addition or subtraction. - I can apply equations involving addition or subtraction to solve real-life problems.	4.1 Solving Equations Using Addition or Subtraction
<i>7.EE1.B.4a</i>	The student will write and solve equations using multiplication or division.	- I can apply the Multiplication and Division Properties of Equality to produce equivalent equations. - I can solve equations using multiplication or division.	4.2 Solving Equations Using Multiplication or Division

		I can apply equations involving multiplication or division to solve real-life problems.	
7.EE1.B.4b	The student will write and solve two-step equations.	- I can apply properties of equality to produce equivalent equations. - I can solve two-step equations using the basic operations. - I can apply two-step equations to solve real-life problems.	4.3 Solving Two-Step Equations

Engaging Experience 1

Title: Two-Step Equations		Blocks: ½
Learning Target(s): - The student will write and solve equations using addition or subtraction. - The student will write and solve equations using multiplication or division. - The student will write and solve two-step equations.		Success Criteria: - I can apply properties of equality to produce equivalent equations. - I can solve two-step equations using the basic operations. - I can apply two-step equations to solve real-life problems.
Rich Task: - Directions: Determine <u>who</u> stole the math <u>supply</u>, during which <u>block</u>, and where they <u>hid</u> it!!! - When you have solved all the problems and collected all the clues, you will have: one person, one supply, one block, and one hiding place that remains. Circle them. The corresponding number to each remaining clue makes up the combination to the lock <u>in order!</u> - If you can successfully solve the mystery and open the lock in front of your teacher, you will get a surprise!!!		Instructional Suggestions: - Encourage students to analyze each clue carefully and make sense of the constraints, using logical reasoning and elimination to narrow possibilities. - Have students justify their conclusions by explaining how the remaining clues support their final solution and lock combination. - Promote precision and perseverance as students track information accurately and

	correct errors in reasoning to successfully solve the mystery.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Clue Review Activity- can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 2 → Equations→ EE 1)	

Engaging Experience 2

Title: Solving Two Step Equations		Blocks: ½
Learning Target(s): ● The student will write and solve two-step equations	Success Criteria: ● I can apply properties of equality to produce equivalent equations. ● I can solve two-step equations using the basic operations.	
Rich Task: ● A math scavenger hunt is an interactive activity where students solve a series of math problems placed around a room, with each correct answer directing them to the next problem. ● Students get instant feedback, and know that they need to fix their answer if they cannot find the answer.	Instructional Suggestions: ● Use the scavenger hunt structure to provide immediate feedback, as students must reassess and correct their work when an answer does not lead them to the next location. ● Encourage peer teaching and collaboration by having students discuss strategies and explain reasoning when determining the next problem in the sequence. ● Promote perseverance and precision, emphasizing that accurate computation and reasoning are necessary to successfully navigate the hunt.	
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: ● <i>Scavenger Hunt</i> - can be found in the shared 7th grade drive (Updated 2026		

Topic 3: Inequalities

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
addition property of equality addition property of inequality division property of equality division property of inequality graph of an inequality multiplication property of equality multiplication property of inequality solution of an inequality solution set subtraction property of equality subtraction property of inequality	equivalent equations inequality

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.EE.B.4c	The student will write inequalities and represent solutions of inequalities on number lines.	- I can write word sentences as inequalities. - I can determine whether a value is a solution of an inequality. - I can graph the solutions of inequalities.	4.4 Writing and Graphing Inequalities
7.EE.B.4c	The student will write and solve inequalities using addition or subtraction.	- I can apply the Addition and Subtraction Properties of Inequality to produce equivalent inequalities. - I can solve inequalities using addition or subtraction. - I can apply inequalities	4.5 Solving Inequalities Using Addition or Subtraction

		involving addition or subtraction to solve real-life problems.	
7.EE1.B.4c	The student will write and solve inequalities using multiplication or division.	● I can apply the Multiplication and Division Properties of Inequality to produce equivalent inequalities. ● I can solve inequalities using multiplication or division. ● I can apply inequalities involving multiplication or division to solve real-life problems.	4.6 Solving Inequalities Using Multiplication or Division
7.EE1.B.4c	The student will write and solve two-step inequalities.	● I can apply properties of inequality to generate equivalent inequalities. ● I can solve two-step inequalities using the basic operations. ● I can apply two-step inequalities to solve real-life problems.	4.7 Solving Two-Step Inequalities

Engaging Experience 1

Title: Solving One Step Inequalities		Blocks: 0.5
Learning Target(s): ● The student will write and solve one- and two-step inequalities using addition, subtraction, multiplication, or division. ● The student will write inequalities.	Success Criteria: ● I can solve inequalities using addition or subtraction. ● I can solve inequalities using multiplication or division. ● I can solve two-step inequalities using the basic operations. ● I can graph the solutions of inequalities.	

Rich Task: Students work through a set of task cards (individually or as a group), each containing a math problem or prompt. They record their answers on a sheet or digitally, often moving at their own pace or rotating through stations. Task cards can be used for review, reinforcement, or assessment, and they support differentiation by allowing varied levels or problem types.	Instructional Suggestions: - Encourage students to pace themselves strategically, attending to accuracy and completeness as they work through task cards independently or in stations. - Use the variety of problems to support differentiation, prompting students to select or rotate through task cards that reinforce targeted skills or extend understanding. - Promote mathematical discourse and precision by having students explain their reasoning verbally or in writing when recording and reviewing their responses.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Task Cards - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 2 → Inequalities→ EE 1)	

Engaging Experience 2

Title: One Step Inequalities (Graphing/ Solving)		Blocks: ½
Learning Target(s): - The student will write inequalities and represent solutions of inequalities on number lines. - The student will write and solve inequalities using addition or subtraction. - The student will write and solve inequalities using multiplication or division.	Success Criteria: - I can write word sentences as inequalities. - I can determine whether a value is a solution of an inequality. - I can graph the solutions of inequalities. - I can apply the Addition and Subtraction Properties of Inequality to produce equivalent inequalities. - I can solve inequalities using addition or subtraction. - I can apply inequalities involving addition or subtraction to solve real-life problems - I can apply the Multiplication and Division Properties of Inequality to produce equivalent inequalities. - I can solve inequalities using multiplication or division. - I can apply inequalities involving multiplication or division to solve real-life problems.	

Rich Task: ● Set up stations around the room and have students in groups ● Have students work through their station either graphing, writing, or finding the error of the inequality.	Instructional Suggestions: ● Encourage students to make sense of each inequality before selecting a representation, determining whether graphing, writing, or error analysis is most appropriate. ● Use station rotation to promote active engagement and perseverance, as students apply multiple skills related to inequalities across different tasks. ● Emphasize precision and mathematical reasoning by having students explain how each representation or correction accurately reflects the inequality.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: ● Stations - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 2 → <i>Inequalities</i> → EE 2)	

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Expressions	Simplifying Expressions	Big Ideas: 3.1: Algebraic Expressions	1 block
	Solving Linear Expressions	Big Ideas: 3.2: Adding and Subtracting Linear Expressions	1 block
	Distributive Property & Factoring Expressions	Big Ideas: Combine: 3.3: The Distributive Property & 3.4: Factoring Expressions	1 block
		Review/Flex Days	1 blocks
		Test Day	1 block
Equations	Write and solving one-step (Inverse Operations)	Big Ideas: Combine 4.1: Solving Equations Using Addition and Subtraction & 4.2: Solving Equations Using Multiplication and Division	1 block
	Write & solve Two-Step Equations (Inverse Operations)	Big Ideas: 4.3: Solving Two-Step Equations Engaging Experiences: - EE1 - Two-Step Equations - EE2 - Solving Two-Step Equations	1 block
		Review Day	0.5 block
		Quiz Day	0.5 block
Inequalities	Write and graph inequalities	Big Ideas: 4.4: Writing and Graphing Inequalities	1 block

	Write & solve one-step inequalities using addition, subtraction, multiplication, & Division	Big Ideas: - Combine: 4.5: Solving Using Addition or Subtraction & 4.6 Solving Using Multiplication and Division Engaging Experiences: - EE1 - Solving One-Step Inequalities - EE2 - One Step Inequalities (Graphing/Solving)	1 block
	Write & solve two-step inequalities	Big Ideas: 4.7: Solving Two-Step Inequalities	1 block
		Review/Flex Days	1 block
		Test Day (Topic 4.1-4.7)	1 block
	Unit Engaging Scenario: Zoo Exhibit Project		2 block

Unit 3: Ratios/Proportions/Percents

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Ratios/Proportions/Percents

Length of Unit: 18 Blocks

Overview of Unit: Students develop an understanding of ratios, rates, and proportional relationships to solve single- and multi-step real-world problems. They use tables, graphs, equations, and unit rates to represent and analyze proportionality, distinguish proportional from nonproportional relationships, and interpret unit rate. Students explore systems of linear equations as a way to compare two relationships and determine where they intersect, both graphically and algebraically. Students apply this understanding to solve a wide range of percent problems, including discounts, taxes, tips, interest, and percent increase or decrease, while connecting multiple representations to make sense of real-world situations.

Priority Standards for unit:

- 7.RP.A.3 Solve problems involving ratios, rates, percentages and proportional relationships.
- 7.RP.A.2a Recognize and represent proportional relationships between quantities. (Determine when two quantities are in a proportional relationship.)
- 7.RP.A.2c Recognize and represent proportional relationships between quantities.(Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.)
- 7.EE1.B.3b Solve multi-step problems posed with rational numbers.
Assess the reasonableness of answers using mental computation and estimation strategies.
- 8.F.B.4.a Use functions to model linear relationships between quantities. Explain the parameters of a linear function based on the context of a problem.
- 8.EE1.B.6.a Apply concepts of slope and y-intercept to graphs, equations and proportional relationships.Explain why the slope (m) is the same between any two distinct points on a non-vertical line in the Cartesian coordinate plane.
- 8.EE1.B.6.b Apply concepts of slope and y-intercept to graphs, equations and proportional relationships. Derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .

Supporting Standards for unit:

- 7.RP.A.1 Compute unit rates, including those that involve complex fractions, with like or different units.
- 7.RP.A.2b Recognize and represent proportional relationships between quantities. Identify and/or compute the constant of proportionality (unit rate).
- 7.RP.A.2d Recognize and represent proportional relationships between quantities. Recognize that the graph of any proportional relationship will pass through the origin.

- 7.EE1.B.3a Solve multi-step problems posed with rational numbers. Convert between equivalent forms of the same number.
- 8.F.A.1.c Explore the concept of functions. (The use of function notation is not required.) Graph a function.
- 8.F.B.4.b Use functions to model linear relationships between quantities. Determine the parameters of a linear function.
- 8.F.B.4.c Use functions to model linear relationships between quantities. Determine the x-intercept of a linear function.
- 8.EE1.B.5.a Graph proportional relationships. Interpret the unit rate as the slope of the graph.
- 8.EE1.B.5.b Graph proportional relationships. Compare two different proportional relationships.

Essential Questions:

1. How can ratios and rates be used to compare quantities?
2. What makes a relationship proportional?
3. How can proportional relationships be represented using tables, graphs, equations, and word problems?
4. How are fractions, decimals, and percents related?
5. How can proportions and equations be used to solve percent problems?
6. What does percent change tell us about increases, decreases, and percent error in real-world situations?
7. When would you see a percent mark-up and mark-down being used?
8. How is simple interest used to model real-life financial situations?
9. How do we graph linear relationships?
10. How do we write a linear equation?
11. How can we use linear relationships to model real-world situations?
12. How can we determine if a relationship is linear or nonlinear?

Enduring Understanding/Big Ideas:

1. Ratios and rates help compare quantities by showing how much of one thing relates to another.
2. A relationship is proportional when two quantities increase or decrease at the same constant rate.
3. Proportional relationships can be shown in tables, graphs, equations, and word problems by highlighting their constant rate of change.
4. Fractions, decimals, and percents are related because they all represent parts of a whole in different forms.
5. Proportions and equations help solve percent problems by setting up equal ratios that show the relationship between the part and the whole.
6. Percent change tells us how much a value has increased or decreased compared to its original amount.
7. Percent mark-ups and mark-downs are used in real-world situations like retail pricing, discounts, and sales.

8. Simple interest models how money grows when saved or increases when borrowed over time, helping people make smart financial decisions.
9. Use slope and y-intercept or ordered pairs/a table of values to plot points that form a straight line.
10. Determine the rate of change (slope) and initial value (y-intercept) from a situation, table, graph, or two points, and express them in the form $y = mx + b$.
11. Linear relationships model real-world situations by using constant rates of change, allowing the prediction of outcomes and interpretation of slope, y-intercept, and or x-intercept in context.
12. A relationship is linear if it has a constant rate of change; if the rate of change varies, the relationship is nonlinear.

Unit Engaging Scenario

Engaging Scenario (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Dream Party Project: This cumulative project reinforces key concepts from the proportional relationships unit, including unit rates, complex fractions, proportional vs. nonproportional relationships, and constants of proportionality. Over several days, students design a “dream party” while completing seven math-focused tasks such as creating a guest list, calculating rental and decoration costs, analyzing catering options, and determining DJ rates. Each section connects real-world decision making to proportional reasoning. Because students personalize every part of the project, no two final products are the same, and no answer key is provided.

Unit 3 Project can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Scenarios → Unit 3)

Rubric for Engaging Scenario: [Curriculum Resources](#)

Engaging Scenario 1 block

In this engaging scenario, students are assessed on the following topics: Functions, Linear equations (writing and graphing), systems of linear equations, scatter plots, and lines of best fit.

[Engaging Scenario: Functions and Linear Relationships](#)

Topic 1: Ratios & Proportions

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
equivalent rates equivalent ratios rate ratio ratio table unit rate	constant of proportionality cross products cross products property proportion proportional scale scale drawing scale factor (of a scale drawing) scale model value of a ratio discount interest markup percent of change percent of decrease percent error percent of increase principal simple interest

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
<i>7.RP.A.1</i> 7.RP.A.3	The student will understand ratios of rational numbers and use ratio tables to represent equivalent ratios.	- I can write and interpret ratios involving rational numbers. - I can use various operations to create tables of equivalent ratios. - I can use ratio tables to solve ratio problems.	5.1 Ratios and Ratio Tables
<i>7.RP.A.1</i> <i>7.RP.A.2b</i>	The student will understand rates involving fractions and	I can find unit rates for rates involving fractions.	5.2 Rates and Unit Rates

7.RP.A.3	use unit rates to solve problems.	● I can use unit rates to solve rate problems.	
7.RP.A.2a <i>7.RP.A.2b</i>	The student will determine whether two quantities are in a proportional relationship.	● I can determine whether ratios form a proportion. ● I can explain how to determine whether quantities are proportional. ● I can distinguish between proportional and nonproportional situations.	5.3 Identifying Proportional Relationships
7.RP.A.3	The student will use proportions to solve ratio problems.	● I can solve proportions using various methods. ● I can find a missing value that makes two ratios equivalent. ● I can use proportions to represent and solve real-life problems.	5.4 Writing and Solving Proportions
<i>7.RP.A.2b</i> 7.RP.A.2c <i>7.RP.A.2d</i>	The student will represent proportional relationships using graphs and equations.	● I can determine whether quantities are proportional using a graph. ● I can find the unit rate of a proportional relationship using a graph. ● I can create equations to represent proportional relationships.	5.5 Graphs of Proportional Relationships

Engaging Experience 1

Title: Graphs of Proportional Relationships 1		Blocks: ½
Learning Target(s): ● The student will represent proportional relationships using graphs and equations.	Success Criteria: ● I can determine whether quantities are proportional using a graph. ● I can find the unit rate of a proportional relationship using a graph.	

		I can create equations to represent proportional relationships.
Rich Task: - Each level is printed on a different color. - As students work through the level, they check their answers with the teacher. If correct, they are handed a new half sheet, bringing them to a more challenging level/ learning target. - If incorrect, the teacher marks the one incorrect, and the student must use their notes to try again.	Instructional Suggestions: - Use the leveled, color-coded structure to provide immediate, targeted feedback, allowing students to confirm understanding or revisit misconceptions before advancing to the next learning target. - Encourage students to analyze their errors and revise strategically, using notes or prior examples to identify what needs to change before reattempting a problem. - Leverage the increasing challenge of each level to promote goal-setting and perseverance, reinforcing that effort and accuracy are necessary for progression.	
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: Levels- can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 3 → Expressions → EE 1)		

Engaging Experience 2

Title: Graphs of Proportional Relationships 2		Blocks: ½
Learning Target(s): The student will represent proportional relationships using graphs and equations.	Success Criteria: - I can determine whether quantities are proportional using a graph. - I can find the unit rate of a proportional relationship using a graph. - I can create equations to represent proportional relationships.	
Rich Task: Students work through a set of task cards (individually or as a group), each containing a math problem or prompt. They record their answers on a sheet or digitally, often moving at their own pace or rotating through stations. Task cards can be	Instructional Suggestions: - Encourage students to make sense of each task card before responding, selecting appropriate strategies and attending to accuracy as they record their answers. - Use task cards strategically to differentiate instruction, allowing	

used for review, reinforcement, or assessment, and they support differentiation by allowing varied levels or problem types.	students to engage with varied problem types or difficulty levels based on readiness or instructional need. Promote reflection and discussion by having students explain their reasoning orally or in writing when reviewing responses or rotating between stations.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: - Stations - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 3 → <i>Ratios/Proportions</i> → EE 2) <i>Big Ideas</i> - 9.5	

Topic 2: Graphing & Writing Linear Equations

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
<i>table</i> <i>ordered pairs</i> <i>x-coordinate</i> <i>y-coordinate</i>	linear equation rise run slope slope-intercept solution of a linear equation standard form point slope-form

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
8.EE1.B.6a 8.F.B.4a <i>8.EE1.B.5a</i> 8.EE1.B.6b	The student will graph linear equations. The student will find and interpret the slope of a line.	● I can create a table of values and write ordered pairs given a linear equation. ● I can plot ordered pairs to create a graph of a linear equation. ● I can use a graph of a linear equation to solve a real-life problem. ● I can explain the meaning of slope. ● I can find the slope of a line. ● I can interpret the slope of a line in a real-life problem.	13.1 Graphing Linear Equations & 13.2 Slope of a Line
<i>8.EE1.B.5a</i> <i>8.EE1.B.5b</i> 8.EE1.B.6a 8.F.B.4a	The student will graph proportional relationships.	● I can graph an equation that represents a proportional relationship. ● I can write an equation that represents a proportional relationship. ● I can use graphs to compare proportional relationships.	13.3 Graphing Proportional Relationships
8.EE1.B.6b	The student will graph linear	● I can identify the slope	13.4 Graphing

8.F.B.4a <i>8.F.B.4b</i>	equations in slope-intercept form. The student will write equations of lines in slope-intercept form.	and y-intercept of a line given an equation. ● I can rewrite a linear equation in slope-intercept form. ● I can use the slope and y-intercept to graph linear equations. ● I can find the slope and the y-intercept of a line. ● I can use the slope and the y-intercept to write an equation of a line. ● I can write equations in slope-intercept form to solve real-life problems.	Linear Equations in Slope-Intercept Form & 13.6 Writing Equations in Slope-Intercept Form
<i>8.F.B.4.b</i>	The student will write equations of lines given two points.	● I can use a point on a line and the slope to write an equation of the line. ● I can use any two points to write an equation of a line. ● I can write equations in point-slope form to solve real-life problems.	13.7 Writing Equations in Point-Slope Form
8.EE1.B.6b <i>8.F.B.4b</i> <i>8.F.B.4c</i>	The student will graph linear equations in standard form.	● I can rewrite the standard form of a linear equation in slope-intercept form. ● I can find intercepts of linear equations written in standard form. ● I can use intercepts to graph linear equations.	13.5 Graphing Linear Equations in Standard Form

Engaging Experience 1

Title: Comparing the Snowfall in Different Cities		Blocks: $\frac{1}{2}$
Learning Target(s): ● The student will graph linear equations.	Success Criteria: ● I can create a table of values and write ordered pairs given a linear equation. ● I can plot ordered pairs to create a graph of a linear equation. ● I can use a graph of a linear equation to solve a real-life problem.	

Rich Task: Students will create a table of ordered pairs based on information given on the snowfall rates of different cities. They will then graph the snowfall of 4 cities on one graph. They will compare the snowfall of each city.	Instructional Suggestions: Be sure to encourage students to use mathematics vocabulary when discussing this activity.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Graphing Linear Equations Exploration- can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 3 → Accelerated: Linear Equations→ EE 1)	

Topic 3: Percents

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
None	discount interest markup percent of change percent of decrease percent error percent of increase principal simple interest

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
<i>7.EE1.B.3a</i>	The student will rewrite fractions, decimals, and percents using different representations.	- I can write percents as decimals and decimals as percents. - I can write fractions as decimals and percents. - I can compare and order fractions, decimals, and percents.	6.1 Fractions, Decimals, and Percents
7.EE1.B.3b 7.RP.A.3	The student will use the percent proportion to find missing quantities.	- I can write proportions to represent percent problems. - I can solve a proportion to find a percent, a part, or a whole.	6.2 The Percent Proportion
7.EE1.B.3b 7.RP.A.3	The student will use the percent equation to find missing quantities.	- I can write equations to represent percent problems. - I can use the percent equation to find a percent, a part, or a	6.3 The Percent Equation

		whole.	
7.EE1.B.3 7.RP.A.3	The student will find percents of change in quantities.	● I can explain the meaning of percent of change. ● I can find the percent of increase or decrease in a quantity. ● I can find the percent error of a quantity.	6.4 Percents of Increase and Decrease
7.EE1.B.3b 7.RP.A.3	The student will solve percent problems involving discounts and markups.	● I can use percent models to solve problems involving discounts and ● markups. ● I can write and solve equations to solve problems involving discounts and markups.	6.5 Discounts and Markups
7.EE1.B.3b 7.RP.A.3	The student will understand and apply the simple interest formula.	● I can explain the meaning of simple interest. ● I can use the simple interest formula to solve problems.	6.6 Simple Interest

Engaging Experience 1

Title: Percent Proportions/ Equations		Blocks: ½
Learning Target(s): ● The student will use the percent proportion to find missing quantities. ● The student will use the percent equation to find missing quantities.	Success Criteria: ● I can use the percent equation to find a percent, a part, or a whole. ● I can use the percent equation to find a percent, a part, or a whole.	

Rich Task: This activity is an interactive, movement-based math mystery where students solve percent problems to uncover clues about a “food thief.” Students rotate around the room solving percent questions (finding percent, part, or whole). Each correct answer eliminates possibilities (suspect, food, location, or time). As they work through all 20 clues, they use a process of elimination and logical reasoning to determine the single correct solution in each category.	Instructional Suggestions: - Encourage students to analyze each percent problem carefully before solving, determining whether they are finding the part, whole, or percent and selecting an appropriate strategy. - Have students justify each elimination by explaining how their calculated result rules out specific suspects, foods, locations, or times. - Emphasize accuracy and perseverance, as precise computation and logical reasoning are necessary to narrow possibilities and solve the mystery successfully.
Student Math Practices: ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Math Investigation - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 3 → Percents → EE 1)	

Engaging Experience 2

Title: Converting Fractions, Decimals, and Percents		Blocks: ½
Learning Target(s): The student will rewrite fractions, decimals, and percents using different representations.	Success Criteria: - I can write percents as decimals and decimals as percents. - I can write fractions as decimals and percents.	
Rich Task: Students work through a set of task cards (individually or as a group), each containing a math problem or prompt. They record their answers on a sheet or digitally, often moving at their own pace or rotating through stations. Task cards can be used for review, reinforcement, or assessment, and they support differentiation by allowing	Instructional Suggestions: - Encourage students to make sense of each task card before responding, selecting appropriate strategies and attending to accuracy as they work independently or in groups. - Use task cards to differentiate instruction, allowing varied problem types or difficulty levels to support remediation, practice, or extension. - Promote reflection and mathematical communication by having students explain	

varied levels or problem types.	their reasoning verbally or in writing when recording or reviewing their responses.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Task Cards - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 3 → Percents → EE 2)	

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Ratios and Proportions	Ratios & Ratio Tables	Big Ideas: 5.1: Ratios and Ratio Tables	1 block
	Rates & Unit Rates	Big Ideas: Combine 5.2: Rates and Unit Rates & 5.3: Identifying Proportional Relationships	1 block
	Identifying, Write & Solve Graph Proportions	Big Ideas: 5.4: Writing and Solving Proportions	1 block
	Graph Proportions	Big Ideas: 5.5: Graphs of Proportional Relationships Engaging Experiences: - EE1 - Graphs of Proportional Relationships - EE2 - Graphs of Proportional Relationships	1 block
		Review/Flex Days	1 block
		Test Day	1 block
Graphing & Writing Linear Equations	Graphing Linear Equations & Slope of a Line	Big Ideas: - Combine: 13.1: Graphing Linear Equations & 13.2: Slope of a Line Engaging Experiences: - EE1 - Graphing Linear Equations	1 block
	Graphing Proportional Relationships	Big Ideas: 13.3: Graphing Proportional Relationships	1 block
		Big Ideas: Combine: 13.4: Graphing Linear Equations in Slope-Intercept Form & 13.6: Writing	1 block

		Linear Equations in Slope-Intercept Form	
	Writing Equations in Point-Slope Form	Big Ideas: 13.7 Writing Equations in Point-Slope Form	1 block
	Writing Equations in Standard Form	Big Ideas: 13.5 Writing Equations in Standard Form	1 block
		Review/Flex Days	1 block
		Test Day	1 block
Percents	Fractions, decimals, and percents	Big Ideas: 6.1: Fractions, Decimals, and Percents Engaging Experiences: - EE2 - Converting Fractions, Decimals, & Percents	1 block
	Percent Proportion and Percent Equation	Big Ideas: - Combine 6.2: Percent Proportions & 6.3: Percent Equations Engaging Experiences: - EE1 - Percent Proportions/Equations	1 block
	Percent Increase & Decrease (Percent Errors) Discounts & Mark-Ups	Big Ideas: Combine: 6.4: Percent of Increase and Decrease & 6.5: Discounts and Markups	1 block
	Simple Interest	Big Ideas: 6.6: Simple Interest	1 block
		Review/Flex Days	1 blocks
		Test Day	1 block
	Unit Engaging Scenario: Dream Party Project		3 block

Unit 4: Probability and Statistics

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Probability and Statistics

Length of Unit: 6 Blocks

Overview of Unit: In this unit, students deepen their understanding of data and probability by comparing two data distributions, exploring both theoretical and experimental probability, and analyzing compound events using sample spaces and the Fundamental Counting Principal. Using data sets that are provided to them or collected, they will examine how sampling methods influence the conclusions that can be drawn, distinguish between representative and biased samples, and use measures of center and variability to make valid inferences and meaningful conclusions about populations.

Priority Standards for unit:

- 7.DSP.C.5a Investigate the probability of chance events. Determine probabilities of simple events.
- 7.DSP.C.5b Investigate the probability of chance events. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.
- 7.DSP.A.1b Understand that statistics can be used to gain information about a population by examining a sample of the population.(Understand that generalizations from a sample are valid only if the sample is representative of the population.)
- 7.DSP.B.3:Analyze different data distributions using statistical measures.

Supporting Standards for unit:

- 7.DSP.C.6 Investigate the relationship between theoretical and experimental probabilities for simple events.
 - a) Predict outcomes using theoretical probability.
 - b) Perform experiments that model theoretical probability.
 - c) Compare theoretical and experimental probabilities.
- 7.DSP.C.7 Explain possible discrepancies between a developed probability model and observed frequencies.
 - a) Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events
 - b) Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
- 7.DSP.C.8a Find probabilities of compound events using organized lists, tables, tree diagrams and simulations.
 - a) Represent the sample space of a compound event.
 - b) Design and use a simulation to generate frequencies for compound events.

Essential Questions:

1. How can probability be used to describe and predict real-world events?
2. What is the difference between experimental and theoretical probability?
3. How do we determine all possible outcomes of an event?
4. How can sampling methods impact the validity of conclusions?
5. Why do different samples from the same population produce different results?
6. How can we use data to compare groups and make decisions?

Enduring Understanding/Big Ideas:

1. Probability describes how likely an event is and helps us make predictions based on data and patterns.
2. Theoretical probability is based on all possible outcomes, while experimental probability is based on results from repeated trials or data.
3. All possible outcomes are determined by listing or modeling every result that could occur.
4. The way a sample is chosen affects how accurately results represent the entire population.
5. Different samples can produce different results because of random variation.
6. Data allows us to identify patterns and differences between groups to make informed decisions.

Unit Engaging Scenario

Engaging Scenario (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Statistical Measures Project: In this project, students design and conduct a survey using numerical data collected from classmates. They organize the data, calculate measures of center and spread, and create a box-and-whisker plot to represent their results. Students then analyze trends and conclude by summarizing their findings in a written response.

Unit 4 Project can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Scenarios → Unit 4)

Topic 1: Probability

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms	
<i>None</i>	compound event event experiment experimental probability favorable outcomes fundamental counting principle	outcomes probability relative frequency sample space simulation theoretical probability

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.DSP.C.5a 7.DSP.C.5b 7.DSP.C.6a 7.DSP.C.6b 7.DSP.C.6c 7.DSP.C.7a 7.DSP.C.7c	The student will understand how the probability of an event indicates its likelihood. The student will develop probability models using experimental and theoretical probability.	• I can identify possible outcomes of an experiment. • I can use probability and relative frequency to describe the likelihood of an event. • I can use relative frequency to make predictions. • I can explain the meanings of experimental probability and theoretical probability. • I can find experimental and theoretical probabilities. • I can use probability to make predictions.	7.1 Probability & 7.2 Experimental and Theoretical Probability
7.DSP.C.8a 7.DSP.C.8b	The student will find sample spaces and probabilities of compound events.	• I can find the sample space of two or more events. • I can find the total	7.3 Compound Events

		number of possible outcomes of two or more events. • I can find probabilities of compound events.	
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Engaging Experience 1

Title: Probability		Blocks: ½
Learning Target(s): The student will understand how the probability of an event indicates its likelihood.	Success Criteria: I can identify possible outcomes of an experiment.	
Rich Task: This fun, interactive game is a great way to get all students practicing. For this game, each student has their own score card where they show their work and the answers they choose. Each character in the game is in one of the boxes, so students' work can be quickly checked regardless of the order questions are presented in the game.	Instructional Suggestions: - Require students to show all work on their individual scorecards, emphasizing clear reasoning and accurate computation before selecting an answer in the game. - Use the game structure to provide quick formative feedback, allowing the teacher to scan student work efficiently regardless of the order in which questions are answered. - Encourage students to reflect on incorrect choices by revisiting their work and identifying calculation or reasoning errors before moving on.	
Student Math Practices: ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: Game - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 4 → Probability→ EE 1)		

Engaging Experience 2

Title: Experimental and Theoretical Probability		Blocks: ½	
Learning Target(s): • The student will develop		Success Criteria: • I can explain the meanings of experimental	

probability models using experimental and theoretical probability.	probability and theoretical ● probability. ● I can find experimental and theoretical probabilities. ● I can use probability to make predictions.
Rich Task: ● A two page activity used to study probability using m&m candy, using snack size bags. This is a great way to get students to understand experimental and theoretical probability, while making their own predictions and drawing their own understandings.	Instructional Suggestions: ● Have students make predictions before beginning the experiment, then compare experimental results to theoretical probabilities to identify similarities and differences. ● Encourage students to organize and analyze data carefully, using tables, ratios, or fractions to represent outcomes and support conclusions. ● Promote reflection and discussion by asking students to explain how sample size affects experimental probability and how results may vary between trials.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: ● <i>Activity</i> - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 4 → Probability → EE 2)	

Topic 2: Statistics

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms	
<i>None</i>	biased sample population	sample unbiased sample

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.DSP.A.1a 7.DSP.A.1b 7.DSP.A.1c 7.DSP.A.2	The student will understand how to use random samples to make conclusions about a population. The student will understand variability in samples of a population.	• I can explain why a sample is biased or unbiased. • I can explain why conclusions made from a biased sample may not be valid. • I can use an unbiased sample to make a conclusion about a population. • I can use multiple random samples to make conclusions about a population. • I can use multiple random samples to examine variation in estimates.	8.1 Samples and Populations & 8.2 Using Random Samples to Describe Populations
7.DSP.B.3	The student will compare populations using measures of center and variation.	• I can find the measures of center and variation of a data set. • I can describe the visual overlap of two data distributions numerically. • I can determine whether there is a significant difference in the measures of center of two data	8.3 Comparing Populations

		sets.	
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Engaging Experience 1

Title: Measures of Center & Data Display (Box and Whisker Plot)		Blocks: ½
Learning Target(s): The student will compare populations using measures of center and variation.	Success Criteria: I can determine whether there is a significant difference in the measures of the center of two data sets.	
Rich Task: - Students use NBA Player stats to find 5-Number Summaries and make comparisons between two players. - Students use the questions asked to think deeper and make connections to the real world.		Instructional Suggestions: - Have students analyze the distribution of each player's statistics to accurately determine the 5-number summary before making comparisons. - Encourage class discussion and justification by prompting students to explain what the median, range, and interquartile range reveal about each player's performance. - Ask students to connect statistical measures to real-world interpretation, using evidence from the data to support claims about consistency or variability between players.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: - Big Ideas→ 7th Math→8.3 Comparing Populations - Math Investigation - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 4 → Statistics→ EE 1)		

Engaging Experience 2

Title: Measures of Center & Data Display (Box and Whisker Plot)		Blocks: ½
Learning Target(s): The student will compare populations using measures of center and variation.	Success Criteria: - I can find the measures of center and variation of a data set. - I can describe the visual overlap of two data distributions numerically. - I can determine whether there is a significant	

	difference in the measures of center of two data sets.
Rich Task: This activity is a class data investigation that connects real-world measurements to statistical analysis. Students collect data on classmates' heights and jump heights, then organize and display the data using box-and-whisker plots. Afterward, they analyze the distributions to compare the two data sets and determine if there is any correlation.	Instructional Suggestions: - Have students collect and record data carefully, emphasizing consistency in measurement and accuracy when organizing values into data sets. - Guide students to construct and interpret box-and-whisker plots, focusing on how median, spread, and quartiles describe each distribution. - Encourage students to analyze and discuss comparisons, using evidence from the plots to determine similarities, differences, and whether a relationship between height and jump height appears reasonable.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Whole Class Data Collection - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 4 → Statistics→ EE 2)	

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Probability	Probability	Big Ideas: - Combine 7.1: Probability & 7.2 Experimental and Theoretical Probability Engaging Experiences: - EE1 - Probability - EE2 - Experimental and Theoretical Probability	1 block
	Compound Events	Big Ideas: 7.3: Compound Events	1 block
Statistics	Samples & Populations	Big Ideas: Combine 8.1: Samples and Populations & 8.2: Using Random Samples to Describe Populations	1 block
	Box & Whisker Plots	Big Ideas: 8.3 Engaging Experiences: - EE1 - Measures of Center & Data Display (Box and Whisker Plot) - EE2 - Measures of Center & Data Display (Box and Whisker Plot)	1 block
		Review/Flex Days	1 block
		Test Day (Combine 7 & 8)	1 block
	Unit Engaging Scenario: Statistical Measures Project		2 block

Unit 5: Geometry

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Geometry

Length of Unit: 13 Blocks

Overview of Unit: Students deepen their understanding of geometry by exploring area, perimeter, circumference, angle relationships, surface area, and volume. They solve real-world and mathematical problems involving two-dimensional figures, while reasoning about angle measures and relationships formed by intersecting lines. Students extend these concepts to three-dimensional figures by applying formulas for prisms, pyramids, and cylinders, and connecting two-dimensional measurements to surface area and volume to strengthen spatial reasoning and problem-solving skills.

Priority Standards for unit:

- 7.GM.A.4a Understand the concepts of circles.(Analyze the relationships among the circumference, the radius, the diameter, the area and Pi in a circle.)
- 7.GM.A.4b Understand the concepts of circles.(Know and apply the formulas for circumference and area of circles to solve problems.)
- 7.GM.B.6a Understand the relationship between area, surface area and volume.(Find the area of triangles, quadrilaterals and other polygons composed of triangles and rectangles.)
- 7.GM.B.6b Understand the relationship between area, surface area and volume.(Find the volume and surface area of prisms, pyramids and cylinder.)
- 8.GM.C.9.a Solve problems involving surface area and volume. Understand the concept of surface area and find surface area of pyramids.
- 8.GM.C.9.b Solve problems involving surface area and volume. Understand the concepts of volume and find the volume of pyramids, cones and spheres.

Supporting Standards for unit:

- 7.GM.A.2a Use a variety of tools to construct geometric shapes. Determine if provided constraints will create a unique triangle through construction.
- 7.GM.A.2b Use a variety of tools to construct geometric shapes.Construct special quadrilaterals given specific parameters.
- 7.GM.A.3 Describe two-dimensional cross sections of pyramids, prisms, cones and cylinders.
- 7.GM.B.5:Use angle properties to write and solve equations for an unknown angle.
- 8.GM.A.5.c Explore angle relationships and establish informal arguments.Construct and explore the angles created when parallel lines are cut by a transversal.

Essential Questions:

1. How can you differentiate between radius and diameter?

2. How can you differentiate between circumference and area?
3. How can you find the area of a composite figure?
4. How can you solve for the surface area of prisms, pyramids, and cylinders, using formulas or nets?
5. How can you solve for the volume of prisms, pyramids, and cylinders, using formulas?
6. How are area, surface area, and volume related?
7. How can prior knowledge of geometric shapes be used to find missing measurements?
8. What relationships exist between angles, and how can they help us solve problems?
9. How does understanding geometry help us solve real-world problems?
10. How can we calculate and interpret the volume of pyramids, cylinders, cones, and spheres in real-world situations?

Enduring Understanding/Big Ideas:

1. You can differentiate between radius and diameter because the radius goes from the center to the edge of a circle, while the diameter goes all the way across through the center.
2. Circumference measures the distance around a circle, while area measures the space inside it.
3. You find the area of a composite figure by breaking it into simpler shapes, finding each area, and adding them together.
4. You solve for surface area of prisms, pyramids, and cylinders by using formulas or nets to add the areas of all their faces.
5. You solve for volume of prisms, pyramids, and cylinders by applying the appropriate formulas that multiply base area and height.
6. Area, surface area, and volume are related because they all measure different aspects of the size of a shape or solid.
7. Prior knowledge of geometric shapes helps find missing measurements by using known properties, formulas, and relationships.
8. Angle relationships help us solve problems by showing how angles connect, such as being complementary, supplementary, or vertical.
9. Understanding geometry helps us solve real-world problems by allowing us to measure, design, build, and analyze objects and spaces accurately.
10. Volume formulas allow us to measure and compare the amount of space inside three-dimensional objects, helping us solve practical problems involving capacity and storage.

Unit Engaging Scenario

Engaging Scenario (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Unit 5 Project Overview: This project is a “Dream House Design” activity where students act as architects and designers. They are given a 5-acre property and a \$3,000,000 budget to plan and create their own dream home. Students will: 1) Research house design ideas and layout concepts. 2) Sketch a rough draft of their home, deciding the size, placement, and purpose of each room or feature. 3) Design a final layout using a ruler, carefully drawing each structure on a map. 4) Calculate costs by finding the area of each space and applying given construction prices, ensuring they stay within budget. The project integrates math (area, perimeter, budgeting) with creativity and real-world problem solving, as students must make design choices that are both functional and financially realistic.

Unit 5 Project can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Scenarios → Unit 5)

Rubric for Engaging Scenario: [Click Here](#)

Engaging Scenario 1 block

Students will be given the dimensions of a salsa jar and determine how many can be shipped in a single box, and in a shipment of 12 boxes. Students will determine how much unused space can be filled with packing peanuts. Students will compare and choose which container of packing peanuts should be purchased for one shipment of jars. Students must have knowledge of the formulas for the volume of prisms and cylinders, so extra practice may be needed before this task. This task could also be turned into a larger project comparing the volumes and surface areas of various items from a grocery store.

[mod_8thgrade_ab-ptt_10.pdf](#)

Topic 1: Geometric Shapes & Angles

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms	
composite figure	adjacent angles center (of a circle) circle circumference complementary angles diameter (of a circle)	pi radius (of a circle) semicircle supplementary angles vertical angles

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.GM.A.4a 7.GM.A.4b 7.GM.A.4b	The student will find the circumference of a circle. The student will find the area of a circle.	- I can explain the relationship between the diameter and circumference of a circle. - I can use a formula to find the circumference of a circle. - I can estimate the area of a circle. - I can use a formula to find the area of a circle.	9.1 Circles and Circumference 9.2 Areas of Circles
7.GM.A.4b 7.GM.B.6a	The student will find perimeters and areas of composite figures.	- I can use a grid to estimate perimeters and areas. - I can identify the shapes that make up a composite figure. - I can find the perimeters and areas of shapes that make up composite figures.	9.3 Perimeters and Areas of Composite Figures
<i>7.GM.B.5</i>	The student will use facts about angle relationships to	I can identify adjacent, complementary,	9.5 Finding Unknown Angle

	find unknown angle measures.	supplementary, and vertical angles. ● I can use equations to find unknown angle measures. ● I can find unknown angle measures in real-life situations.	Measures
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Engaging Experience 1

Title: Composite Figures		Blocks: ½
Learning Target(s): • The student will find the circumference of a circle. • The student will find the area of a circle. • The student will find perimeters and areas of composite figures.	Success Criteria: • I can use a formula to find the circumference of a circle. • I can use a formula to find the area of a circle. • I can identify the shapes that make up a composite figure. • I can find the perimeters and areas of shapes that make up composite figures.	
Rich Task: • Each level is printed on a different color paper. • As students work through the level, they check their answers with the teacher. If correct, they are handed a new half sheet, bringing them to a more challenging level/ learning target. • If incorrect, the teacher marks the one incorrect, and the student must use their notes to try again.	Instructional Suggestions: • Use the color-coded levels to provide immediate, targeted feedback, allowing students to confirm understanding or revisit misconceptions before progressing to the next learning target. • Encourage students to analyze errors and revise strategically by using notes, examples, or prior work when a problem is marked incorrect. • Leverage the increasing difficulty of levels to promote perseverance and goal-setting, reinforcing that accuracy and effort are required to advance.	
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: • Levels Activity- can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 5 → Geometric Shapes & Angles→ EE 1)		

Engaging Experience 2

Title: Geometric Shapes and Angles		Blocks: 1
Learning Target(s): • The student will find the circumference of a circle. • The student will find the area of a circle. • The student will find perimeters and areas of composite figures. • The student will use facts about angle relationships to find unknown angle measures.		Success Criteria: • I can use a formula to find the circumference of a circle. • I can use a formula to find the area of a circle. • I can identify the shapes that make up a composite figure. • I can find the perimeters and areas of shapes that make up composite figures. • I can identify adjacent, complementary, supplementary, and vertical angles. • I can use equations to find unknown angle measures. • I can find unknown angle measures in real-life situations.
Rich Task: • Students will work with a team to solve math problems, getting the opportunity to select from the Whammy Board, for correct answers. Students will take a chance on where they select from the board, where there will be opportunities to earn points, loose points, or switch points with another team. Random outcomes add excitement and reinforce engagement while reviewing key math concepts.		Instructional Suggestions: • Require teams to justify and verify their solutions before selecting from the Whammy Board, reinforcing accurate reasoning and computation prior to engaging with the game element. • Use team discussion to analyze outcomes and strategies, encouraging students to reflect on how correct answers and random events affect their overall results. • Promote the use of precise mathematical language and collaborative decision-making as students explain their thinking and support team choices.
Student Math Practices: ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: • Review Activity- can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 5 → Geometric Shapes & Angles→ EE 2)		

Topic 2: Surface Area & Volume

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms	
<i>None</i>	cross section lateral surface area (of a prism) cross section lateral surface area (of a prism)	regular pyramid slant height (of a pyramid) regular pyramid slant height (of a pyramid)

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
7.GM.A.4b 7.GM.B.6b	The student will find the surface area of a prism. The student will find the surface area of a cylinder.	- I can use a formula to find the surface area of a prism. - I can find the lateral surface area of a prism. - I can use a formula to find the surface area of a cylinder. - I can find the lateral surface area of a cylinder.	10.1 Surface Areas of Prisms 10.2 Surface Areas of Cylinders
7.GM.B.6b	The student will find the surface area of a pyramid.	- I can use a net to find the surface area of a regular pyramid. - I can find the lateral surface area of a regular pyramid.	10.3 Surface Areas of Pyramids
7.GM.B.6b	The student will find the volume of a prism. The student will find the volume of a pyramid.	- I can use a formula to find the volume of a prism. - I can use the formula for the volume of a prism to find a missing dimension. - I can use a formula to find the volume of	10.4 Volumes of Prisms & 10.5 Volumes of Pyramids

		a pyramid. I can use the volume of a pyramid to solve a real-life problem.	
7.GM.B.6b 8.GM.C.9b	The student will find the volume of a cylinder. The student will find the volume of a cone.	- I can use a formula to find the volume of a cylinder. - I can use the formula for the volume of a cylinder to find a missing dimension. - I can use a formula to find the volume of a cone. - I can use the formula for the volume of a cone to find a missing dimension	16.1 (accelerated) Volumes of Cylinders & 16.2 Volumes of Cones
8.GM.C.9b	The student will find the volume of a sphere.	- I can use a formula to find the volume of a sphere. - I can use the formula for the volume of a sphere to find the radius. - I can find volumes of composite solids.	16.3 Volumes of Spheres

Engaging Experience 1

Title: Reveal the Picture		Blocks: .5
Learning Target(s): The student will find the surface area of a prism.	Success Criteria: - I can use a formula to find the surface area of a prism. - I can find the lateral surface area of a prism.	
Rich Task: It's a puzzle-based learning activity that combines math practice with a visual reward—solving problems piece by piece reveals a hidden image, making the process more engaging and motivating.	Possible Instructional Practices: - Encourage students to solve each problem carefully before placing a puzzle piece, emphasizing that correct reasoning and computation are necessary for the image to be revealed. - Use the visual progress of the puzzle to promote perseverance and self-checking, prompting students to revisit their work when	

	pieces do not fit as expected. Ask students to explain or justify their solutions—either verbally or in writing—using appropriate mathematical vocabulary before finalizing puzzle placement.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Reveal the Picture - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 5 → Surface Area → EE 1)	

Engaging Experience 2

Title: Surface Area of Prisms, Pyramids, & Cylinders		Blocks: 1
Learning Target(s): The student will find the surface area of a prism, pyramid, or cylinder.	Success Criteria: - I can use a formula to find the surface area of a prism. - I can use a formula to find the surface area of a cylinder. - I can use a net to find the surface area of a regular pyramid.	
Rich Task: Students work through a set of task cards (individually or as a group), each containing a math problem or prompt. They record their answers on a sheet or digitally, often moving at their own pace or rotating through stations. Task cards can be used for review, reinforcement, or assessment, and they support differentiation by allowing varied levels or problem types.	Instructional Suggestions: - Encourage students to make sense of each task card before responding, selecting appropriate strategies and attending to accuracy whether working independently, in groups, or through stations. - Use task cards to differentiate instruction, allowing students to engage with varied problem types or levels of complexity to support review, reinforcement, or assessment. - Promote mathematical communication and reflection by having students explain their reasoning verbally or in writing when recording or reviewing responses.	

Student Math Practices:

●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8

Resources:

- Task Cards - can be found in the shared 7th grade drive ([Updated 2026 Curriculum Resources](#) → Engaging Experiences → Unit 5 → Surface Area → EE 2)

Engaging Experience 3

Title: Volume of Prisms and Cylinders		Blocks: .5
Learning Target(s): ● The student will find the volume of a prism, pyramid, or cylinder.	Success Criteria: ● I can use a formula to find the volume of a prism, pyramid, or cylinder.	
Rich Task: ● Copy the two worksheet pages single-sided and give one set to each student or pair. Students solve the problems on the page, then cut out the 12 squares. Starting with the “Start” card, they match each answer to the next card to form a chain, and tape the completed chain together.	Possible Instructional Practices: ● Encourage students to solve each problem carefully before attempting to match cards, emphasizing that the accuracy of each solution determines the next link in the chain. ● Use the self-checking nature of the activity to promote perseverance and error analysis, prompting students to revisit and revise work when the chain does not connect correctly. ● Have students explain their reasoning to a partner using appropriate mathematical vocabulary to justify why one answer leads to the next card.	
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: ● Chain Activity - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → U nit 5 → V olume → EE 1)		

Engaging Experience 4

Title: Volume of Prisms and Cylinders		Blocks: .5
Learning Target(s): ● The student will find the	Success Criteria: ● I can use a formula to find the volume of a	

volume of a prism, pyramid, or cylinder.	prism, pyramid, or cylinder.
Rich Task: This activity is a math puzzle worksheet that combines problem-solving with a hidden message. Students first solve volume problems (rectangular prisms, triangular prisms, cylinders, etc.). Each answer corresponds to a number that matches a letter. By placing the correct letters over the numbers in the riddle, they decode a joke or message.	Possible Instructional Practices: - Encourage students to identify the correct solid and volume formula for each problem before substituting values, emphasizing careful selection of strategies. - Use the hidden-message format to promote precision and self-checking, as incorrect calculations will prevent the riddle or joke from decoding correctly. - Ask students to explain how dimensions relate to volume for different solids, reinforcing conceptual understanding beyond procedural computation.
Student Math Practices: ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Solve the Riddle - can be found in the shared 7th grade drive (Updated 2026 Curriculum Resources → Engaging Experiences → Unit 5 → Volume → EE 2)	

Engaging Experience 5

Title: Meatballs		Blocks: 0.5
Learning Target(s): The student will find the volume of a sphere.	Success Criteria: - I can use a formula to find the volume of a sphere. - I can use the formula for the volume of a sphere to find the radius. - I can find volumes of composite solids.	
Rich Task: Students use volume of cylinders and volume of spheres to predict how many meatballs can fit into a pot before it overflows.	Possible Instructional Practices: - Follow the three act math protocol linked in the resource - Have students grouped to complete this activity and write their thinking on large chart paper or a vertical board.	

Student Math Practices:

●MP1

●MP2

●MP3

●MP4

●MP5

●MP6

●MP7

●MP8

Resources:

- [Meatballs - 3 Act Math](#)

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Geometric Shapes & Angles	Circles & Circumference Area of Circles	Big Ideas: Combine: 9.1 Circles and Circumference & 9.2: Areas of Circles	1 block
	Perimeters & Areas of Composite Figures	Big Ideas: 9.3 Perimeters and Areas of Composite Figures Engaging Experiences: - EE1 - Composite Figures	1 blocks
	Finding Unknown Angle Measures	Big Ideas: 9.5 Finding Unknown Angle Measures Engaging Experiences: - EE2 - Geometric Shapes & Angles	1 block
		Review/Flex Days	1 blocks
		Test Day	1 block
	Surface Areas of Prisms Surface Areas of Cylinders	Big Ideas: - Combine 10.1 Surface Areas of Prisms & 10.2 Surface Areas of Cylinders Engaging Experiences: - EE1 - Surface Area of Prisms	1 block
	Surface Areas of Pyramids	Big Ideas: 10.3 Surface Areas of Pyramids Engaging Experiences: - EE2 - Surface Area of Prisms, Pyramids, and Cylinder	1 block
		Review/Flex Days	1 block
	Volumes of Prisms	Big Ideas:	1 block

	Volumes of Pyramids	- Combine: 10.4 Volumes of Prisms & 10.5 Volumes of Pyramids	
	Volumes of Cylinders Volume of Cones (Accelerated Book)	Big Ideas: - Combine: 16.1 Volumes of Cylinders & 16.2: Volume of Cones Engaging Experiences: - EE3 - Volume of Prisms, Pyramids, and Cylinders - EE4 - Volume of Prisms, Pyramids, and Cylinders	1 block
	Volume of Spheres (Accelerated Book)	Big Ideas: - Combine: 16.3 Volumes of Spheres Engaging Experiences: - EE5 - Volume of Prisms, Pyramids, and Cylinders	1 block
		Review/Flex Days	1 block
		Test Day	1 block
Unit Engaging Scenario: Dream House Project OR Big Ideas Performance Task			3 blocks

Unit 6: Application of Exponential Properties

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Application of Exponential Properties

Length of Unit: 10 blocks

Overview of Unit: Students apply the properties of integer exponents to generate equivalent expressions and simplify numerical and algebraic expressions. They use scientific notation to represent and operate with very large and very small numbers in real-world contexts. Students will understand that there are numbers which are not rational and approximate their locations on a number line. Students will then work with radicals and integer exponents in applications of the Pythagorean Theorem and its converse.

Priority Standards for unit:

- 8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent expressions.
- 8.EE.A.3 Express very large and very small quantities in scientific notation and approximate how many times larger one is than the other.
- 8.GM.B.6 Use models to demonstrate a proof of the Pythagorean Theorem and its converse.

Supporting Standards for unit:

- 8.EE.A.4.a Use scientific notation to solve problems. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.
- 8.EE.A.4.b Use scientific notation to solve problems. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.
- 8.GM.B.7 Use the Pythagorean Theorem to determine unknown side lengths in right triangles in problems in two- and three-dimensional contexts.
- 8.GM.B.8 Use the Pythagorean Theorem to find the distance between points in a Cartesian coordinate system.

Essential Questions:

1. How do we apply exponent properties to simplify expressions?
2. How can we use scientific notation to solve real-world problems?
3. How do we know whether a number is rational or irrational?
4. How can we estimate where irrational numbers belong on a number line and how is this useful in determining the reasonableness of an answer?
5. How does the Pythagorean Theorem help us solve problems involving unknown side lengths and distance in the coordinate plane?
6. How can we use the converse of the Pythagorean Theorem to determine whether a triangle is a right triangle?

Enduring Understanding/Big Ideas:

1. The definition of exponents, product of powers property, quotient of powers property, power of power property, power of a product property, zero and negative exponents properties to simplify expressions involving exponents.
2. Properties of exponents can be applied to simplify problems that involve numbers in scientific notation.
3. Irrational numbers can only be written as nonterminating decimals and nonrepeating decimals. If a number can be written as a terminating decimal or a repeating decimal, or can be expressed as a quotient of integers, it is a rational number.
4. Numbers that are not perfect squares or cubes can be estimated by comparing them to nearby perfect squares and perfect cubes, allowing us to approximate their values and place them accurately on a number line. Knowing nearby perfect squares helps us predict how big an answer should be, so its reasonableness can be evaluated.
5. The Pythagorean Theorem provides a reliable method to find missing side lengths in a right triangle and finding unknown distances in the coordinate plane by relating the side lengths of right triangles.
6. The relationship between the squares of a triangle's side lengths can be used to determine whether a triangle contains a right angle.

Unit Engaging Scenario

Engaging Scenario 1 block

Students will use the atomic mass of an element to find the number of atoms in one gram of the element. Students will also determine how much carbon dioxide is in the atmosphere and how much there will be in the future. Students must have knowledge of scientific notation and using powers to evaluate expressions.

[exponents and scientific notation performance task.pdf](#)

Rubric for Engaging Scenario: Found in the document

Topic 1: Exponents & Scientific Notation

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
base (of a power) exponent power evaluate simplify solve	power of a power property power of a product property product of powers property quotient of powers property zero exponent property negative exponent property scientific notation

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
8.EE1.A.1	The student will use exponents to write and evaluate expressions. The student will generate equivalent expressions involving products of powers.	● I can write products using exponents. ● I can evaluate expressions involving powers. ● I can use exponents to solve real-life problems. ● I can find products of powers that have the same base. ● I can find powers of powers. ● I can find powers of products.	14.1 Exponents & 14.2 Product of Powers Property
8.EE1.A.1	The student will generate equivalent expressions involving quotients of powers. The student will understand the concepts of zero and negative exponents.	● I can find quotients of powers that have the same base. ● I can simplify expressions using the Quotient of Powers Property. ● I can solve real-life problems involving quotients of powers. ● I can explain the meanings of zero and negative exponents. ● I can evaluate numerical expressions involving	14.3 Quotient of Powers Property & 14.4 Zero and Negative Exponents

		zero and negative exponents. ● I can simplify algebraic expressions involving zero and negative exponents.	
8.EE1.A.3 <i>8.EE1.A.4a</i> <i>8.EE1.A.4b</i>	The student will understand the concept of scientific notation. The student will perform operations with numbers written in scientific notation.	● I can convert between scientific notation and standard form. ● I can choose appropriate units to represent quantities. ● I can use scientific notation to solve real-life problems. ● I can explain how to add and subtract numbers in scientific notation. ● I can explain how to multiply and divide numbers in scientific notation. ● I can use operations in scientific notation to solve real-life problems.	14.6 Scientific Notation & 14.7 Operations in Scientific Notation

Engaging Experience 1

Title: Applying Properties of Exponents		Blocks: 1
Learning Target(s): • The student will use exponents to write and evaluate expressions.	Success Criteria: • I can simplify algebraic expressions involving zero and negative exponents. • I can simplify expressions using the Quotient of Powers Property. • I can find products of powers that have the same base. • I can find powers of powers. • I can find powers of products.	
Rich Task: • Students are given cards with expressions on them and cards with just single exponents on them and will have to apply the exponent properties to simplify the expressions to find the matching card with the equivalent exponent on it.		Possible Instructional Practices: • Students will start off by simplifying expressions to match the cards. • Have students explain why there are several cards that are equivalent. • Highlight common misconceptions and explicitly explain why certain cards are NOT matches.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: • exponents r1.pdf		

Engaging Experience 2

Title: Would you rather...		Blocks: 0.25
Learning Target(s): • The student will understand the concept of scientific notation.	Success Criteria: • I can convert between scientific notation and standard form. • I can choose appropriate units to represent quantities. • I can use scientific notation to solve real-life problems.	

Rich Task: Students compare quantities written in Scientific Notation. For example, would you rather have 3.7×10^3 gold fish crackers or 4.2×10^8 gold fish crackers and why?	Possible Instructional Practices: - Be sure students justify their thinking using mathematical reasoning. - Remember that if a student doesn't like ____ (gold fish crackers), they may choose the smaller amount of crackers. This is great as long as they can justify their reasoning.
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: Scientific Notation: Would You Rather	

Topic 2: Real Numbers & The Pythagorean Theorem

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
<i>square root</i> <i>inverse operations</i> <i>rational number</i> <i>substitution</i> <i>solve</i> <i>evaluate</i> <i>simplify</i> <i>solution set</i> <i>right triangle</i> <i>irrational number</i>	cube root hypotenuse legs perfect cube perfect square Pythagorean Theorem Converse of the Pythagorean Theorem radical sign radicand real numbers square root converse

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
8.EE1.A.2a 8.EE1.A.2b 8.EE1.A.2c	The student will understand the concept of a square root of a number. The student will understand the concept of a cube root of a number.	● I can find square roots of numbers. ● I can evaluate expressions involving square roots. ● I can use square roots to solve equations. ● I can find cube roots of numbers. ● I can evaluate expressions involving cube roots. ● I can use cube roots to solve equations.	15.1 Finding Square Roots & 15.3 Finding Cube Roots
8.GM.B.6 8.GM.B.7 8.GM.B.8	The student will understand the Pythagorean Theorem.	● I can explain the Pythagorean Theorem. ● I can use the Pythagorean Theorem to find	15.2 The Pythagorean Theorem

		unknown side lengths of triangles. • I can use the Pythagorean Theorem to find distances between points in a coordinate plane.	
8.GM.B.6	The student will understand the converse of the Pythagorean Theorem.	• I can explain the converse of the Pythagorean Theorem. • I can identify right triangles given three side lengths. • I can identify right triangles in a coordinate plane.	15.6 The Converse of the Pythagorean Theorem

Engaging Experience 1

Title: Taco Cart				Blocks: 0.5	
Learning Target(s): ● The student will understand the Pythagorean Theorem.		Success Criteria: ● I can explain the Pythagorean Theorem. ● I can use the Pythagorean Theorem to find unknown side lengths of triangles. ● I can use the Pythagorean Theorem to find distances between points in a coordinate plane.			
Rich Task: ● Students will compare two people to determine who will reach the taco cart first using both the Pythagorean Theorem and speed.			Possible Instructional Practices: ● Follow the three act math protocol linked in the resource ● Have students grouped to complete this activity and write their thinking on large chart paper or a vertical board.		
<u>Student Math Practices:</u>					
●MP1 ●MP2		●MP3 ●MP4		●MP5 ●MP6 ●MP7 ●MP8	

Resources:

- [Taco Cart 3-Act Math](#)

Engaging Experience 2

Title: Pythagorean Theorem Starburst Activity		Blocks: 0.5
Learning Target(s): • The student will understand the converse of the Pythagorean Theorem.	Success Criteria: • I can explain the converse of the Pythagorean Theorem.	
Rich Task: • Students will utilize their understanding of Pythagorean Theorem to prove its converse. By constructing squares with areas equivalent to the squares of the side lengths of a right triangle, students will be able to prove that a triangle is a right triangle.	Possible Instructional Practices: • Prompt students with three side lengths of a triangle and task them with deciding whether or not it is possible that they form a right triangle. (e.g. 3, 4, 5 or 3, 4, 6)	
<u>Student Math Practices:</u> ●●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: • Pythagorean Theorem Starburst Activity		

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Exponents & Scientific Notation	Exponents & Product of Powers Property	Big Ideas: Combine: 14.1: Exponents & 14.2: Product of Powers Property	1 block
	Quotient of Powers Property Zero and Negative Exponents	Big Ideas: - Combine 14.3: Quotient of Powers Property & 14.4: Zero and Negative Exponents Engaging Experiences: - EE1 - Applying Properties of Exponents	1 block
	Scientific Notation Operations with Scientific Notation	Big Ideas: - Combine: 14.6: Scientific Notation & 14.7: Operations with Scientific Notation Engaging Experiences: - EE2 - Understanding Scientific Notation	1 block
		Review/Flex Days	1 block
		Test Day	1 block
Real Number & the Pythagorean Theorem	Finding Square & Cube Roots	Big Ideas: - Combine: 15.1: Finding Square Roots & 15.3: Finding Cube Roots Engaging Experiences:	1 block
	The Pythagorean Theorem	Big Ideas: 15.2: The Pythagorean Theorem Engaging Experiences: - EE1 - Understanding Pythagorean Theorem	1 block

	The Converse of the Pythagorean Theorem	Big Ideas: 15.6: The Converse of the Pythagorean Theorem Engaging Experiences: - EE2 - Proving Pythagorean Theorem	1 block
		Review/Flex Days	1 block
		Test Day	1 block
	Engaging Scenario: Big Ideas Performance Task		1 blocks

Unit 7: Transformations & Triangles and Transversals

Subject: Mathematics

Grade: 7th Grade Accelerated

Name of Unit: Transformations & Triangles and Transversals

Length of Unit: 6 blocks

Overview of Unit: Students explore how figures move and change in the coordinate plane through translations, rotations, reflections, and dilations. They investigate how transformations affect size, shape, and orientation, and build an understanding of congruence and similarity by analyzing sequences of transformations and applying them to real-world and geometric contexts. Students investigate angle relationships formed when parallel lines are cut by a transversal. Students justify their reasoning and build informal arguments about why these relationships hold, connecting geometric concepts to algebraic problem solving.

Priority Standards for unit:

- 8.GM.A.3 Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.

Supporting Standards for unit:

- 8.GM.A.1.a Verify experimentally the congruence properties of rigid transformations. Verify that angle measure, betweenness, collinearity and distance are preserved under rigid transformations.
- 8.GM.A.1.b Verify experimentally the congruence properties of rigid transformations. Investigate if orientation is preserved under rigid transformations.
- 8.GM.A.2.a Understand that two-dimensional figures are congruent if a series of rigid transformations can be performed to map the pre-image to the image. Describe a possible sequence of rigid transformations between two congruent figures.
- 8.GM.A.4.a Understand that two-dimensional figures are similar if a series of transformations (rotations, reflections, translations and dilations) can be performed to map the pre-image to the image. Describe a possible sequence of transformations between two similar figures.

Essential Questions:

1. How can we describe how a figure moves on a coordinate plane?
2. What stays the same and what changes during a transformation?
3. Which transformations create figures that are congruent or similar?
4. How can we describe a sequence of transformations?
5. How can similarity be used to solve real world problems?
6. What angle relationships are created when parallel lines are cut by a transversal?
7. How can we use angle relationships to solve problems and justify reasoning?
8. How do we use equations to find unknown angles or sides of a triangle?

Enduring Understanding/Big Ideas:

1. Figures can be described using transformations (translations, reflections, rotations, and dilations) which follow specific rules that map every point from the original figure to a new location.
2. Some transformations preserve distance and angle measure (rigid transformations - translations, rotations, reflections), while others change size but keep side lengths proportionate and angle measures congruent (similarity transformations - dilations).
3. Translations, rotations, and reflections create congruent figures, while dilations create similar figures.
4. A sequence of transformations describes the order of changes made to a figure on the coordinate plane to move it from its original position (the preimage) to a new position (the image).
5. Similarity allows us to use scale factors and proportional reasoning to find unknown measurements in real-world situations, such as maps, models, and indirect measurement.
6. Identify and name specific angle relationships such as vertical, corresponding, alternate interior and exterior, consecutive (same-side) interior and exterior, and supplementary.
7. Apply these angle relationships to determine missing angle measures and solve problems.
8. Use known relationships, such as the Triangle Sum Theorem, Exterior Angle Theorem, and proportional relationships of sides to write and solve equations that represent the missing values.

Unit Engaging Scenario

Engaging Scenario 1 block

This engaging scenario is an adaptation of the Performance Task in Chapter 2 of Big Ideas. In this task students pretend they are a puppeteer. They track transformations algebraically as the puppet moves in the show and students are encouraged to write their own story about the puppet at the end of the scenario. It may be helpful to use a flashlight and make shadow puppets move closer and farther away from the light to launch this scenario. While students are encouraged to complete the scenario individually, they may want to collaborate on their “story” and perform their “puppet show” to culminate the scenario.

[Engaging Scenario Unit 1 Transformations](#)

Rubric for Engaging Scenario:

Engaging Scenario 1-2 blocks

In this project, students will become city designers and create their own original city while applying their knowledge of angles formed by parallel lines and transversals. Students will design a city map that includes labeled streets and locations placed according to specific geometric angle relationships. The city must include five parallel streets and two transversal streets, all clearly named and labeled. Students will strategically place buildings and locations—such as a school, restaurant, library, and park so that each pair represents a designated angle relationship (alternate interior, corresponding, vertical angles, etc.). The project combines geometry concepts with creativity, allowing students to demonstrate understanding through a visual model. Cities should be neat, colorful, and school appropriate, and students are encouraged to design a unique city inspired by real or fictional places or entirely from their imagination. The goal of this project is to show mastery of angle relationships while practicing mathematical reasoning, organization, and creative design.

[City Designer Project](#)

Topic 1: Transformations

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
x -axis y -axis coordinate plane scale factor	angle of rotation center of dilation center of rotation clockwise congruent counterclockwise dilation enlargement image line of reflection orientation preimage reduction reflection rigid transformation rotation similar figures similarity transformation transformation translation remote interior angle interior angles exterior angles

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
8.GM.A.1a 8.GM.A.1b 8.GM.A.3	The student will translate figures in the coordinate plane. The student will reflect figures in the coordinate plane.	● I can identify a translation. ● I can find the coordinates of a translated figure. ● I can use coordinates to translate a figure. ● I can identify a reflection. ● I can find the coordinates of a figure reflected in an axis. ● I can use coordinates to reflect a figure in the x- or y-axis.	11.1 Translations 11.2 Reflections
8.GM.A.1a 8.GM.A.1b 8.GM.A.3	The student will rotate figures in the coordinate plane. The student will dilate figures in the coordinate plane.	● I can identify a rotation. ● I can find the coordinates of a figure rotated about the origin. ● I can use coordinates to rotate a figure about the	11.3 Rotations & 11.5 Dilations

		origin. ● I can identify a dilation. ● I can find the coordinates of a figure dilated with respect to the origin. ● I can use coordinates to dilate a figure with respect to the origin.	
8.GM.A.2a 8.GM.A.4a	The student will understand the concept of congruent figures. The student will understand the concept of similar figures.	● I can identify congruent figures. ● I can describe a sequence of rigid transformations between two congruent figures ● I can identify similar figures. ● I can describe a similarity transformation between two similar figures.	11.4 Congruent Figures & 11.6 Similar Figures

Engaging Experience 1

Title: Transformations Golf		Blocks: 0.5
Learning Target(s): ● Students will translate figures in the coordinate plane ● Students will rotate figures in the coordinate plane ● Students will reflect figures in the coordinate plane	Success Criteria: ● I can use various transformations to move a starting figure (pre-image) to a destination (image) in the coordinate plane.	
Rich Task: ● In this activity, students use their existing understanding of translations, reflections, and rotations to complete a round of transformation golf. For each challenge, their task is the same: Use one or more transformations to transform the pre-image onto the image. We recommend you solve the challenges yourself before assigning this activity.		Possible Instructional Practices: ● Highlight the variety of different solutions that students come up with. ● Provide unique challenges for particular problems (e.g. “Can you solve it only using reflections?”) ● Have students predict the result of their transformation

	before allowing them to proceed.
Student Math Practices: ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8	
Resources: ● Desmos Transformations Golf	

Engaging Experience 2

Title: Transformation Logo Card Sort		Blocks: 0.25
Learning Target(s): The student will describe a sequence of transformations.	Success Criteria: I can describe a sequence of transformations.	
Rich Task: In this activity, students use their existing understanding of translations, reflections, and rotations to sort cards with different logos into different categories based on the transformation the logo displays. There is more than one correct answer to each card.	Possible Instructional Practices: - This is a great unit opener. - Highlight different combinations of possible transformations (e.g. two 90 degree clockwise rotations vs one reflection and then a translation). - Have students try and come up with different possibilities for one card. - Have students do multiple rounds of sorting. Start off with congruent vs similar and then sort by different transformations.	
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: Transformation Logo Card Sort		

Topic 2: Triangles and Transversals

<u>Cross-Cutting Terms:</u>	Grade-Specific Terms
<i>parallel lines</i> <i>vertical angles</i> <i>supplementary</i> <i>adjacent</i> <i>angle</i>	congruent transversal alternate interior alternate exterior corresponding same side interior consecutive interior same side exterior exterior angle interior angle similar figures remote interior remote exterior consecutive exterior

Priority Standards & Supporting Standards	Learning Targets	Success Criteria	Aligned Sections from Course Resource
8.GM.A.5c 8.GM.A.5a 8.GM.A.5b	The student will find missing angle measures created by the intersections of lines. The student will understand properties of interior and exterior angles of triangles.	• I can identify congruent angles when a transversal intersects parallel lines. • I can find angle measures when a transversal intersects parallel lines. • I can use equations to find missing angle measures of triangles. • I can use interior and exterior angles of a triangle to solve real-life problems.	12.1 Parallel Lines and Transversals & 12.2 Angles of Triangles
8.GM.A.5d	The student will use similar triangles to find missing measures.	• I can use angle measures to determine whether triangles are similar. • I can use similar triangles to solve real-life problems.	12.4 Using Similar Triangles

Engaging Experience 1

Title: Lines, Transversals, and Angles		Blocks: 0.25
Learning Target(s): ● The student will find missing angle measures created by the intersections of lines.	Success Criteria: ● I can identify congruent angles when a transversal intersects parallel lines. ● I can find angle measures when a transversal intersects parallel lines.	
Rich Task: ● In this activity, students explore the relationship among angles formed by a transversal and a system of two lines. In particular, they consider what happens to angles measures when the two lines are parallel vs. when they are not.	Possible Instructional Practices: ● Follow Teacher Moves in Desmos. ● Be sure to encourage students to use mathematics vocabulary when discussing this activity.	
<u>Student Math Practices:</u> ●MP1 ●MP2 ●MP3 ●MP4 ●MP5 ●MP6 ●MP7 ●MP8		
Resources: ● Desmos - Lines, Transversals, and Angles		

Summary of Unit Engaging Learning Experiences

Topic	Section	Experiences	Suggested Length of Time
Transformations	Translations & Reflections	Big Ideas: Combine: 11.1: Translations & 11.2: Reflections	1 block
	Rotations & Dialations	Big Ideas: - Combine: 11.3 Rotations & 11.4 Dialations Engaging Experiences: - EE1 - Desmos Golf Activity - EE2 - Logo Card Sort	1 block
	Congruent & Similar Figures	Big Ideas: Combine: 11.5: Congruent Figures & 11.6 Similar Figures	1 block
	Review/Test		1 block
Triangles & Transversals	Parallel Lines and Transversals & Angles of Triangles	Big Ideas: - Combine: 12.1: Parallel Lines and Transversals & 12.2: Angles of Triangles Engaging Experiences: - EE1 - Desmos Activity	1 block
	Using Similar Triangles	Big Ideas: 12.4 Using Similar Triangles	0.5 block
	Quiz Day		0.5 block
Engaging Scenario: Transformations OR City Design Project			1.5

Missouri Student Mathematical Practices

According to the Missouri Department of Elementary and Secondary Education (DESE) [guidance on Missouri Student Mathematical Practices](#), “it is important to emphasize not only the content contained in the standards presented but also the importance of mathematical practices for all students at all grade levels. If content standards are not implemented within a view of the mathematical processes/practices that should be developed by students, the ultimate impact on student mathematical power may be minimal. The following Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. They are consistent with the Show-Me process standards and these practices rest on important ‘processes and proficiencies’ with longstanding importance in mathematics education.”

A mathematically literate student can:

Mathematical Practice (MP)	Student Look-For's
Make sense of problems and persevere in solving them.	● Relate a problem to prior knowledge. ● Recognize that there may be multiple entry points to a problem and more than one path to a solution. ● Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem. ● Evaluate the success of an approach to solve a problem and refine it if necessary. ● Evaluate the reasonableness of a solution to a problem.
Reason both contextually and abstractly.	● Make sense of quantities and their relationships in mathematical and real-world situations. ● Describe a given situation using multiple mathematical representations. ● Translate among multiple mathematical representations and compare the meanings each representation conveys about the situation. ● Connect the meaning of mathematical operations to the context of a given situation.

Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	● Construct and justify a solution to a problem. ● Compare and discuss the validity of various reasoning strategies. ● Make conjectures and explore their validity. ● Reflect on and provide thoughtful responses to the reasoning of others.
Connect mathematical ideas and real-world situations through modeling.	● Identify relevant quantities and develop a model to describe their relationships. ● Interpret mathematical models in the context of the situation. ● Make assumptions and estimates to simplify complicated situations. ● Evaluate the reasonableness of a model and refine if necessary.
Use a variety of mathematical tools effectively and strategically.	● Select and use appropriate tools when solving a mathematical problem. ● Use technological tools and other external mathematical resources to explore and deepen understanding of concepts.
Communicate mathematically and approach mathematical situations with precision.	● Express numerical answers with the degree of precision appropriate for the context of a situation. ● Represent numbers in an appropriate form according to the context of the situation. ● Use appropriate and precise mathematical language. ● Use appropriate units, scales, and labels.
Identify and utilize structure and patterns.	● Recognize complex mathematical objects as being composed of more than one simple object. ● Recognize mathematical repetition in order to make generalizations. ● Look for structures to interpret meaning and develop solution strategies.
Look for and express regularity in repeated reasoning.	● Notice if calculations are repeated and look for generalizations in methods. ● Maintain oversight of the process while paying attention to the details. ● Draw general results from trying multiple examples.

National Council of Teachers of Mathematics’ (NCTM)

Effective Teaching Practices

According to NCTM’s *Principles to Actions: Ensuring Mathematical Success for All* (2014), the “eight mathematics teaching practices provide a framework for strengthening the teaching and learning of mathematics. This research-informed framework of teaching and learning...represent[s] a core set of high-leverage practices and essential teaching skills necessary to promote deep learning of mathematics” (p. 9).

Effective Mathematics Teaching Practices
Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments
Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students’ reasoning and sense making about important mathematical ideas and relationships.
Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.

Shared Definitions for Cross-Cutting Term

Throughout their middle school mathematics learning experiences, students will encounter many new vocabulary terms to support their conceptual development—some of them are grade-level specific, and some of them are “cross-cutting terms,” or terms that they will encounter instruction on across multiple courses. In order to ensure systemic alignment and clarity of these cross-cutting terms, the following definitions have been provided:

Term	Definition	Location
absolute value	The distance between a number and 0 on a number line; The absolute value of a number a is written as $ a $.	6th Grade: Unit 4, Topic 1 7th Grade: Unit 1, Topic 1
addition property of equality	Adding the same number to each side of an equation, the two sides remain equal.	6th Grade: Unit 3, Topic 2 7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 1
addition property of inequality	When you add the same number to each side of an inequality, the inequality remains true.	6th Grade: Unit 3, Topic 3 7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 2
base (of a power)	The base of a power is the repeated factor.	6th Grade: Unit 1, Topic 1 7th Grade: Unit 6, Topic 1 8th Grade: Unit 4, topic 1
composite figure	A figure made up of triangles, squares, rectangles, and other two-dimensional figures.	6th Grade: Unit 4, Topic 1 7th Grade: Unit 5, Topic 1
division property of equality	When you divide each side of an equation by the same nonzero number, the two sides remain equal.	6th Grade: Unit 3, Topic 2 7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 1
division property of inequality	When you divide each side of an inequality by the same positive number, the inequality remains true.	6th Grade: Unit 3, Topic 3 7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 2
equivalent equations	Equations that have the same solutions.	7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 1

equivalent rates	Rates that have the same unit rate.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1
equivalent ratios	Two ratios that describe the same relationship.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1
evaluate	Calculate a numerical result- sometimes by substituting given values	6th Grade: Unit 1, Topic 1 7th Grade: Unit 1, Topic 1 8th Grade: Unit 3, Topic 1
exponent	The exponent indicates the number of times the base is used as a factor.	6th Grade: Unit 1, Topic 1 7th Grade: Unit 2, Topic 1 8th Grade: Unit 4, Topic 1
factoring an expression	Writing a numerical expression or algebraic expression as a product of factors.	6th Grade: Unit 3, Topic 1 7th Grade: Unit 2, Topic 1
graph of an inequality	A graph that shows all the solutions of an inequality on a number line.	6th Grade: Unit 3, Topic 1 7th Grade: Unit 2, Topic 3 8th Grade: Unit 2, Topic 2
integers	The set of whole numbers and their opposites.	6th Grade: Unit 4, Topic 1 7th Grade: Unit 1, Topic 1 8th Grade: Unit 1, Topic 1
like terms	Terms of an algebraic expression that have the same variables raised to the same exponents.	6th Grade: Unit 3, Topic 1 7th Grade: Unit 2, Topic 1 8th Grade: Unit 2, Topic 1
multiplication property of equality	When you multiply each side of an equation by the same nonzero number, the two sides remain equal.	6th Grade: Unit 3, Topic 2 7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 1
multiplication property of inequality	When you multiply each side of an inequality by the same positive number, the inequality remains true.	6th Grade: Unit 2, Topic 3 7th Grade: Unit 2, Topic 3 8th Grade: Unit 2, Topic 2

power	The result of multiplying a number by itself a certain number of times.	6th Grade: Unit 1, Topic 1 7th Grade: Unit 6, Topic 1 8th Grade: Unit 4, Topic 1
rate	A ratio of two quantities using different units.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1 8th Grade: Unit 3, Topic 1
ratio	A comparison of two quantities; The ratio of a to b can be written as $a : b$.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1
ratio table	A table used to find and organize equivalent ratios.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1 8th Grade: Unit 3, Topic 1
rational number	A number that can be written as $\frac{a}{b}$ where a and b are integers and $b \neq 0$.	6th Grade: Unit 4, Topic 1 7th Grade: Unit 1, Topic 1 8th Grade: Unit 4, Topic 2
simplify	Rewrite an expression in an equivalent, simpler form, with no unnecessary parts.	7th Grade: Unit 1, Topic 1 8th Grade: Unit 2, Topic 1
solution of an inequality	The value of values that makes an inequality true.	6th Grade: Unit 3, Topic 3 7th Grade: Unit 2, Topic 3 8th Grade: Unit 2, Topic 2
solution set	The set of all solutions of an inequality.	6th Grade: Unit 3, Topic 3 7th Grade: Unit 2, Topic 3 8th Grade: Unit 2, Topic 2
solve	Find the value(s) that make an equation or inequality true.	7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 1
substitute	Replace a variable with a given value or expression.	6th Grade: Unit 3, Topic 1 7th Grade: Unit 2, Topic 1 8th Grade: Unit 2, Topic 1

subtraction property of equality	When you subtract the same number from each side of an equation, the two sides remain equal.	6th Grade: Unit 3, Topic 2 7th Grade: Unit 2, Topic 2 8th Grade: Unit 2, Topic 1
subtraction property of inequality	When you subtract the same number from each side of an inequality, the inequality remains true.	6th Grade: Unit 3, Topic 3 7th Grade: Unit 2, Topic 3 8th Grade: Unit 2, Topic 2
U.S. customary system	A system of measurement that contains units for length, capacity, and weight.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1
unit rate	A rate that compares a quantity to one unit of another quantity using division.	6th Grade: Unit 2, Topic 1 7th Grade: Unit 3, Topic 1 8th Grade: Unit 3, Topic 1
value of a ratio	The number $\frac{a}{b}$ associated with the ratio a : b. The value of a ratio describes the multiplicative relationship between the quantities in a ratio.	6th Grade: Unit 2, Topic 11. 7th Grade: Unit 3, Topic 1 8th Grade: Unit 4, Topic 2

Unit of Study Terminology

Appendices: All Appendices and supporting material can be found in this course's shell course in the District's Learning Management System.

Assessment Leveling Guide: A tool to use when writing assessments in order to maintain the appropriate level of rigor that matches the standard.

Big Ideas/Enduring Understandings: Foundational understandings teachers want students to be able to discover and state in their own words by the end of the unit of study. These are answers to the essential questions.

Engaging Experience: Each topic is broken into a list of engaging experiences for students. These experiences are aligned to priority and supporting standards, thus stating what students should be able to do. An example of an engaging experience is provided in the description, but a teacher has the autonomy to substitute one of their own that aligns to the level of rigor stated in the standards.

Engaging Scenario: This is a culminating activity in which students are given a role, situation, challenge, audience, and a product or performance is specified. Each unit contains an example of an engaging scenario, but a teacher has the ability to substitute with the same intent in mind.

Essential Questions: Engaging, open-ended questions that teachers can use to engage students in the learning.

Priority Standards: What every student should know and be able to do. These were chosen because of their necessity for success in the next course, the state assessment, and life.

Supporting Standards: Additional standards that support the learning within the unit.

Topic: These are the main teaching points for the unit. Units can have anywhere from one topic to many, depending on the depth of the unit.

Unit of Study: Series of learning experiences/related assessments based on designated priority standards and related supporting standards.

Unit Vocabulary: Words students will encounter within the unit that are essential to understanding. Academic Cross-Curricular words (also called Tier 2 words) are those that can be found in multiple content areas, not just this one. Content/Domain Specific vocabulary words are those found specifically within the content.