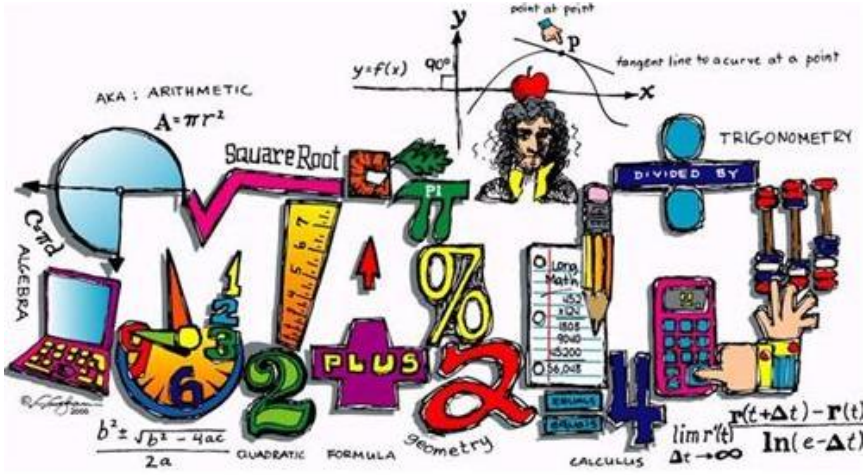
West Iron County Middle School
Curriculum Map

Mathematics
Grade 8

Updated 2023-2024



Based on the
Common Core State Standards

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PREFACE

This curriculum map is aligned to the Common Core State Standards for mathematics. The timeline presented for each unit is meant to aid in estimating and defining the relative pacing and sequencing of the course. It is not imperative that it be followed literally. The following is the breakdown of the units in Math 8:

Semester	Unit Number	Chapters from *Big Ideas Math*	Unit Title
1	Unit 1	Chapters 1 & 2	Equations & Transformations
	Unit 2	Chapters 4 & 5	Linear Equations
2	Unit 3	Chapters 6 & 7	Data & Functions
	Unit 4	Chapters 8 & 9	Real Numbers
	Unit 5	Chapters 3 & 10 (as times permits)	Geometry (as time permits)

Daily instructional tools, materials, and methods:

- Big Ideas Math Textbook & Supplementary Materials (Paper & Online)
- Notebook
- Interactive whiteboard (as available)
- Computers (as available)
- Class discussion and practice
- Small-group discussion and practice
- Scientific calculators
- Classroom website containing additional online resources, tools, and apps
- Supplementary material provided via digital curriculums (in Google Drive)

Periodic assessment and progress monitoring:

- Independent practice
- Lesson quizzes
- Unit tests
- NWEA MAP Growth standardized achievement test (given three times per school year)

STANDARDS FOR MATHEMATICAL PRACTICE

These mathematical practices should be integrated into daily lessons as applicable:

CCSS.Math.Practice.MP1 – Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

CCSS.Math.Practice.MP2 – Reason abstractly and quantitatively. Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

CCSS.Math.Practice.MP3 – Construct viable arguments and critique the reasoning of others. Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

CCSS.Math.Practice.MP4 – Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

CCSS.Math.Practice.MP5 – Use appropriate tools strategically. Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

CCSS.Math.Practice.MP6 – Attend to precision. Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

CCSS.Math.Practice.MP7 – Look for and make use of structure. Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

CCSS.Math.Practice.MP8 – Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

UNIT 1: EQUATIONS & TRANSFORMATIONS

Chapter 1 - Equations

Section	Learning Target	Success Criteria
1.1 Solving Simple Equations	Write and solve one-step equations.	• Apply properties of equality to produce equivalent equations. • Solve equations using addition, subtraction, multiplication, or division. • Use equations to model and solve real-life problems.
1.2 Solving Multi-Step Equations	Write and solve multi-step equations.	• Apply properties to produce equivalent equations. • Solve multi-step equations. • Use multi-step equations to model and solve real-life problems.
1.3 Solving Equations with Variables on Both Sides	Write and solve equations with variables on both sides.	• Explain how to solve an equation with variables on both sides. • Determine whether an equation has one solution, no solution, or infinitely many solutions. • Use equations with variables on both sides to model and solve real-life problems.
1.4 Rewriting Equations and Formulas	Solve literal equations for given variables and convert temperatures.	• Use properties of equality to rewrite literal equations. • Use a formula to convert temperatures.

Through the Chapter				
Standard	**1.1**	**1.2**	**1.3**	**1.4**
8.EE.C.7 Solve linear equations in one variable.	●	●	★	■
8.EE.C.7a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	●	●	★	
8.EE.C.7b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	●	●	★	

Key
▲ = preparing ★ = complete
● = learning ■ = extending

Key Vocabulary

- literal equation, transformation, image, translation, reflection, line of reflection, rotation, center of rotation, angle of rotation, rigid motion, congruent figures, congruent angles, congruent sides, dilation, center of dilation, scale factor, similarity transformation, similar figures

Chapter 2 - Transformations

Section	Learning Target	Success Criteria
2.1 Translations	Translate figures in the coordinate plane.	• Identify a translation. • Find the coordinates of a translated figure. • Use coordinates to translate a figure.
2.2 Reflections	Reflect figures in the coordinate plane.	• Identify a reflection. • Find the coordinates of a figure reflected in an axis. • Use coordinates to reflect a figure in the x- or y-axis.
2.3 Rotations	Rotate figures in the coordinate plane.	• Identify a rotation. • Find the coordinates of a figure rotated about the origin. • Use coordinates to rotate a figure about the origin.
2.4 Congruent Figures	Understand the concept of congruent figures.	• Identify congruent figures. • Describe a sequence of rigid motions between two congruent figures.
2.5 Dilations	Dilate figures in the coordinate plane.	• Identify a dilation. • Find the coordinates of a figure dilated with respect to the origin. • Use coordinates to dilate a figure with respect to the origin.
2.6 Similar Figures	Understand the concept of similar figures.	• Identify similar figures. • Describe a similarity transformation between two similar figures.
2.7 Perimeters and Areas of Similar Figures	Find perimeters and areas of similar figures.	• Use corresponding side lengths to compare perimeters of similar figures. • Use corresponding side lengths to compare areas of similar figures. • Use similar figures to solve real-life problems involving perimeter and area.

Through the Chapter							
Standard	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**
8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations: lines are taken to lines, and line segments to line segments of the same length; angles are taken to angles of the same measure; and parallel lines are taken to parallel lines.	●	●	★				
8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.				★			
8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	●	●	●		★		
8.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.						★	■

UNIT 2: LINEAR EQUATIONS

Chapter 4 – Graphing and Writing Linear Equations

Section	Learning Target	Success Criteria
4.1 Graphing Linear Equations	Graph linear equations.	• Create a table of values and write ordered pairs given a linear equation. • Plot ordered pairs to create a graph of a linear equation. • Use a graph of a linear equation to solve a real-life problem.
4.2 Slope of a Line	Find and interpret the slope of a line.	• Explain the meaning of slope. • Find the slope of a line. • Interpret the slope of a line in a real-life problem.
4.3 Graphing Proportional Relationships	Graph proportional relationships.	• Graph an equation that represents a proportional relationship. • Write an equation that represents a proportional relationship. • Use graphs to compare proportional relationships.
4.4 Graphing Linear Equations in Slope-Intercept Form	Graph linear equations in slope-intercept form.	• Identify the slope and y-intercept of a line given an equation. • Rewrite a linear equation in slope-intercept form. • Use the slope and y-intercept to graph linear equations.
4.5 Graphing Linear Equations in Standard Form	Graph linear equations in standard form.	• Rewrite the standard form of a linear equation in slope-intercept form. • Find intercepts of linear equations written in standard form. • Use intercepts to graph linear equations.
4.6 Writing Equations in Slope-Intercept Form	Write equations of lines in slope-intercept form.	• Find the slope and the y-intercept of a line. • Use the slope and the y-intercept to write an equation of a line. • Write equations in slope-intercept form to solve real-life problems.
4.7 Writing Equations in Point-Slope Form	Write equations of lines in point-slope form.	• Use a point on a line and the slope to write an equation of the line. • Use any two points to write an equation of a line. • Write equations in point-slope form to solve real-life problems.

Through the Chapter

Standard	4.1	4.2	4.3	4.4	4.5	4.6	4.7
8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	▲		★				
8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.		●	●	★	■		
8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.						●	●

Chapter 5 – Systems of Linear Equations

Section	Learning Target	Success Criteria
5.1 Solving Systems of Linear Equations by Graphing	Understand how to solve systems of linear equations by graphing.	• Graph a linear equation. • Find the point where two lines intersect. • Solve a system of linear equations by graphing.
5.2 Solving Systems of Linear Equations by Substitution	Understand how to solve systems of linear equations by substitution.	• Solve a linear equation in two variables for either variable. • Solve a system of linear equations by substitution.
5.3 Solving Systems of Linear Equations by Elimination	Understand how to solve systems of linear equations by elimination.	• Add or subtract equations in a system. • Use the Multiplication Property of Equality to produce equivalent equations. • Solve a system of linear equations by elimination.
5.4 Solving Special Systems of Linear Equations	Solve systems with different numbers of solutions.	• Determine the number of solutions of a system. • Solve a system of linear equations with any number of solutions.

Through the Chapter

Standard	5.1	5.2	5.3	5.4
8.EE.C.8a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	●			★
8.EE.C.8b Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.	●	●	●	★
8.EE.C.8c Solve real-world and mathematical problems leading to two linear equations in two variables.	●	●	●	★

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Key Vocabulary

- linear equation, solution of a linear equation, slope, rise, run, x-intercept, y-intercept, slope-intercept form, standard form, point-slope form, system of linear equations, solution of a system of linear equations

UNIT 3: DATA & FUNCTIONS

Chapter 6 – Data Analysis and Displays

Section	Learning Target	Success Criteria
6.1 Scatter Plots	Use scatter plots to describe patterns and relationships between two quantities.	• Make a scatter plot. • Identify outliers, gaps, and clusters in a scatter plot. • Use scatter plots to describe relationships between data.
6.2 Lines of Fit	Use lines of fit to model data.	• Write and interpret an equation of a line of fit. • Find an equation of a line of best fit. • Use a line of fit to make predictions.
6.3 Two-Way Tables	Use two-way tables to represent data.	• Read a two-way table. • Make a two-way table. • Use a two-way table to describe relationships between data.
6.4 Choosing a Data Display	Use appropriate data displays to represent situations.	• Choose appropriate data displays for situations. • Identify misleading data displays. • Analyze a variety of data displays.

Through the Chapter				
Standard	**6.1**	**6.2**	**6.3**	**6.4**
8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	●	★		■
8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.		★		
8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.		★		
8.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.			★	

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Key Vocabulary

- scatter plot, line of fit, line of best fit, two-way table, joint frequency, marginal frequency, input, output, relation, mapping diagram, function, function rule, linear function, nonlinear function

Chapter 7 – Functions

Section	Learning Target	Success Criteria
7.1 Relations and Functions	Understand the concept of a function.	• Represent a relation as a set of ordered pairs. • Determine whether a relation is a function. • Use functions to solve real-life problems.
7.2 Representations of Functions	Represent functions in a variety of ways.	• Write a function rule that describes a relationship. • Evaluate functions for given inputs. • Represent functions using tables and graphs.
7.3 Linear Functions	Use functions to model linear relationships.	• Write linear functions to model relationships. • Interpret linear functions in real-life situations.
7.4 Comparing Linear and Nonlinear Functions	Understand differences between linear and nonlinear functions.	• Recognize linear functions represented as tables, equations, and graphs. • Compare linear and nonlinear functions.
7.5 Analyzing and Sketching Graphs	Use graphs of functions to describe relationships between quantities.	• Describe relationships between quantities in graphs. • Sketch graphs given verbal descriptions of relationships.

Through the Chapter					
Standard	**7.1**	**7.2**	**7.3**	**7.4**	**7.5**
8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	●	★			
8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).			★		
8.F.A.3 Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.			●	★	
8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.		●	★		
8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.					★

UNIT 4: REAL NUMBERS

Chapter 8 – Exponents and Scientific Notation

Section	Learning Target	Success Criteria
8.1 Exponents	Use exponents to write and evaluate expressions.	• Write products using exponents. • Evaluate expressions involving powers. • Use exponents to solve real-life problems.
8.2 Product of Powers Property	Generate equivalent expressions involving products of powers.	• Find products of powers that have the same base. • Find powers of powers. • Find powers of products.
8.3 Quotient of Powers Property	Generate equivalent expressions involving quotients of powers.	• Find quotients of powers that have the same base. • Simplify expressions using the Quotient of Powers Property. • Solve real-life problems involving quotients of powers.
8.4 Zero and Negative Exponents	Understand the concepts of zero and negative exponents.	• Explain the meanings of zero and negative exponents. • Evaluate numerical expressions involving zero and negative exponents. • Simplify algebraic expressions involving zero and negative exponents.
8.5 Estimating Quantities	Round numbers and write the results as the product of a single digit and a power of 10.	• Round very large and very small numbers. • Write a multiple of 10 as a power. • Compare very large or very small quantities.
8.6 Scientific Notation	Understand the concept of scientific notation.	• Convert between scientific notation and standard form. • Choose appropriate units to represent quantities. • Use scientific notation to solve real-life problems.
8.7 Operations in Scientific Notation	Perform operations with numbers written in scientific notation.	• Explain how to add and subtract numbers in scientific notation. • Explain how to multiply and divide numbers in scientific notation. • Use operations in scientific notation to solve real-life problems.

Through the Chapter							
Standard	**8.1**	**8.2**	**8.3**	**8.4**	**8.5**	**8.6**	**8.7**
8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	▲	●	●	★			
8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.					●	★	
8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.						●	★

Key Vocabulary

- power, base, exponent, scientific notation, square root, perfect square, radical sign, radicand, theorem, legs, hypotenuse, Pythagorean Theorem, cube root, perfect cube, irrational number, real numbers

Chapter 9 – Real Numbers and the Pythagorean Theorem

Section	Learning Target	Success Criteria
9.1 Finding Square Roots	Understand the concept of a square root of a number.	• Find square roots of numbers. • Evaluate expressions involving square roots. • Use square roots to solve equations.
9.2 The Pythagorean Theorem	Understand the Pythagorean Theorem.	• Explain the Pythagorean Theorem. • Use the Pythagorean Theorem to find unknown side lengths of triangles. • Use the Pythagorean Theorem to find distances between points in a coordinate plane.
9.3 Finding Cube Roots	Understand the concept of a cube root of a number.	• Find cube roots of numbers. • Evaluate expressions involving cube roots. • Use cube roots to solve equations.
9.4 Rational Numbers	Convert between different forms of rational numbers.	• Explain the meaning of rational numbers. • Write fractions and mixed numbers as decimals. • Write repeating decimals as fractions or mixed numbers.
9.5 Irrational Numbers	Understand the concept of irrational numbers.	• Classify real numbers as rational or irrational. • Approximate irrational numbers. • Solve real-life problems involving irrational numbers.
9.6 The Converse of the Pythagorean Theorem	Understand the converse of the Pythagorean Theorem.	• Explain the converse of the Pythagorean Theorem. • Identify right triangles given three side lengths. • Identify right triangles in a coordinate plane.

Through the Chapter						
Standard	**9.1**	**9.2**	**9.3**	**9.4**	**9.5**	**9.6**
8.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.				●	★	
8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions. (e.g., π^2).					★	
8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	●	●	★			
8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.		●				★
8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.		★				
8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.		★				

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UNIT 5: GEOMETRY

Chapter 3 – Geometric Shapes and Angles

Section	Learning Target	Success Criteria
3.1 Parallel Lines and Transversals	Find missing angle measures created by the intersections of lines.	• Identify congruent angles when a transversal intersects parallel lines. • Find angle measures when a transversal intersects parallel lines.
3.2 Angles of Triangles	Understand properties of interior and exterior angles of triangles.	• Use equations to find missing angle measures of triangles. • Use interior and exterior angles of a triangle to solve real-life problems.
3.3 Angles of Polygons	Find interior angle measures of polygons.	• Explain how to find the sum of the interior angle measures of a polygon. • Use an equation to find an interior angle measure of a polygon. • Find the interior angle measures of a regular polygon.
3.4 Using Similar Triangles	Use similar triangles to find missing measures.	• Use angle measures to determine whether triangles are similar. • Use similar triangles to solve real-life problems.

Through the Chapter				
Standard	**3.1**	**3.2**	**3.3**	**3.4**
8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	●	●	■	★

Vocabulary

- transversal, interior angles, exterior angles, interior angles of a polygon, exterior angles of a polygon, regular polygon, indirect measurement, cone, sphere, hemisphere, similar solids

Chapter 10 – Surface Area and Volume

Section	Learning Target	Success Criteria
10.1 Volumes of Cylinders	Find the volume of a cylinder.	• Use a formula to find the volume of a cylinder. • Use the formula for the volume of a cylinder to find a missing dimension.
10.2 Volumes of Cones	Find the volume of a cone.	• Use a formula to find the volume of a cone. • Use the formula for the volume of a cone to find a missing dimension.
10.3 Volumes of Spheres	Find the volume of a sphere.	• Use a formula to find the volume of a sphere. • Use the formula for the volume of a sphere to find the radius. • Find volumes of composite solids.
10.4 Surface Areas and Volumes of Similar Solids	Find the surface areas and volumes of similar solids.	• Use corresponding dimensions to determine whether solids are similar. • Use corresponding dimensions to find missing measures in similar solids. • Use linear measures to find surface areas and volumes of similar solids.

Through the Chapter				
Standard	**10.1**	**10.2**	**10.3**	**10.4**
8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	●	●	★	■

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