

First Nine Weeks

Grade: 7th

Subject: Math CIP Pacing Guide

Year: 2017-2018 CIP

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p><u>Number and Number Sense</u> The student will</p> <ul style="list-style-type: none"> investigate and describe the concept of negative exponents for powers of ten;(7.1a) (T1) determine scientific notation for numbers greater than zero; (7.1b) (T1) compare and order fractions, decimals, percents and numbers written in scientific notation; (7.1c) determine square roots; (7.1d) identify and describe absolute value for rational numbers. (7.1e) 	<ul style="list-style-type: none"> Recognize powers of 10 with negative exponents by examining patterns. Write a power of 10 with a negative exponent in fraction and decimal form. Write a number greater than 0 in scientific notation. Recognize a number greater than 0 in scientific notation. Compare and determine equivalent relationships between numbers larger than 0 written in scientific notation. Represent a number in fraction, decimal, and percent forms. Compare, order, and determine equivalent relationships among fractions, decimals, and percents. Decimals are limited to the thousandths place, and percents are limited to the tenths place. Ordering is limited to no more than 4 numbers. Order no more than 3 numbers greater than 0 written in scientific notation. Determine the square root of a perfect square less than or equal to 400. Demonstrate absolute value using a number line Determine the absolute value of a rational number. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle to solve practical problems. 		<p>ascending compare denominator <i>[related vocabulary]</i> descending equivalent numerator <i>[related vocabulary]</i> order percent scientific notation power base <i>[related vocabulary]</i> exponent factors <i>[related vocabulary]</i> square <i>[related vocabulary]</i> square root absolute value rational number whole number <i>[related vocabulary]</i></p>	<p>Recognize – L2 Represent – L2 Describe – L2 Identify – L2 Demonstrate – L2 Show - L3 Using – L3 Investigate – L4 Compare – L4 Order – L4 Determine – L5 Write – L6</p>

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p><u>Computation and Estimation</u> The student will</p> <ul style="list-style-type: none"> • model addition, subtraction, multiplication and division of integers; and (7.3a) • add, subtract, multiply, and divide integers. (7.3b) 	<ul style="list-style-type: none"> • Model addition, subtraction, multiplication and division of integers using pictorial representations of concrete manipulatives. • Add, subtract, multiply, and divide integers. • Simplify numerical expressions involving addition, subtraction, multiplication and division of integers using order of operations. • Solve practical problems involving addition, subtraction, multiplication, and division with integers. 		integers whole numbers modeling <i>[related vocabulary]</i> negative <i>[related vocabulary]</i> positive <i>[related vocabulary]</i> absolute value <i>[related vocabulary]</i>	Show – L3 Solve – L3 Simplify – L3 Model – L6 Add -L3 Subtract -L3 Multiply L3 Divide -L3
	<p><u>Patterns, Functions, and Algebra</u> The student will</p> <ul style="list-style-type: none"> • write verbal expressions as algebraic expressions and sentences as equations and vice versa; (7.13a) • evaluate algebraic expressions for given replacement values of the variables. (7.13b) 	<ul style="list-style-type: none"> • Write verbal expressions as algebraic expressions. Expressions will be limited to no more than 2 operations. • Write verbal sentences as algebraic equations. Equations will contain no more than 1 variable term. • Translate algebraic expressions and equations to verbal expressions and sentences. Expressions will be limited to no more than 2 operations. • Identify examples of expressions and equations. • Apply the order of operations to evaluate expressions for given replacement values of the variables. Limit the number of replacements to no more than 3 per expression. 		expression algebraic equation algebraic expression numerical expression verbal expression coefficient variable order of operations substitute evaluate simplify consecutive decrease difference factor increase operations phrase product quotient square sum term translate twice	Write – L6 Translate – L6 Evaluate – L3 Apply – L3 Identify – L4

Benchmark 1

Second Nine Weeks

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p><u>Patterns, Functions, and Algebra</u> The student will apply the following properties of operations with real numbers:</p> <ul style="list-style-type: none"> • the commutative and • associative properties for addition and multiplication; (7.16a) • the distributive property; (7.16b) • the additive and multiplicative identity properties; (7.16c) • the additive and • multiplicative inverse properties; and (7.16d) • the multiplicative property of zero.(7.16e) 	<p>Identify properties of operations used in simplifying expressions.</p> <ul style="list-style-type: none"> • Apply the properties of operations to simplify expressions. 		associative property of addition associative property of multiplication commutative property of addition commutative property of multiplication equation addends sum factors product regrouping distributive property additive identity property multiplicative identity property identity elements additive identity multiplicative identity real number [related vocabulary] inverse identity element [related vocabulary] additive inverse [related vocabulary] additive inverse property integer [related vocabulary] multiplicative inverse [related vocabulary] multiplicative inverse property reciprocal [related vocabulary] multiplicative property of zero	<p>Apply – L3 Identify – L4</p>

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p><u>Patterns, Functions, and Algebra</u> The student will</p> <ul style="list-style-type: none"> • solve one- and two-step linear equations in one variable; and (7.14a) • solve practical problems requiring the solution of one- and two-step linear equations. (7.14b) 	<ul style="list-style-type: none"> • Represent and demonstrate steps for solving one- and two-step equations in one variable using concrete materials, pictorial representations and algebraic sentences. • Solve one- and two-step linear equations in one variable. • Solve practical problems that require the solution of a one- or two-step linear equation. 		<p>equation expression inverse operation linear equation operation</p>	<p>Use – L3 Solve – L3 Demonstrate – L3 Represent – L6</p>
	<p><u>Patterns, Functions, and Algebra</u> The student will</p> <ul style="list-style-type: none"> • solve one-step inequalities in one variable; and (7.15a) • graph solutions to inequalities on the number line. (7.15b) 	<ul style="list-style-type: none"> • Represent and demonstrate steps in solving inequalities in one variable, using concrete materials, pictorial representations, and algebraic sentences. • Graph solutions to inequalities on the number line. • Identify a numerical value that satisfies the inequality. 		<p>greater than [<i>related vocabulary</i>] greater than or equal to [<i>related vocabulary</i>] inequality inverse operation less than [<i>related vocabulary</i>] less than or equal to [<i>related vocabulary</i>]</p>	<p>Solve – L3 Demonstrate – L3 Use – L3 Identify – L4 Graph – L6 Represent – L6</p>
	<p><u>Patterns, Functions, and Algebra</u> The student will</p> <ul style="list-style-type: none"> • represent relationships with tables, graphs, rules, and words.(7.12) 	<ul style="list-style-type: none"> • Describe and represent relations and functions, using tables, graphs, rules, and words. Given one representation, students will be able to represent the relation in another form. 		<p>rule element function functional relationship relation ordered pair [<i>related vocabulary</i>] vertical line test</p>	<p>Describe – L2 Represent – L2</p>

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p><u>Number and Number Sense</u></p> <ul style="list-style-type: none"> The student will describe and represent arithmetic and geometric sequences using variable expressions. (7.2) 	<ul style="list-style-type: none"> Analyze arithmetic and geometric sequences to discover a variety of patterns. Identify the common difference in an arithmetic sequence. Identify the common ratio in a geometric sequence. Given an arithmetic or geometric sequence, write a variable expression to describe the relationship between two consecutive terms in the sequence. 		<p>arithmetic sequence common difference <i>[related vocabulary]</i> succeeding number <i>[related vocab]</i> previous number <i>[related vocab]</i> common ratio <i>[related vocabulary]</i> geometric sequence pattern sequence term <i>[related vocabulary]</i> variable expression</p>	<p>Describe -L2 Represent - L2 Identify - L2 Use - L3 Analyze - L4 Discover - L4 Write - L6</p>

Benchmark 2

Third Nine Weeks

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p><u>Probability and Statistics</u></p> <ul style="list-style-type: none"> The student will investigate and describe the difference between the experimental probability and theoretical probability of an event. (7.9) 	<ul style="list-style-type: none"> Determine the theoretical probability of an event. Determine the experimental probability of an event. Describe changes in the experimental probability as the number of trials increases. Investigate and describe the difference between the probability of an event found through experiment or simulation versus the theoretical probability of that same event. 		<p>desired outcome <i>[related vocabulary]</i></p> <p>Event</p> <p>experimental probability</p> <p>favorable outcome <i>[related vocab]</i></p> <p>possible outcome <i>[related vocab]</i></p> <p>Probability</p> <p>Simulation</p> <p>theoretical probability</p> <p>trial</p> <p>Law of Large Numbers</p>	<p>Determine – L1</p> <p>Describe – L2</p> <p>Investigate – L4</p> <p>Difference – L4</p>
	<p><u>Probability and Statistics</u></p> <ul style="list-style-type: none"> The student will determine the probability of compound events, using the Fundamental (Basic) Counting Principle. (7.10) 	<ul style="list-style-type: none"> Compute the number of possible outcomes by using the Fundamental (Basic) Counting Principle. Determine the probability of a compound event containing no more than 2 events. 		<p>Fundamental (Basic) Counting Principle</p> <p>compound events</p> <p>sample space</p> <p>tree diagram</p>	<p>Use – L3</p> <p>Compute – L4</p> <p>Determine – L4</p>
	<p><u>Probability and Statistics</u></p> <p>The student, given data in a practical situation, will</p> <ul style="list-style-type: none"> construct and analyze histograms; and (7.11a) 	<ul style="list-style-type: none"> Collect, analyze, display, and interpret a data set using histograms. For collection and display of raw data, limit the data to 20 items. 		<p>analyze</p> <p>construct data or data set</p> <p>bar graph</p> <p>circle graph</p>	<p>Collect – L3</p> <p>Determine – L3</p> <p>Analyze – L4</p>

	<ul style="list-style-type: none"> • compare and contrast histograms with other types of graphs presenting information from the same data set. (7.11b) 	<ul style="list-style-type: none"> • Determine patterns and relationships within data sets (e.g., trends). • Make inferences, conjectures, and predictions based on analysis of a set of data • Compare and contrast histograms with line plots, circle graphs, and stem-and-leaf plots presenting information from the same data set. 		graphical interpret frequency [related vocabulary] frequency distribution interval <i>[related vocabulary]</i> tally <i>[related vocabulary]</i> line plot histogram interval <i>[related vocabulary]</i> Stem-and-leaf plot Ascertaining differences conjecture Convergence dispersion inference prediction	Interpret – L4 Infer – L4 Conjecture – L4 Predict – L5 Construct – L6 Display – L6
	<p><u>Computation and Estimation</u></p> <ul style="list-style-type: none"> • The student will solve single-step and multistep practical problems, using proportional reasoning. (7.4) 	<ul style="list-style-type: none"> • Write proportions that represent equivalent relationships between two sets. • Solve a proportion to find a missing term. • Apply proportions to convert units of measurement between the U.S. Customary System and the metric system. Calculators may be used. 		discount sales tax tip 10% benchmark equivalent fractions <i>[related vocabulary]</i> percent proportion <i>[related vocabulary]</i>	Represent – L2 Convert – L2 Solve – L3 Use – L3 Apply – L3 Compute – L3 Write – L6

Benchmark 3

Fourth Nine Weeks

# Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
	<p>Geometry</p> <ul style="list-style-type: none"> The student will determine whether plane figures – quadrilaterals and triangles – are similar and write proportions to express the relationships between corresponding sides of similar figures. (7.6) 	<p>Identify corresponding sides and corresponding and congruent angles of similar figures using the traditional notation of curved lines for the angles.</p> <ul style="list-style-type: none"> Write proportions to express the relationships between the lengths of corresponding sides of similar figures Determine if quadrilaterals or triangles are similar by examining congruence of corresponding angles and proportionality of corresponding sides. Given two similar figures, write similarity statements using symbols such as $DABC \sim DDEF$, $\angle A$ corresponds to $\angle D$, and AB corresponds to DE. 		<p>plane figures quadrilaterals <i>[related vocabulary]</i> triangles <i>[related vocabulary]</i> corresponding angles/sides congruent denote similar figures similarity statements proportional <i>[related vocabulary]</i> proportionality</p>	<p>Identify – L2 Determine – L3 Examining – L4 Compare – L4 Write – L6</p>
	<p>Geometry</p> <ul style="list-style-type: none"> The student will compare and contrast the following quadrilaterals based on properties: parallelogram, rectangle, square, rhombus, and trapezoid. (7.7) 	<ul style="list-style-type: none"> Compare and contrast attributes of the following quadrilaterals: parallelogram, rectangle, square, rhombus, and trapezoid. Identify the classification(s) to which a quadrilateral belongs, using deductive reasoning and inference 		<p>classify properties/attributes closed-plane <i>[related vocabulary]</i> line segments <i>[related vocabulary]</i> bisect <i>[related vocabulary]</i> bisectors congruent <i>[related vocabulary]</i> parallel <i>[related vocabulary]</i> parallelogram perpendicular quadrilateral rectangle rhombus right angle <i>[related vocabulary]</i> square Trapezoid</p>	<p>Identify – L2 Use – L3 Compare – L4 Contrast – L4</p>

				isosceles trapezoid Venn Diagram <i>[related vocabulary]</i>	
	<p>Geometry</p> <ul style="list-style-type: none"> The student, given a polygon in the coordinate plane, will represent transformations (reflections, dilations, rotations, and translations) by graphing in the coordinate plane. (7.8) 	<ul style="list-style-type: none"> Identify the coordinates of the image of a right triangle or rectangle that has been rotated 90° or 180° about the origin. Identify the coordinates of the image of a right triangle or a rectangle that has been reflected over the x- or y-axis. Identify the coordinates of a right triangle or rectangle that has been dilated. The center of the dilation will be the origin. Sketch the image of a right triangle or rectangle translated vertically or horizontally. Sketch the image of a right triangle or rectangle that has been rotated 90° or 180° about the origin. Sketch the image of a right triangle or rectangle that has been reflected over the x- or y-axis. Sketch the image of a dilation of a right triangle or rectangle limited to a scale factor of 1, 1/2, 3/4 or 4. 		180° about the origin 90° about the origin center of rotation <i>[related vocab]</i> fixed point <i>[related vocabulary]</i> horizontal reflection dilation scale factor <i>[related vocabulary]</i> similar figure preimage denote <i>[related vocabulary]</i> A prime <i>[related vocabulary]</i> Rotation transformation translation vertical	Represent -L6 Identify -L4 Sketch -L6
	<p>Measurement</p> <p>The student will</p> <ul style="list-style-type: none"> describe volume and surface area of cylinders; (7.5a) solve practical problems involving the volume and surface area of rectangular prisms and cylinders; and (7.5b) 	<ul style="list-style-type: none"> Determine if a practical problem involving a rectangular prism or cylinder represents the application of volume or surface area. Find the surface area of a rectangular prism. Solve practical problems that require finding the surface area of a rectangular prism. 		attribute adjacent base cylinder diameter <i>[related vocabulary]</i> formula height net <i>[related vocabulary]</i> pi radius <i>[related vocabulary]</i> rectangular prism	Describe – L2 Determine – L2 Find – L3 Solve – L3

	<p>describe how changing</p> <p>one measured attribute of a rectangular prism affects its volume and surface area. (7.5c)</p>	<ul style="list-style-type: none"> • Find the surface area of a cylinder. • Solve practical problems that require finding the surface area of a cylinder. • Find the volume of a rectangular prism. • Solve practical problems that require finding the volume of a rectangular prism. • Find the volume of a cylinder. • Solve practical problems that require finding the volume of a cylinder. • Describe how the volume of a rectangular prism is affected when one measured attribute is multiplied by a scale factor. Problems will be limited to changing attributes by scale factors only. • Describe how the surface area of a rectangular prism is affected when one measured attribute is multiplied by a scale factor. Problems will be limited to changing attributes by scale factors only. 		<p>rectangular prism scale factors squaring surface area volume</p>	
--	---	--	--	---	--

SOL