

**Virginia Grade 6 Essential Knowledge and Skills Correlated to
Glencoe Mathematics: Applications and Concepts, Course 1**

<p>STRAND: NUMBER AND NUMBER SENSE STANDARD 6.1 The student will identify representations of a given percent and describe orally and in writing the equivalence relationships among fractions, decimals, and percents.</p>		<p style="text-align: center;">ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Recognize that <i>percent</i> means “out of 100” or <i>hundredths</i>, using the percent symbol (%). Identify the decimal and percent equivalents for halves, thirds, fourths, fifths, and tenths. Describe orally and in writing the equivalent relationship among decimals, percents, and fractions that have denominators that are factors of 100. Draw a shaded region on a 10-by-10 grid to represent a given percent. Represent in decimal, fraction, and/or percent form a given shaded region of a 10-by-10 grid. 	<p style="text-align: center;">MAC 1 Lesson(s)</p> <p>10-4, 10-5</p> <p>5-6, 5-7, 10-5, 10-6</p> <p>5-6, 5-7, 10-5, 10-6</p> <p>10-4</p> <p>10-4, 10-5, 10-6</p>
<p>STANDARD 6.2 The student will describe and compare two sets of data, using ratios, and will use appropriate notations such as a/b, a to b, and $a:b$.</p>		<p style="text-align: center;">ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Describe a relationship within a set by comparing part of the set to the entire set. Describe a relationship between two sets by comparing part of one set to a corresponding part of the other set. Describe a relationship between two sets by comparing all of one set to all of the other set. Describe a relationship within a set by comparing one part of the set to another part of the same set. Represent the relationship that makes a comparison by using the notations $\frac{a}{b}$, $a:b$, and a to b. 	<p style="text-align: center;">MAC 1 Lesson(s)</p> <p>10-1, 10-1b, 10-2</p> <p>10-1, 10-1b</p> <p>10-1, 10-2</p> <p>10-1, 10-1b, 10-2, 10-2b, 10-3</p> <p>10-1, 10-1b, 10-2, 10-2b, 10-3</p>
<p>STANDARD 6.3 The student will</p> <ol style="list-style-type: none"> find common multiples and factors, including least common multiple and greatest common factor; identify and describe prime and composite numbers; and identify and describe the characteristics of even and odd integers. 		<p style="text-align: center;">ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Identify common multiples and the least common multiple for up to three numbers less than or equal to 50. Identify common factors and the greatest common factor for up to three numbers 	<p style="text-align: center;">MAC 1 Lesson(s)</p> <p>5-4</p> <p>5-1</p>

<ul style="list-style-type: none"> Understand that an integer and its opposite are the same distance from zero on a number line. 	<p>less than or equal to 50.</p> <ul style="list-style-type: none"> Identify which numbers are prime for numbers less than or equal to 50. Identify which numbers are composite for numbers less than or equal to 50. Explain orally and in writing why a number is prime or composite. Explain orally and in writing why a given integer is even (divisible by two) or odd (not divisible by two). 	<p>1-3 1-3 1-3 1-2</p>
<p>STANDARD 6.4 The student will compare and order whole numbers, fractions, and decimals, using concrete materials, drawings or pictures, and mathematical symbols.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>		
<p>All students should</p> <ul style="list-style-type: none"> Understand how the magnitude of a number represented by a whole number, fraction, or decimal compares to another number represented by a whole number, fraction, or decimal. Understand how to represent the same whole number, fraction, or decimal in multiple ways, using concrete materials, a drawing, a symbol, or a statement. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Compare two whole numbers by representing the numbers with concrete objects or picture representations or by using the symbols $<$, $=$, $>$, \geq, or \leq. Compare two fractions with denominators of 12 or less by representing the fractions with fraction manipulatives or picture representations or by using the symbols $<$, $=$, $>$, \geq, or \leq. Compare two decimals through thousandths by representing the decimals with decimal manipulatives or picture representations or by using place-value charts or the symbols $<$, $=$, $>$, \geq, or \leq. 	<p>MAC 1 Lesson(s) Prerequisite Skills</p> <p>5-5 3-2</p>
<p>STANDARD 6.5 The student will identify, represent, order, and compare integers.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>		
<p>All students should</p> <ul style="list-style-type: none"> Understand how to identify, represent, order, and compare integers. Understand that an integer and its opposite are the same distance from zero on a number line. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Identify an integer represented by a point on a number line. Represent an integer on a number line. Compare and order integers, using a number line. Compare integers, using the mathematical symbols $<$, $>$, and $=$. 	<p>MAC 1 Lesson(s) 8-1 8-1 8-1 8-1</p>
<p>STRAND: COMPUTATION AND ESTIMATION</p>		
<p>STANDARD 6.6 The student will</p>		
<p>a) solve problems that involve addition, subtraction, multiplication, and/or division with fractions and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less, and express their answers in simplest form; and</p> <p>b) find the quotient, given a dividend expressed as a decimal through thousandths and a divisor expressed as a decimal to thousandths with exactly one non-zero digit.</p>	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Convert fractions to equivalent forms to perform the operations of addition and subtraction. Simplify fractional answers to simplest form. Solve problems that involve addition and/or subtraction with fractions and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less, and express answers in simplest form. Solve problems that involve multiplication and/or division with fractions and mixed 	<p>MAC 1 Lesson(s) 6-4a, 6-4, 6-5, 6-6 5-2 6-3, 6-4, 6-5, 6-6 7-2a, 7-2, 7-3, 7-4a, 7-4,</p>
<p>ESSENTIAL UNDERSTANDINGS</p>		
<p>All students should</p> <ul style="list-style-type: none"> Understand that fraction computation uses the same ideas as whole-number computation, applying those concepts to fractional parts. Understand that decimal division uses the same ideas as whole-number division with an added focus on the placement of the decimal point. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Convert fractions to equivalent forms to perform the operations of addition and subtraction. Simplify fractional answers to simplest form. Solve problems that involve addition and/or subtraction with fractions and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less, and express answers in simplest form. Solve problems that involve multiplication and/or division with fractions and mixed 	<p>MAC 1 Lesson(s) 6-4a, 6-4, 6-5, 6-6 5-2 6-3, 6-4, 6-5, 6-6 7-2a, 7-2, 7-3, 7-4a, 7-4,</p>

<ul style="list-style-type: none"> Understand that using estimation helps determine the reasonableness of answers. 	<p>numbers that include denominators of 12 or less, and express answers in simplest form.</p> <ul style="list-style-type: none"> Given a dividend expressed as a decimal through thousandths and a divisor expressed as a decimal to thousandths with exactly one non-zero digit, find the quotient. Given a dividend expressed as a decimal through thousandths and a divisor expressed as a decimal to thousandths with more than one non-zero digit, find the quotient by using a calculator. 	<p>7-5</p> <p>4-4</p> <p>4-4</p>
<p>STANDARD 6.7 The student will use estimation strategies to solve multistep practical problems involving whole numbers, decimals, and fractions (rational numbers).</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>		
<p>All students should</p> <ul style="list-style-type: none"> Be able to produce an approximate answer for a given problem. Understand that an estimated answer helps validate the reasonableness of a computed answer. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Solve multistep practical problems involving whole numbers, decimals, and fractions by using estimation strategies and checking for the reasonableness of results. 	<p>MAC 1 Lesson(s)</p> <p>3-4, 6-2, 7-1</p>
<p>STANDARD 6.8 The student will solve multistep consumer-application problems involving fractions and decimals and present data and conclusions in paragraphs, tables, or graphs. Planning a budget will be included.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>		
<p>All students should</p> <ul style="list-style-type: none"> Understand how mathematics relates to problems in daily life. Understand how to represent problems within various contexts. Understand the importance of planning and maintaining a budget. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Determine essential information necessary to solve consumer application problems. Choose the operation or operations required to solve the problem. Solve multistep consumer application problems involving fractions with denominators not greater than 12 and decimals not greater than hundredths, where solutions require at least a two-step process. Represent the solution as a data table or graph. Present and justify the solution orally or in writing. Plan and maintain a budget. 	<p>MAC 1 Lesson(s)</p> <p>10-1, 10-7</p> <p>Everywhere</p> <p>3-1, 3-2, 3-3, 3-4, 3-5, 4-1, 4-2, 4-3, 5-3, 5-6, 7-4</p> <p>2-1, 2-2, 2-2b, 2-3, 2-4, 2-5, 2-7b</p> <p>Everywhere</p> <p>4-6b</p>
<p>STRAND: MEASUREMENT</p>		
<p>STANDARD 6.9 The student will compare and convert units of measure for length, area, weight/mass, and volume within the U.S. Customary system and the metric system and estimate conversions between units in each system:</p> <ol style="list-style-type: none"> length—part of an inch (1/2, 1/4, and 1/8), inches, feet, yards, miles, millimeters, centimeters, meters, and kilometers; weight/mass—ounces, pounds, tons, grams, and kilograms; liquid volume—cups, pints, quarts, gallons, milliliters, and liters; and area—square units.* <p>* <i>The intent of this standard is for students to make ballpark comparisons and not to memorize conversion factors between U.S. Customary and metric units.</i></p>		
<p>ESSENTIAL UNDERSTANDINGS</p>		
<p>All students should</p>	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication,</p>	<p>MAC 1 Lesson(s)</p> <p>12-1, 12-2, 12-5</p>

<ul style="list-style-type: none"> Understand that there is a structured relationship between and among units of measure for length, area, weight/mass, and volume in the metric and U.S. Customary systems. Understand that weight and mass are different. 	<p>mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Compare and convert units of measure for length, area, weight/mass, and volume within the U.S. Customary system and the metric system. Estimate the conversion of units of length, area, weight/mass, and volume between the U.S. Customary system and the metric system by using ballpark comparisons. Determine the most appropriate unit of measure for a given situation. 	<p>12-1, 12-2, 12-3, 12-4</p>
<p>STANDARD 6.10 The student will estimate and then determine length, weight/mass, area, and liquid volume/capacity, using standard and nonstandard units of measure.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p> <p>All students should</p> <ul style="list-style-type: none"> Understand that measures are determined by quantitative comparison to a standard unit. Understand that units of measure are determined by the attributes of the object being measured. Understand that measures of length are expressed in linear units, measures of area are expressed in square units, and measures of volume are expressed in cubic units. 		
<p>STANDARD 6.11 The student will determine if a problem situation involving polygons of four or fewer sides represents the application of perimeter or area and apply the appropriate formula.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p> <p>All students should</p> <ul style="list-style-type: none"> Understand the attributes of polygons and the use of measures to determine area and perimeter. Understand the derivation of formulas related to area and perimeter of polygons and how to determine which is used in problem situations. 		
<p>a) solve problems involving the circumference and/or area of a circle when given the diameter or radius; and</p> <p>b) derive approximations for pi (π) from measurements for circumference and diameter, using concrete materials or computer models.</p>	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Determine if a problem situation involving polygons of four or fewer sides represents the application of perimeter or area. Apply formulas to solve problems involving area and perimeter of triangles and rectangles. 	<p>MAC 1 Lesson(s)</p> <p>1-8, 4-5, 12-1a, 13-6, 14-1, 14-2a, 14-2, 14-2b</p> <p>1-8, 4-5, 12-1a, 14-1, 14-2a, 14-2, 14-2b</p>
<p>STANDARD 6.12 The student will</p>		
<p>ESSENTIAL UNDERSTANDINGS</p> <p>All students should</p> <ul style="list-style-type: none"> Select the appropriate approximation for pi (π) when solving problems. Understand the derivation of pi and formulas for finding circumference and 		
<ul style="list-style-type: none"> Derive an approximation for pi (3.14 or $\frac{22}{7}$) by gathering data and comparing the circumference to the diameter of various circles, using concrete materials or 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Derive an approximation for pi (3.14 or $\frac{22}{7}$) by gathering data and comparing the circumference to the diameter of various circles, using concrete materials or 	<p>MAC 1 Lesson(s)</p> <p>14-3</p>

<p>area of a circle.</p>	<p>computer models.</p> <ul style="list-style-type: none"> Find the circumference of a circle by substituting a value for the diameter or the radius into the formula $C = \pi d$ or $C = 2\pi r$. Find the area of a circle by using the formula $A = \pi r^2$. Determine the circumference and/or area of a circle, using various tools. Create and solve problems that involve finding the circumference and/or area of a circle when given the diameter or radius. 	<p>4-6</p> <p>14-3</p> <p>4-6, 14-3</p> <p>4-6, 14-3</p>
<p>STANDARD 6.13 The student will</p> <p>a) estimate angle measures, using 45°, 90°, and 180° as referents, and use the appropriate tools to measure the given angles; and</p> <p>b) measure and draw right, acute, and obtuse angles and triangles.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p>	<p>MAC 1 Lesson(s)</p>
<p>All students should</p> <ul style="list-style-type: none"> Understand that an angle is two rays diverging from a common point. Understand names for angles and triangles by defining referents and characteristics. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Estimate visually the angle measure of a given angle by using 45°, 90°, and 180° as referents, and use appropriate tools to check the reasonableness of the estimate. Draw and measure acute, right, and obtuse angles, using appropriate tools. Draw and measure acute, right, and obtuse triangles, using appropriate tools. 	<p>13-2</p>
<p>STANDARD: GEOMETRY</p> <p>STANDARD 6.14 The student will identify, classify, and describe the characteristics of plane figures, describing their similarities, differences, and defining properties.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p>	<p>MAC 1 Lesson(s)</p>
<p>All students should</p> <ul style="list-style-type: none"> Understand that plane figures are identified and described by their similarities, differences, and defining properties. Understand that plane figures are classified by their defining properties. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Classify triangles, quadrilaterals, pentagons, and hexagons. Classify a triangle based on the size of its angles and/or its sides. Identify the sum of the measures of the angles of any triangle or quadrilateral. Determine that the sum of the measures of the angles of a triangle is 180°. Classify a triangle by its angles. Classify and describe the similarities and differences in sets of triangles by sorting. Classify quadrilaterals by pairs of parallel sides by sorting. Identify and describe the similarities and differences in sets of quadrilaterals by sorting. 	<p>13-4</p> <p>13-4, 13-4b</p> <p>13-4, 13-4b</p> <p>13-4b</p> <p>13-4b</p> <p>13-4, 13-4b</p> <p>13-4, 13-4b</p> <p>13-4, 13-4b</p>
<p>STANDARD 6.15 The student will determine congruence of segments, angles, and polygons by direct comparison, given their attributes. Examples of noncongruent and congruent figures will be included.</p>		
<p>ESSENTIAL UNDERSTANDINGS</p>	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p>	<p>MAC 1 Lesson(s)</p>
<p>All students should</p> <ul style="list-style-type: none"> Understand the meaning of congruence. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Characterize polygons as congruent and noncongruent according to the measures of their sides and angles. Determine the congruence of segments, angles, and polygons by direct comparison, 	<p>13-6</p> <p>13-3a, 13-6</p>

	given their attributes.	
STANDARD 6.16	The student will construct the perpendicular bisector of a line segment and an angle bisector.	
ESSENTIAL UNDERSTANDINGS	ESSENTIAL KNOWLEDGE AND SKILLS	MAC1 Lesson(s)
<ul style="list-style-type: none"> • All students should understand the attributes of perpendicular lines. • Understand the attributes of a bisector. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Construct the perpendicular bisector of a line segment by using a variety of tools. • Construct the bisector of an angle by using a variety of tools. 	13-3
STANDARD 6.17	The student will sketch, construct models of, and classify solid figures (rectangular prism, cone, cylinder, and pyramid).	
ESSENTIAL UNDERSTANDINGS	ESSENTIAL KNOWLEDGE AND SKILLS	MAC 1 Lesson(s)
<p>All students should</p> <ul style="list-style-type: none"> • Understand how to interpret a picture of a solid figure from a two-dimensional diagram and vice versa. • Understand the decomposition of a solid figure into a discrete set of surfaces. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Sketch rectangular prisms, cones, cylinders, and pyramids from two-dimensional representations and three-dimensional models. • Construct models for rectangular prisms, cones, cylinders, and pyramids. • Classify rectangular prisms, cones, cylinders, and pyramids by their two-dimensional representations. • Identify a three-dimensional model of a prism, cone, cylinder, or pyramid from its two-dimensional representation. 	14-4, 14-6a
		14-4b, 14-5
		14-6a, 14-6
		14-4
STRAND : PROBABILITY AND STATISTICS		
STANDARD 6.18	The student, given a problem situation, will collect, analyze, display, and interpret data in a variety of graphical methods, including	
	<ul style="list-style-type: none"> a) line, bar, and circle graphs; b) stem-and-leaf plots; and c) box-and-whisker plots. <p>Circle graphs will be limited to halves, fourths, and eighths.</p>	
ESSENTIAL UNDERSTANDINGS	ESSENTIAL KNOWLEDGE AND SKILLS	MAC 1 Lesson(s)
<p>All students should</p> <ul style="list-style-type: none"> • Understand that data can be displayed in a variety of graphical representations. • Select and use appropriate statistical methods to analyze data. • Understand that different types of representations can tell different things about the same data. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Collect data sets of no more than 20 items by using tally sheets, surveys, observations, questionnaires, interviews, and polls. • Organize data by using lists, charts, and tables. • Organize and display data in bar and line graphs, displaying the information as clearly as possible by using increments of whole numbers, fractions, and decimals rounded to the nearest tenth. • Organize and display data in circle graphs by depicting information as fractional parts that are limited to halves, fourths, and eighths. • Organize and display data sets of no more than 20 numbers in stem-and-leaf plots where the stem is listed in ascending order and the leaves are in ascending order, with or without commas between leaves. • Organize and display data sets of no more than 20 numbers in box-and-whisker plots, identifying the lower extreme (minimum), lower quartile, median, upper quartile, and upper extreme (maximum). Use the critical points in a box-and-whisker plot to determine the range and the interquartile range. • Decide which type of graph is appropriate for a given situation. 	2-1, 11-3
		2-1
		2-2, 2-2b
		2-3
		2-5
		2-7b
		2-2, 2-2b, 2-3

	<ul style="list-style-type: none"> - Bar graphs are used to display categorical (discrete) data. - Line graphs are used to display continuous data. - Circle graphs are used to show a relationship of the parts to a whole. 	<ul style="list-style-type: none"> • Interpret data from line, bar, and circle graphs and from stem-and-leaf and box-and-whisker plots. 	<p>2-2a, 2-2, 2-2b, 2-3, 2-4, 2-5, 2-7b, 2-8</p>
<p>STANDARD 6.19 The student will describe the mean, median, and mode as measures of central tendency, describe the range, and determine their meaning for a set of data.</p>			
<p>ESSENTIAL UNDERSTANDINGS</p>			
<p>All students should</p>	<ul style="list-style-type: none"> • Understand that measures of central tendency are types of averages for a data set. • Understand that mean, median, and mode are measures of central tendency that are useful for describing data in different situations. • Understand that the range describes the spread of a set of data. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Find the mean for a set of data. • Find the median for a set of data. • Find the mode for a set of data. • Find the range for a set of data. • Describe the three measures of central tendency and a situation in which each would best represent a set of data. 	<p>MAC 1 Lesson(s)</p> <p>2-6, 2-6b</p> <p>2-7</p> <p>2-7</p> <p>2-7</p> <p>2-7</p>
<p>STANDARD 6.20 The student will</p>			
<p>a) make a sample space for selected experiments and represent it in the form of a list, chart, picture, or tree diagram; and</p>			
<p>b) determine and interpret the probability of an event occurring from a given sample space and represent the probability as a ratio, decimal, or percent, as appropriate for the given situation.</p>			
<p>ESSENTIAL UNDERSTANDINGS</p>			
<p>All students should</p> <ul style="list-style-type: none"> • Understand how to use and interpret information given in a sample space. • Understand that a probability can be expressed as a ratio, decimal, or percent. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Plan and carry out experiments that use concrete materials to find a sample space. • Determine the sample space for selected experiments and represent the sample space for up to 20 possibilities as a list, chart, picture, and/or tree diagram. • Given a sample space, determine the probability of a simple event. Represent the probability as a ratio, fraction, decimal, or percent where the fraction's denominator does not exceed 20, decimals are rounded to tenths, and percent is rounded to $\frac{1}{10}$ of a percent. 	<p>MAC 1 Lesson(s)</p> <p>11-1b</p> <p>11-1b, 11-2</p> <p>11-1, 11-1b, 11-2, 11-4, 11-5</p>	
<p>STRAND: PATTERNS, FUNCTIONS, AND ALGEBRA</p>			
<p>STANDARD 6.21 The student will investigate, describe, and extend numerical and geometric patterns, including triangular numbers, patterns formed by powers of 10, and arithmetic sequences.</p>			
<p>ESSENTIAL UNDERSTANDINGS</p>			
<p>All students should</p> <ul style="list-style-type: none"> • Understand that mathematical patterns can be represented in various forms, geometrically or numerically. • Understand that patterns regularly occur in everyday life. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Investigate and apply strategies to recognize and describe the change between terms in numerical patterns. • Investigate and apply strategies to recognize and describe geometric patterns. • Describe verbally and in writing the relationships between consecutive terms in a 	<p>MAC 1 Lesson(s)</p> <p>7-6a, 7-6</p> <p>7-6a, 7-6</p> <p>7-6a, 7-6</p>	

<ul style="list-style-type: none"> Understand that patterns can be recognized, extended, or generalized. Understand that numerical patterns may involve adding or multiplying by the same number. Understand that geometric patterns may involve shape, size, angles, transformations of shapes, and growth. 	<p>numerical or geometric pattern.</p> <ul style="list-style-type: none"> Extend and apply numerical and geometric patterns to similar situations. Create numerical and geometric patterns by using a given rule or mathematical relationship. Describe numerical and geometric patterns, including triangular numbers. 	<p>7-6a, 7-6</p> <p>7-6</p> <p>7-6a, 7-6</p>
<p>STANDARD 6.22 The student will investigate and describe concepts of positive exponents, perfect squares, square roots, and, for numbers greater than 10, scientific notation. Calculators will be used to develop exponential patterns.</p> <p>ESSENTIAL UNDERSTANDINGS</p> <p>All students should</p> <ul style="list-style-type: none"> Understand that a power of a number is repeated multiplication of that number by itself. Understand that squaring a number and taking a square root of a number are inverse operations. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections and representation to</p> <ul style="list-style-type: none"> Recognize and describe patterns with exponents by using a calculator. Recognize and describe patterns of perfect squares. Recognize and describe patterns with square roots and squares by using squares, grid paper, and calculators. Recognize powers of ten by examining patterns in a place-value chart: $10^4 = 10,000$, $10^3 = 1000$, $10^2 = 100$, $10^1 = 10$. Write scientific notation for a number greater than 10. 	<p>MAC 1 Lesson(s)</p> <p>1-4</p> <p>14-5a</p> <p>Glencoe MAC 2 11-1</p> <p>1-4</p> <p>4-1</p>
<p>STANDARD 6.2 The student will</p> <ol style="list-style-type: none"> model and solve algebraic equations, using concrete materials; solve one-step linear equations in one variable, involving whole number coefficients and positive rational solutions; and use the following algebraic terms appropriately: variable, coefficient, term, and equation. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Represent a one-step equation, using a variety of concrete materials such as colored chips on an equation mat, algebra tiles, or weights on a balance scale. Solve a one-step equation by demonstrating the steps algebraically. Use the following algebraic terms appropriately: equation, variable, term, and coefficient. Identify examples of equations, variables, terms, and coefficients. 	<p>MAC 1 Lesson(s)</p> <p>9-2a, 9-3a</p> <p>9-2, 9-3, 9-4</p> <p>1-6, 1-7, 9-4</p> <p>1-6, 1-7, 9-4</p>
<p>ESSENTIAL UNDERSTANDINGS</p> <p>All students should</p> <ul style="list-style-type: none"> Understand that physical objects can be used to represent and solve algebraic equations. Understand that in an equation, the equal sign indicates that the value on the left side of the sign is the same as the value on the right side. Understand that to maintain equality, an operation performed on one side of an equation must be performed on the other side. 	<p>ESSENTIAL KNOWLEDGE AND SKILLS</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Represent a one-step equation, using a variety of concrete materials such as colored chips on an equation mat, algebra tiles, or weights on a balance scale. Solve a one-step equation by demonstrating the steps algebraically. Use the following algebraic terms appropriately: equation, variable, term, and coefficient. Identify examples of equations, variables, terms, and coefficients. 	<p>MAC 1 Lesson(s)</p> <p>9-2a, 9-3a</p> <p>9-2, 9-3, 9-4</p> <p>1-6, 1-7, 9-4</p> <p>1-6, 1-7, 9-4</p>