

Virginia's 2009 Revised Mathematics Standards of Learning



A Vertical Articulation by Strand

Kindergarten through Grade 5

Prepared for the VASS Conference
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Number and Number Sense

Kindergarten	Grade 1	Grade 2
<p>Focus: Whole Number Concepts and Introduction to Fractions</p> <p>K.1 The student, given two sets containing 10 or fewer concrete objects, will identify and describe one set as having more, fewer, or the same number of members as the other set, using the concept of one-to-one correspondence.</p> <p>K.2 The student, given a set containing 15 or fewer concrete items, will</p> <p>a) tell how many are in the set by counting the number of items orally;</p> <p>b) select the corresponding numeral from a given set; and</p> <p>c) write the numeral to tell how many are in the set.</p> <p>K.3 The student, given an ordered set of ten objects and/or pictures, will indicate the ordinal position of each item, first through tenth, and the ordered position of each item from left-to-right, right-to-left, top-to-bottom, and/or bottom-to-top.</p> <p>K.4 The student will</p> <p>a) count forward to 100 and backward from 10;</p> <p>b) <u>identify one more than and one less than a number;</u> and</p> <p>c) count by fives and tens to 100.</p> <p><u>K.5 The student will identify the parts of a set and/or region that represents a fraction for halves and fourths.</u></p>	<p>Focus: Place Value and Fraction Concepts</p> <p>1.1 The student will</p> <p>a) count <u>from 0 to</u> 100 and write the corresponding numeral.; and</p> <p>b) <u>group a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value.</u></p> <p>1.2 The student will count forward by ones, twos, fives, and tens to 100, and backward by ones from 30.</p> <p>1.3 The student will identify <u>the part of a set and/or region that represents a fraction for halves, thirds, and fourths and write the fractions.</u></p>	<p>Focus: Place Value, Number Patterns, and Fraction Concepts</p> <p>2.1 The student will</p> <p>a) read, write, and identify the place value of each digit in a three-digit numeral, using numeration models;</p> <p>b) round two-digit numbers to the nearest ten; and</p> <p>c) <u>compare two whole numbers between 0 and 999, using symbols (>, <, or =) and words (greater than, less than, or equal to).</u></p> <p>2.2 The student will</p> <p>a) identify the ordinal positions first through twentieth, using an ordered set of objects; <u>and.</u></p> <p><u>b) write the ordinal numbers.</u></p> <p>2.3 The student will</p> <p>a) identify the part of a set and/or region that represents a fraction for <u>halves, thirds, fourths, sixths, eighths, and tenths;</u></p> <p>b) write the fraction; and.</p> <p><u>c) compare the unit fractions for halves, thirds, fourths, sixths, eighths, and tenths.</u></p> <p>2.4 The student will</p> <p>a) count forward by twos, fives, and tens to 100, starting at various multiples of 2, 5, or 10;</p> <p>b) count backward by tens from 100; and</p> <p>d) recognize even and odd numbers,</p>

Number and Number Sense

Grade 3	Grade 4	Grade 5
<p>Focus: Place Value and Fractions</p> <p>3.1 The student will a) read and write six-digit numerals and identify the place value for each digit.; <u>b) round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand; and</u> <u>c) compare two whole numbers between 0 and 9,999, using symbols (>, <, or =) and words (greater than, less than, or equal to).</u></p> <p>3.2 The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. Students will use these relationships to solve problems such as $5 + 3 = 8$ and $8 - 3 = \underline{\quad}$.</p> <p>3.3 The student will <u>a) name and write fractions (including mixed numbers) represented by a model;</u> <u>b) model fractions (including mixed numbers) and write the fractions' names; and</u> <u>c) compare fractions having like and unlike denominators, using words and symbols for <, >, and =.</u></p>	<p>Focus: Place Value, Fractions, and Decimals</p> <p>4.1 The student will a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions; b) compare two whole numbers expressed through millions, using symbols ($>$, $<$, or $=$); and c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.</p> <p>4.2 The student will a) compare <u>and order</u> fractions and mixed numbers; using concrete objects and pictures b) represent equivalent fractions; and <u>c) identify the division statement that represents a fraction.</u></p> <p>4.3 The student will a) read, write, represent, and identify decimals expressed <u>through thousandths</u>; b) round <u>decimals</u> to the nearest whole number, tenth, and hundredth; c) compare <u>and order</u> decimals, using symbols ($<$, $>$, or $=$), concrete materials, drawings, and calculators.; and <u>d) given a model, write the decimal and fraction equivalents.</u></p>	<p>Focus: Factors and Multiples, Fractions, Decimals</p> <p>5.1 The student, <u>given a decimal through thousandths</u>, will <u>round to the nearest whole number, tenth, or hundredth.</u></p> <p>5.2 The student will a) recognize and name fractions (halves, fourths, fifths, eighths, and tenths) in their equivalent decimal form and vice versa; and b) <u>compare and</u> order a given set of fractions and decimals from least to greatest. Fractions will include like and unlike denominators limited to 12 or less, and mixed numbers.</p> <p><u>5.3 The student will</u> <u>a) identify and describe prime and composite numbers; and</u> <u>b) identify and describe even and odd numbers.</u></p>

Computation and Estimation

Kindergarten	Grade 1	Grade 2
<p>Focus: Whole Number Operations</p> <p>K.6 The student will model adding and subtracting whole numbers, using up to 10 concrete objects.</p>	<p>Focus: Whole Number Operations</p> <p>1.4 The student, given a familiar problem situation involving magnitude, will</p> <p>a) select a reasonable magnitude from three given quantities: a one-digit numeral, a two-digit numeral, and a three-digit numeral (e.g., 5, 50, and 500); and</p> <p>b) explain the reasonableness of his/her choice.</p> <p>1.5 The student will recall basic addition facts, i.e., sums to 18 or less and the corresponding subtraction facts.</p> <p>1.6 The student will create and solve one-step story and picture problems using basic addition facts with sums to 18 or less and the corresponding subtraction facts.</p>	<p>Focus: Number Relationships and Operations</p> <p>2.5 The student will recall basic addition facts, i.e., sums to 20 or less and the corresponding subtraction facts.</p> <p>2.6 The student, given two whole numbers whose sum is 99 or less, will</p> <p>a) estimate the sum; and</p> <p>b) find the sum, using various methods of calculation. (mental computation, concrete materials, and paper and pencil).</p> <p>2.7 The student, given two whole numbers, each of which is 99 or less, will</p> <p>a) estimate the difference; and</p> <p>b) find the difference, using various methods of calculation. (mental computation, concrete materials, and paper and pencil.)</p> <p>2.8 The student will create and solve one- and two-step addition and subtraction problems using data from simple tables, picture graphs, and bar graphs.</p> <p>2.9 The student will recognize and describe the related facts which represent and describe the inverse relationship between addition and subtraction (e.g., $3 + _ = 7$, $_ + 3 = 7$; $7 - 3 = _$, and $7 - _ = 3$).</p>

Computation and Estimation

Grade 3	Grade 4	Grade 5
<p data-bbox="121 245 638 315">Focus: Computation and Fraction Operations</p> <p data-bbox="92 358 653 678">3.4 The student will estimate solutions and solve <u>single-step and multistep</u> problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping using various computational methods, including calculators, paper and pencil, mental computation, and estimation.</p> <p data-bbox="92 722 646 865">3.5 The student will a) recall the multiplication facts through the <u>twelves</u> table; and <u>b) the corresponding division facts.</u></p> <p data-bbox="92 906 667 1154">3.6 The student will represent multiplication and division, using area set, <u>and number line</u> models; and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.</p> <p data-bbox="92 1198 646 1411">3.7 The student will add and subtract with proper fractions having like denominators of <u>12</u> or less, using concrete materials and pictorial models representing areas/regions, lengths/measurements, and sets.</p>	<p data-bbox="716 245 1270 315">Focus: Whole Number, Fraction, and Decimal Operations, and Estimation</p> <p data-bbox="695 358 1276 792">4.4 The student will <u>a) estimate sums, differences, products, and quotients for whole numbers;</u> <u>b) add, subtract, and multiply whole numbers;</u> <u>c) divide whole numbers, finding quotients with and without remainders; and</u> <u>d) solve single and multistep addition, subtraction, and multiplication problems with whole numbers.</u></p> <p data-bbox="695 833 1289 1304">4.5 The student will a) <u>determine common multiples and factors, including least common multiple and greatest common factor;</u> b) add and subtract with fractions having like and unlike denominators <u>that are limited to 2, 3, 4, 5, 6, 8, 10, and 12, and simplify the resulting fractions, using common multiples and factors;</u> c) add and subtract with decimals; and <u>d) solve single-step practical problems involving addition and subtraction with fractions and with decimals.</u></p>	<p data-bbox="1360 245 1915 315">Focus: Computation Operations and Estimations</p> <p data-bbox="1318 345 1938 594">5.4 The student will create and solve <u>single and multistep practical</u> problems involving addition, subtraction, multiplication, and division <u>with and without remainders</u> of whole numbers, using paper and pencil, estimation, mental computation, and Calculators.</p> <p data-bbox="1318 626 1948 914">5.5 The student will a) find the sum, difference, and quotient, of two numbers expressed as decimals through thousands (divisors with only one nonzero digit); and <u>create and solve single-step and multistep practical problems involving decimals.</u></p> <p data-bbox="1318 946 1948 1122"><u>5.6 The student will solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers and express answers in simplest form.</u></p> <p data-bbox="1318 1154 1938 1330">5.7 The student will evaluate whole number numerical expressions, using the <u>order of operations limited to parentheses, addition, subtraction, multiplication, and division.</u></p>

Measurement

Kindergarten	Grade 1	Grade 2
<p>Focus: Instruments and Attributes</p> <p>K.7 The student will recognize a penny, nickel, dime, and quarter and will determine the value of a collection of pennies and/or nickels whose total value is 10 cents or less.</p> <p>K.8 The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar: day, month, and season), and temperature (thermometer).</p> <p>K.9 The student will tell time to the hour, using an analog and digital clock.</p> <p>K.10 The student will compare two objects or events, using direct comparisons or nonstandard units of measure, according to one or more of the following attributes: length (shorter, longer), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder). Examples of nonstandard units include foot length, hand span, new pencil, paper clip, block.</p>	<p>Focus: Time and Measurement</p> <p>1.7 The student will</p> <p>a) identify the number of pennies equivalent to a nickel, a dime, and a quarter; and</p> <p>b) determine the value of a collection of pennies, nickels, and dimes whose total value is 100 cents or less.</p> <p>1.8 The student will tell time to the half-hour, using an analog and digital clock.</p> <p>1.9 The student will use nonstandard units to measure length, weight/mass and volume.</p> <p>1.10 The student will compare</p> <p>a) the volumes of two given containers by using concrete materials (e.g., jelly beans, sand, water, rice); and</p> <p>b) the weights of two objects, using a balance scale.</p> <p><u>1.11 The student will use calendar language appropriately (e.g., months, today, yesterday, next week, last week).</u></p>	<p>Focus: Money, Time, and Measurement</p> <p>2.10 The student will</p> <p>a) count and compare a collection of pennies, nickels, dimes, and quarters whose total value is \$2.00 or less; and</p> <p>b) correctly use the cent symbol (¢), dollar symbol (\$), and decimal point.</p> <p>2.11 The student will estimate and measure</p> <p>a) length to the nearest centimeter and inch</p> <p>b) weight/mass of objects in pounds/ounces and kilograms/grams, using a scale and</p> <p>c) liquid volume in (cups, pints, quarts, gallons, and liters), using the concepts of more, less, and equivalent.</p> <p>2.12 The student will tell and write time to the nearest five minutes, using analog and digital clocks.</p> <p>2.13 The student will</p> <p>a) determine past and future days of the week; and</p> <p>b) identify specific days and dates on a given calendar.</p> <p>2.14 The student will read the temperature on a Celsius and/or Fahrenheit thermometer to the nearest 10 degrees.</p>

Measurement

Grade 3	Grade 4	Grade 5
<p>Focus: U.S. Customary and Metric Units, Area and Perimeter, Time</p> <p>3.8 The student will determine by counting the value of a collection of bills and coins whose total value is \$5.00 or less, compare the value of the coins or bills, and make change.</p> <p>3.9 The student will estimate and use U.S. Customary and metric units to measure:</p> <p>a) length — to the nearest ½ inch, inches, feet, yards, centimeters, and meters;</p> <p>b) liquid volume — cups, pints, quarts, gallons, and liters;</p> <p>c) weight/mass — ounces, pounds, grams, and kilograms.; and</p> <p><u>d) area and perimeter.</u></p> <p><u>3.10 The student will</u></p> <p><u>a) measure the distance around a polygon in order to determine perimeter; and</u></p> <p><u>b) count the number of square units needed to cover a given surface in order to determine area.</u></p> <p>3.11 The student will</p> <p>a) tell time to the nearest minute, using analog and digital clocks.; and</p> <p><u>b) determine elapsed time in one-hour increments over a 12-hour period.</u></p> <p>3.12 The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours.</p> <p>3.13 The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used.</p>	<p>Focus: Equivalence between U.S. Customary and Metric Units</p> <p>4.6 The student will</p> <p>a) estimate and measure weight/mass, using actual measuring devices and describe the results in U.S. Customary/metric units as appropriate, including ounces, pounds, <u>tons</u>, grams, and kilograms and</p> <p>b) identify equivalent measurements between units within the U.S. Customary system (ounces, pounds, <u>and tons</u>, and between units within the metric system (grams and kilograms).</p> <p>4.7 The student will</p> <p>a) estimate and measure length and determine the result in both metric and U.S. Customary units including part of an inch (1/2, 1/4, and 1/8), inches, feet, yards, <u>miles</u>, millimeters, centimeters, and meters; and</p> <p>b) identify equivalent measurements between units within the U.S. Customary system (inches and feet; feet and yards; inches and yards; <u>yards and miles</u>) and between units within the metric system (millimeters and centimeters; centimeters and meters; and millimeters and meters). ; and</p> <p>4.8 The student will</p> <p>a) estimate and measure liquid volume, using actual measuring devices and describe the results in U.S. Customary; and b) identify equivalent measurements between units within the U.S. Customary system (cups, pints, quarts, and gallons).</p> <p><u>4.9 The student will determine elapsed time in hours and minutes within a 12-hour period.</u></p>	<p>Focus: Perimeter, Area, volume, and Equivalent Measures</p> <p>5.8 The student will</p> <p>a) <u>find</u> perimeter, area, <u>and volume</u> in standard units of measure;</p> <p><u>b) differentiate between perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation;</u></p> <p><u>c) identify equivalent measurements within the metric system;</u></p> <p><u>d) estimate and then measure to solve problems using U.S. Customary and metric units; and</u></p> <p><u>e) choose an appropriate unit of measure for a given situation involving measurement using U.S. Customary and metric units.</u></p> <p>5.9 The student will identify and describe the diameter, radius, chord, and circumference of a circle.</p> <p>5.10 The student will determine an amount of elapsed time in hours and minutes within a 24-hour period.</p> <p>5.11 The student will measure and draw right, acute, and obtuse, and <u>straight angles.</u></p>

Geometry

Kindergarten	Grade 1	Grade 2
<p style="text-align: center;">Focus: Identify Plane Shapes</p> <p>K.11 The student will a) identify and describe two-dimensional (plane) geometric figures (circle, triangle, square, and rectangle). ; <u>and b) compare the size (larger, smaller) and shape of plane geometric figures (circle, triangle, square, and rectangle).</u></p> <p>K.12 The student will describe the location of one object relative to another (above, below, next to) and identify representations of plane geometric figures (circle, triangle, square, and rectangle) regardless of their position and orientation in space.</p>	<p style="text-align: center;">Focus: Geometric Property Development</p> <p>1.12 The student will identify and trace, describe, and sort plane geometric figures (triangle, square, rectangle, and circle) according to number of sides, vertices, and right angles.</p> <p>1.13 The student will <u>construct, model, and describe objects in the environment as geometric shapes (triangles, rectangles, squares, and circles) and explain the reasonableness of each choice.</u></p>	<p style="text-align: center;">Focus: Symmetry and Plane and Solid Figures</p> <p>2.15 The student will <u>a) draw a line of symmetry in a figure; and</u> b) identify and create figures <u>with at least one line of symmetry</u> using various concrete materials.</p> <p>2.16 The student will <u>identify, describe,</u> compare, and contrast plane and solid geometric shapes (circle/sphere, square/cube, and rectangle /rectangular <u>prism</u>).</p>

Geometry

Grade 3	Grade 4	Grade 5
<p style="text-align: center;">Focus: Properties and Congruence</p> <p>3.14 The student will identify, describe, <u>compare, and contrast</u> characteristics of plane and solid geometric figures (circle, square, rectangle, triangle, cube, rectangular prism, square pyramid, sphere, cone, and cylinder) <u>by identifying relevant characteristics, including the number of angles, vertices, and edges, and the number and shape of faces, using concrete models..</u></p> <p>3.15 The student will identify and draw representations of <u>points</u>, line segments, <u>rays</u>, angles, and <u>lines</u></p> <p>3.16 The student, <u>given appropriate drawings or models</u> will identify and describe congruent and <u>noncongruent</u>, plane figures, using tracing procedures.</p>	<p style="text-align: center;">Focus: Representations and Polygons</p> <p>4.10 The student will <u>a) identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices;</u> <u>b) identify representations of lines that illustrate intersection, parallelism, and perpendicularity; and</u></p> <p>4.11 The student will a) investigate congruence of plane figures after geometric transformations such as reflection, translation and rotation, using mirrors, paper folding, and tracing. b) recognize the images of figures resulting from geometric transformations such as translation (slide), reflection (flip), or rotation (turn).</p> <p><u>4.12 The student will</u> <u>a) define polygon; and</u> <u>b) identify polygons with 10 or fewer sides.</u></p>	<p style="text-align: center;">Focus: Classification and Subdividing</p> <p>5.12 The student will classify a) angles as right, acute, or obtuse, or straight; and b) triangles <u>as right, acute, obtuse, equilateral, scalene, or isosceles.</u></p> <p>5.13 The student, using plane figures, (square, rectangle, triangle, parallelogram, rhombus, and trapezoid) will a) develop definitions of these <u>plane</u> figures; and b) investigate and describe the results of combining and subdividing plane figures.</p>

Probability and Statistics

Kindergarten	Grade 1	Grade 2
<p style="text-align: center;">Focus: Data Collection and Display</p> <p>K.13 The student will gather data by counting and tallying.</p> <p>K.14 The student will display <u>gathered data in</u> object graphs, <u>picture</u> graphs, and tables, and <u>will answer questions related to the data.</u></p>	<p style="text-align: center;">Focus: Data Collection and Interpretation</p> <p>1.14 The student will investigate, identify, and describe various forms of data collection in his/her world (e.g., recording daily temperature, lunch count, attendance, and favorite ice cream), using tables, picture graphs, and object graphs.</p> <p>1.15 The student will interpret information displayed in a picture or object graph, using the vocabulary <i>more, less, fewer, greater than, less than, and equal to.</i></p>	<p style="text-align: center;">Focus: Applications of Data</p> <p>2.17 The student will <u>use data from experiments to</u> construct picture <u>graphs</u>, pictographs, and bar graphs.</p> <p>2.18 The student will <u>use</u> data from experiments, using spinners and colored tiles/cubes, and use the data <u>to predict outcomes</u> if the experiment is repeated.</p> <p><u>2.19 The student will analyze data displayed in a picture graph, pictograph and bar graph.</u></p>

Probability and Statistics

Grade 3	Grade 4	Grade 5
<p style="text-align: center;">Focus: Applications of Data and Chance</p> <p>3.17 The student will a) collect and organize data on a given topic of his/her choice, using observations, measurements, surveys, or experiments; b) construct a line plot, a picture graph, or a bar graph to represent <u>the data</u>. Each graph will include an appropriate title and key; and c) read and interpret <u>the</u> data represented in line plots, bar graphs, and picture graphs and write a sentence analyzing the data.</p> <p>3.18 The student will investigate and describe the concept of probability as chance and list possible results of a given situation.</p>	<p style="text-align: center;">Focus: Outcomes</p> <p>4.13 The student will a) predict the likelihood of <u>an</u> outcome of a simple event, using the terms <i>certain, likely, <u>equally likely</u>, unlikely, impossible</i> b) <u>represent probability as a number between 0 and 1.</u></p> <p>4.14 The student will collect, organize, and display data from a variety of graphs, including bar graphs and line graphs.</p>	<p style="text-align: center;">Focus: outcomes and Measures of Centers</p> <p>5.14 The student will a) <u>make predictions and</u> determine the probability of an outcome by constructing a sample space.</p> <p>5.15 The student will, given a problem situation, collect, organize, and display a set of numerical data in a variety of forms, using bar graphs, stem-and-leaf plots, and line graphs, to draw conclusions and make predictions.</p> <p>5.16 The student will <u>a) describe mean, median, and mode as measures of center;</u> <u>b) describe mean as fair share;</u> b) find the mean, median, mode, and range of a set of data; and <u>c) describe the range of a set of data as a measure of variation.</u></p>

Patterns, Functions, and Algebra

Kindergarten	Grade 1	Grade 2
<p style="text-align: center;">Focus: Attributes and Patterning</p> <p>K.15 The student will sort and classify objects according to attributes (size, shape, and color).</p> <p>K.16 The student will identify, describe, and extend repeating patterns.</p>	<p style="text-align: center;">Focus: Patterning and Equivalence</p> <p>1.16 The student will sort and classify concrete objects according to one or more attributes, including color, size, shape, and thickness.</p> <p>1.17 The student will recognize, describe, extend, and create a wide variety of patterns including rhythmic, color, shape, and numerical. Patterns will include both growing and repeating patterns. Concrete materials and calculators will be used by students</p> <p><u>1.18 The student will demonstrate an understanding of equality through the use of the equal sign.</u></p>	<p style="text-align: center;">Focus: Patterning and Numerical Sentences</p> <p>2.20 The student will identify, create, and extend a wide variety of patterns, using numbers, concrete objects and pictures.</p> <p>2.21 The student will solve problems by completing a numerical sentence involving the basic facts for addition and subtraction. Examples include: $3 + _ = 7$, or $9 _ - _ = 2$. Students will create story problems, using the numerical sentences.</p> <p><u>2.22 The student will demonstrate an understanding of equality by recognizing that the symbol = in an equation indicates equivalent quantities and the symbol ≠ indicates that quantities are not equivalent.</u></p>

Patterns, Functions, and Algebra

Grade 3	Grade 4	Grade 5
<p>Focus: Patterns and Property Concepts</p> <p>3.19 The student will recognize and describe a variety of patterns formed using numbers, tables, and pictures, and extend the pattern, using the same or different forms.</p> <p>3.20 The student will</p> <p>a) investigate the identity and the commutative properties for addition and multiplication; and</p> <p>b) identify examples of the identity and <u>commutative properties for addition and multiplication; and</u></p> <p>c) demonstrate an understanding of equality by recognizing that the equals sign (=) <u>in an equation</u> links equivalent quantities, such as $4 \cdot 3 = 14 - 2$.</p>	<p>Focus: Geometric Patterns, Equality, Properties</p> <p>4.15 The student will recognize, create, and extend numerical and geometric patterns, using concrete materials, number lines, symbols, tables, and words.</p> <p>4.16 The student will</p> <p>a) recognize and demonstrate the meaning of equality <u>in an equation</u>, using symbols representing numbers, operations, and relations [e.g., $3 + 5 = 5 + 3$ and $15 + (35 + 16) = (15 + 35) + 16$]; and</p> <p><u>b) investigate and describe the associative property for addition and multiplication.</u></p>	<p>Focus: Equations and Properties</p> <p>5.17 The student will describe the relationship found in a number patterns and express the relationship, using words, tables, and <u>symbols to describe the relationship</u>. Concrete materials and calculators will be used.</p> <p>5.18 The student will</p> <p>a) investigate and describe the concept of variable;</p> <p>b) write an open sentence to represent a given mathematical relationship, using a variable.;</p> <p><u>c) model one-step linear equations in one variable using addition and subtraction;</u></p> <p><u>and</u></p> <p><u>d) create a problem situation based on a given open sentence using a single variable.</u></p> <p><u>5.19 The student will investigate and recognize the distributive property of multiplication over addition.</u></p>

