

## Kindergarten Critical Curriculum Issues

- **Read, write, and count using whole numbers**
- **Recognize circles, squares, triangles, and rectangles**
- **Identify and describe patterns**
- **Collect data and create graphs**

## Number Sense, Numeration, and Numerical Operations

- 1.01 Model numbers in a variety of ways.
- 1.02 Read, write and count using whole numbers; rote count forward to 30 or beyond and backward from 10.
- 1.03 Use 1-1 correspondence to identify how many (0 - 10).
- 1.04 Recognize numerals and match to sets 0 - 10.
- 1.05 Write numerals 0-9 in meaningful contexts.
- 1.06 Use ordinals first through fifth.
- 1.07 Create and identify sets with more, less, or equal members by matching.
- 1.08 Combine and remove objects from sets, describe results.
- 1.09 Estimate quantities less than 20.
- 1.10 Create and solve story problems within a group.
- 1.11 Share equally (divide) between two people; explain solution.

## Spatial Sense, Measurement, and Geometry

- 2.01 Recognize basic two-dimensional (plane) figures: circle, square, triangle, and rectangle. Describe their likenesses and differences and identify them in the environment.
- 2.02 Complete simple spatial visualization tasks and puzzles.
- 2.03 Compare and order objects using appropriate vocabulary.
- 2.04 Model and use directional and positional words.
- 2.05 Use non-standard measurement of length, weight, capacity, and time.
- 2.06 Name the days of the week.

## Patterns, Relationships, and Functions

- 3.01 Describe likenesses and differences between and among objects.
- 3.02 Sort by a given attribute; sort by own rule and explain.
- 3.03 Identify, copy, continue, and describe patterns.
- 3.04 Create patterns with actions, words and objects.

## Data, Probability, and Statistics

- 4.01 Collect data to create concrete and pictorial graphs and describe the results as a group activity.

**Grade 1  
Critical Curriculum Issues**

- **Addition and subtraction**
- **Spheres, cubes, cylinders, and cones**
- **Time**
- **Describe and compare objects**
- **Patterns**
- **Gather, organize, and display data**

**Skills to Maintain**

- **Read, write and count using whole numbers**

**Number Sense, Numeration,  
and Numerical Operations**

- 1.01 Count using one-to-one correspondence to 30.
- 1.02 Rote count by 1's, 5's and 10's to 100; by 2's to 20.
- 1.03 Make sets and match numerals up to 30.
- 1.04 Compare and order sets and numerals up to 30.
- 1.05 Read and write numerals to 100.
- 1.06 Read number words zero to ten.
- 1.07 Use ordinal numbers first through tenth.
- 1.08 Group and count objects by 2's, 5's, and 10's.
- 1.09 Identify one more/less/before/after/ between.
- 1.10 Identify equal and unequal numerals and sets.
- 1.11 Represent numbers in a variety of ways: using tallies, building models to 100.
- 1.12 Estimate quantities up to 30. Recognize when solutions to problems are reasonable.
- 1.13 Group objects into tens and ones, recognize models; record.
- 1.14 Model concept of addition; know the combinations for sums to 10.
- 1.15 Model concept of subtraction as take-away, comparison, and missing addends.
- 1.16 Model the division of sets into two, three or four equal parts; explain solution.
- 1.17 Relate addition and subtraction to symbolic notation and write equations.
- 1.18 Find sums and differences using counting strategies such as counting on and counting back.
- 1.19 Memorize addition and subtraction facts to 10.
- 1.20 Model 10 more/less to 100.
- 1.21 Model 2-digit addition/subtraction with multiples of 10 to 100.
- 1.22 Create and solve problems using addition and subtraction. Use problem-solving strategies: modeling with manipulatives, acting out, drawing, using diagrams; use calculators as appropriate. Explain solutions.

**Spatial Sense, Measurement,  
and Geometry**

- 2.01 Recognize, identify, and describe plane geometric figures: circle, square, triangle, rectangle.
- 2.02 Recognize plane geometric figures: hexagon, trapezoid, and parallelogram.
- 2.03 Recognize basic three-dimensional (solid) figures: sphere, cube, cylinder and cone.
- 2.04 Identify open and closed figures.
- 2.05 Use directional and positional words.
- 2.06 Describe and compare characteristics of geometric figures.
- 2.07 Identify equal and unequal measures and regions.
- 2.08 Divide regions into two, three, and four equal parts.
- 2.09 Use non-standard units to estimate and measure length, weight, and capacity; record results.
- 2.10 Use calendar language appropriately, e.g. seasons and months of the year, today, yesterday, tomorrow, next week, last month.
- 2.11 Tell time to nearest hour using digital and analog clocks.
- 2.12 Solve problems involving non-standard measurement and explain strategy.
- 2.13 Solve spatial visualization puzzles and tasks; use visual memory.

**Patterns, Relationships, and  
Functions**

- 3.01 Describe and compare objects by their attributes; order sets.
- 3.02 Sort a set of objects in more than one way; sort by own rules and explain.
- 3.03 Copy, continue, and record patterns with actions, words and objects; translate into other forms.
- 3.04 Create and record patterns. Identify and name the pattern unit or numerical sequence.
- 3.05 Solve problems by identifying and correcting errors in repeating patterns.
- 3.06 Identify patterns in the environment.

**Data, Probability,  
and Statistics**

- 4.01 Gather, organize and display information as a group activity.
- 4.02 Answer questions about charts and graphs.
- 4.03 Make predictions based on experiences.
- 4.04 Create concrete, pictorial, and symbolic graphs using prepared grids.

**Grade 2  
Critical Curriculum Issues**

- Place value
- Addition of multi-digit numbers
- Length, capacity, and weight
- Time and money
- Patterns
- Organization of data
- Simple probability experiments
- Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.

**Skills to Maintain**

- Read, write and count using whole numbers
- Count using one-to-one correspondence
- Addition and subtraction facts

**Number Sense, Numeration,  
and Numerical Operations**

- 1.01 Rote count up to 1000.
- 1.02 Identify and use 10 more and 10 less.
- 1.03 Compare and order numbers; identify missing numbers in a sequence to 100.
- 1.04 Read word names for numbers to 100.
- 1.05 Use counting strategies such as skip counting by 2's, 5's, and 10's and grouping objects by 3's and 4's.
- 1.06 Identify odd and even numbers using objects.
- 1.07 Group objects into ones, tens, and hundreds and record in standard form.
- 1.08 Model 3-digit numbers; identify, read, and write correct numerals.
- 1.09 Indicate the value of each digit in any 2- or 3-digit number.
- 1.10 Use problem-solving strategies such as diagrams, organized lists, manipulatives, act out, guess and check, pictures; use calculators when appropriate.
- 1.11 Explain solutions to problems using words, pictures, and numbers.
- 1.12 Make reasonable estimates up to 100 objects.
- 1.13 Identify missing addends for addition facts to 18.
- 1.14 Add 3 single-digit numbers.
- 1.15 Model 2-digit addition and subtraction using manipulatives and alternative strategies; record and explain.
- 1.16 Memorize addition/subtraction facts up to 18.
- 1.17 Add 2- and 3- digit numbers with and without regrouping.
- 1.18 Use addition/subtraction strategies to solve problems.
- 1.19 Divide regions/sets into halves, thirds, and fourths. Record in fractional form.
- 1.20 Model repeated addition (multiplication) and sharing equally (division); record solutions.

**Spatial Sense, Measurement,  
and Geometry**

- 2.01 Describe and make plane figures: squares, rectangles, triangles, circles, hexagons, trapezoids, and parallelograms.
- 2.02 Describe and make solid figures: cubes, rectangular prisms, spheres, cylinders, cones, and pyramids.
- 2.03 Identify and make figures with line symmetry.
- 2.04 Identify and make congruent figures.
- 2.05 Use spatial visualization to solve problems; demonstrate visual memory.
- 2.06 Measure lengths in inches/centimeters; record results.
- 2.07 Measure capacity to the nearest cup/liter; record results.
- 2.08 Weigh objects to the nearest pound/kilogram; record results.
- 2.09 Read Fahrenheit thermometers in increments of 1's, 2's, and 5's; record results.
- 2.10 Sequence months; use the calendar to solve problems.
- 2.11 Tell time to the nearest half-hour using digital and analog clocks; record. Solve problems related to time.
- 2.12 Determine the value of sets of coins (pennies, nickels, dimes, quarters); record using appropriate notation.
- 2.13 Make different sets of coins with equivalent values.
- 2.14 Identify coins needed to buy items priced at \$1.00 or less.
- 2.15 Solve problems using money. Estimate costs and make change using coins up to \$1.00.

**Patterns, Relationships, and  
Functions**

- 3.01 Sort by one or more attributes; describe rules used.
- 3.02 Identify classification and patterning in the environment.
- 3.03 Define, continue, and describe rules for geometric patterns.
- 3.04 Use patterns to continue numerical sequences; identify the rule.
- 3.05 Identify and correct errors in numerical and geometric patterns.
- 3.06 Solve simple logic problems.
- 3.07 Define and continue pattern units; translate into other forms.

**Data, Probability,  
and Statistics**

- 4.01 Collect, sort, organize, and display information in charts, graphs, and tables with correct labeling.
- 4.02 Summarize and interpret information in charts, graphs, and tables; make predictions.
- 4.03 Collect and display data over a period of time.
- 4.04 Locate points on the number line and positions on a grid.
- 4.05 Complete simple probability experiments; describe results and make predictions.

**Grade 3  
Critical Curriculum Issues**

- **Multiplication facts/tables**
- **Subtraction of multi-digit numbers**
- **Length, capacity, and weight**
- **Time and temperature**
- **Polygons and polyhedra**
- **Patterns**
- **Read and interpret graphs**
- **Permutations and combinations**
- **Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.**

**Skills to Maintain**

- Count using one-to-one correspondence
- Addition and subtraction facts
- Use counting strategies
- Add multi-digit numbers

**Number Sense, Numeration, and Numerical Operations**

- 1.01 Read and write word names for numbers to 1,000.
- 1.02 Relate standard and expanded notation to 3- and 4-digit numbers.
- 1.03 Compare and order numbers less than 10,000.
- 1.04 Use estimation techniques in determining solutions to problems.
- 1.05 Identify odd and even numbers; generalize ways to determine odd or even.
- 1.06 Model fractions and mixed numbers using regions and sets; describe relationships of parts to whole; record.
- 1.07 Compare and order fractions using models; describe comparisons.
- 1.08 Model equivalent fractions using manipulatives and pictures.
- 1.09 Subtract 2- and 3-digit numbers.
- 1.10 Model and explain multiplication in a variety of ways including repeated addition, rectangular arrays, and skip counting.
- 1.11 Model and use the identity and commutative properties for addition and multiplication.
- 1.12 Model and explain division in a variety of ways including sharing equally, repeated subtraction, rectangular arrays, and its relationship to multiplication.
- 1.13 Memorize multiplication facts/tables through 10.
- 1.14 Determine if there is sufficient information to solve a problem; identify missing or extraneous data in problem-solving situations.
- 1.15 Solve meaningful, multi-step problems involving addition, subtraction and multiplication using a variety of strategies; use calculators as appropriate

**Spatial Sense, Measurement, and Geometry**

- 2.01 Draw and classify polygons and polyhedra (solid figures) using appropriate vocabulary: faces, angles, edges, and vertices. Describe the rules for grouping.
- 2.02 Identify and model symmetry and congruence with concrete materials and drawings.
- 2.03 Construct with cubes a solid to match a given picture or model.
- 2.04 Recognize a three-dimensional object from different perspectives.
- 2.05 Observe and describe geometry in the environment.
- 2.06 Estimate and measure length (inches, feet, yards, centimeters, meters), weight (grams, ounces, pounds), and capacity (cups, pints, quarts, gallons, liters) using appropriate tools and units.
- 2.07 Model and compare units within the same measurement system.
- 2.08 Model the concepts of area and perimeter using concrete materials, non-standard, and standard units. Estimate, record, and explain results.
- 2.09 Determine the value of sets of coins to \$5.00 and create equivalent amounts with different coins.
- 2.10 Estimate and compute the cost of items up to \$5.00; make change up to \$5.00.
- 2.11 Tell time to the nearest minute with digital and analog clocks; record. Solve problems related to time.
- 2.12 Read Celsius and Fahrenheit thermometers; relate temperatures to everyday situations.
- 2.13 Solve problems using measurement concepts and procedures. Explain the solutions

**Patterns, Relationships, and Functions**

- 3.01 Organize objects or ideas into groups; describe attributes of groups and rules for sorting.
- 3.02 Describe and demonstrate patterns in skip counting and multiplication; continue sequences beyond memorized or modeled numbers.
- 3.03 Extend and create geometric and numeric sequences; describe patterns in a variety of ways; use calculators and computers where appropriate.
- 3.04 Analyze patterns; describe properties and translate into different forms. Create and record similar patterns.
- 3.05 Use patterns to make predictions and solve problems.
- 3.06 Use Venn diagrams as a problem-solving strategy to illustrate similarities and differences in sets.

**Data, Probability, and Statistics**

- 4.01 Gather and organize data from surveys and classroom experiments, including data collected over a period of time.
- 4.02 Display data on charts and graphs: picture, bar and line plots; describe data using mode.
- 4.03 Construct graphs where symbols or scales represent multiple units.
- 4.04 Read and interpret graphs and charts (bar, picture, circle, line and line plots) as sources of information; identify main idea, draw conclusions and make predictions.
- 4.05 Name the ordered pair for a point on the grid; plot positions named by ordered pairs on a coordinate grid.
- 4.06 Construct and use time lines to display sequences of events.
- 4.07 Describe the probability of chance events as more, less or equally likely to occur.
- 4.08 List arrangements (permutations) and combinations of up to three items.

**Grade 4  
Critical Curriculum Issues**

- **Addition, subtraction, and multiplication with multi-digit numbers**
- **Division with single digit divisors**
- **Points, lines, angles, and transformations in geometry**
- **Non-numeric symbols to represent quantities**
- **Range, median, and mode**
- **Bar, picture, and circle graphs; stem-and-leaf plots and line plots**
- **Probability**
- **Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.**

**Skills to Maintain**

- Use counting strategies
- Add and subtract multi-digit numbers
- Read and write word names for numbers
- Addition, subtraction, multiplication facts/tables
- Identify, explain, and apply the commutative and identity properties for multiplication and addition

**Number Sense, Numeration, and Numerical Operations**

- 1.01 Read and write numbers less than one million using standard and expanded notation.
- 1.02 Use estimation techniques in determining solutions to problems.
- 1.03 Model and identify the place value of each digit in a multi-digit numeral to the hundredths place.
- 1.04 Model, identify, and compare rational numbers (fractions and mixed numbers).
- 1.05 Identify and compare rational numbers in decimal form (tenths and hundredths) using models and pictures.
- 1.06 Relate decimals and fractions (tenths and hundredths) to each other using models and pictures.
- 1.07 Use models and pictures to add and subtract decimals, explaining the processes and recording results.
- 1.08 Use models and pictures to add and subtract rational numbers with like denominators.
- 1.09 Find the fractional part of a whole number using models and pictures.
- 1.10 Model and explain associative and distributive properties.
- 1.11 Memorize the division facts related to the multiplication facts/tables through 10.
- 1.12 Identify missing factors in multiplication facts.
- 1.13 Round rational numbers to the nearest whole number and justify.
- 1.14 Estimate solutions to problems.
- 1.15 Multiply 2- or 3- digit numbers by 1-digit numbers or a 2-digit multiple of 10.
- 1.16 Divide using single-digit divisors, with and without remainders.
- 1.17 Use order of operations with addition, subtraction, multiplication, and division.
- 1.18 Solve multi-step problems; determine if there is sufficient data given, then select additional strategies including:
- make a chart or graph
  - look for patterns
  - make a simpler problem
  - use logic
  - work backwards
  - break into parts.
- Verify and interpret results with respect to the original problem; use calculators as appropriate. Discuss alternate methods for solution.

**Spatial Sense, Measurement, and Geometry**

- 2.01 Identify points, lines, and angles (acute, right, and obtuse); identify in the environment.
- 2.02 Use manipulatives, pictorial representations, and appropriate vocabulary (e.g. sides, angles, and vertices) to identify properties of plane figures; identify in the environment.
- 2.03 Use manipulatives, pictorial representations, and appropriate vocabulary (e.g. faces, edges, and vertices) to identify properties of polyhedra (solid figures); identify in the environment.
- 2.04 Identify intersecting, parallel, and perpendicular lines and line segments and their midpoints; identify in the environment.
- 2.05 Recognize congruent plane figures after geometric transformations such as rotations (turns), reflections (flips), and translations (slides).
- 2.06 Use designs, models, and computer graphics to illustrate reflections, rotations, and translations of plane figures and record observations.
- 2.07 Estimate and measure length, capacity and mass using these additional units: inches, miles, centimeters, and kilometers; milliliters, cups, and pints; kilograms and tons.
- 2.08 Write and solve meaningful, multi-step problems involving money, elapsed time, and temperature; verify reasonableness of answers.
- 2.09 Use models to develop the relationship between the total number of square units contained in a rectangle and the length and width of the figure.
- 2.10 Measure the perimeter of rectangles and triangles. Determine the area of rectangles and squares using grids; find areas of other regular and irregular figures using grids.

**Patterns, Relationships, and Functions**

- 3.01 Identify numerical and geometric patterns by stating their rules; extend the pattern, generalize, and make predictions.
- 3.02 Identify the pattern by stating the rule, extend the pattern, generalize the rule for the pattern, and make predictions when given a table of number pairs or a set of data.
- 3.03 Construct and order a table of values to solve problems associated with a given relationship.
- 3.04 Use non-numeric symbols to represent quantities in expressions, open sentences, and descriptions of relationships. Determine solutions to open sentences.

**Data, Probability, and Statistics**

- 4.01 Interpret and construct stem-and-leaf plots.
- 4.02 Display data in a variety of ways including circle graphs. Discuss the advantages and disadvantages of each form including ease of creation and purpose of the graph.
- 4.03 Collect, organize, and display data from surveys, research, and classroom experiments, including data collected over time. Include data from other disciplines such as science, physical education, social studies, and the media.
- 4.04 Interpret information orally and in writing from charts, tables, tallies, and graphs.
- 4.05 Use range, median, and mode to describe a set of data.
- 4.06 Plot points that represent ordered pairs of data from many different sources such as economics, science experiments, and recreational activities.
- 4.07 Investigate and discuss probabilities by experimenting with devices that generate random outcomes such as coins, number cubes, spinners.
- 4.08 Use a fraction to describe the probability of an event and report the outcome of an experiment.

## Grade 5 Critical Curriculum Issues

- **Division with multi-digit divisors**
- **Addition, subtraction, and multiplication of fractions**
- **Add, subtract, compare, and order decimals**
- **Area and perimeter**
- **Circles**
- **Draw and measure angles**
- **Algebraic expressions**
- **Central tendency-mean**
- **Line graphs**
- **Experimental and theoretical probabilities**
- **Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.**

### Skills to Maintain

- Read and write word names for numbers
- Multiplication facts/tables
- Division facts
- Add and subtract multi-digit numbers
- Estimate products; multiply multi-digit numbers
- Divide using single-digit divisors
- Use order of operations
- Identify, explain, and apply the commutative, associative, distributive and identity properties

## Number Sense, Numeration, and Numerical Operations

- 1.01 Use place value through millions in real-world situations including reading, writing, estimating, and comparing numbers in a variety of forms.
- 1.02 Estimate products; multiply any whole number by a 2- or 3-digit factor
- 1.03 Relate exponential notation to repeated multiplication.
- 1.04 Estimate and solve division problems with 2- and 3- digit divisors; explain solution.
- 1.05 Use the order of operations to simplify numerical expressions.
- 1.06 Find multiples, common multiples, and least common multiple of numbers; explain.
- 1.07 Find the factors, common factors, and greatest common factor of numbers; explain.
- 1.08 Identify prime and composite numbers less than 100.
- 1.09 Identify equivalent decimals and fractions at the symbolic level. Explain the equivalence.
- 1.10 Compare and order numbers with decimals to the thousandths place; explain solution.
- 1.11 Compare and order fractions which are given with the same numerators or the same denominators; explain solution.
- 1.12 Add and subtract fractions with like denominators.
- 1.13 Multiply a fraction by a whole number.
- 1.14 Use models and pictures to add and subtract fractions and mixed numbers with unlike denominators; record solutions.
- 1.15 Estimate results and compute sums and differences with decimal numbers.
- 1.16 Use models and pictures to multiply a whole number by a decimal number; record and explain.
- 1.17 Determine if there is sufficient information to solve a problem; identify missing or extraneous data in problem-solving situations.
- 1.18 Solve multi-step problems using an organized approach, and selecting additional strategies including
- restate the problem
  - classify
  - lists
  - write a number sentence
- Verify and interpret results with respect to the original problem; use calculators as appropriate.

## Spatial Sense, Measurement, and Geometry

- 2.01 Use and make models to demonstrate formulas for the area and perimeter of squares and rectangles, to compare units of area within the same system, and to investigate and compare units of volume.
- 2.02 Calculate the area and perimeter of rectangles and the perimeters of plane figures.
- 2.03 Use concrete and pictorial representations and appropriate vocabulary to compare and classify polygons and polyhedra; create models of polyhedra (cubes, cylinders, cones, prisms, and pyramids.)
- 2.04 Use a compass to draw circles; identify and determine the relationships among the radius, diameter, chord, center, and circumference.
- 2.05 Use a protractor to draw and measure acute, right, and obtuse angles; identify and label the vertex, rays, interior and exterior of an angle.
- 2.06 Use a variety of quadrilaterals and triangles to draw conclusions about the sum of the measures of the interior angles; use appropriate technology.
- 2.07 Model proportions by reducing or enlarging drawings using grids.
- 2.08 Investigate similar figures using rulers and protractors.
- 2.09 Use an organized approach, appropriate strategies, and technology as needed to solve multi-step problems involving geometry, spatial visualization, and measurement (length, weight, time, capacity, temperature, perimeter, area, volume.)
- 2.10 Verify and interpret results with respect to the original problem; identify alternate strategies for solving a problem. Use calculators and computers as appropriate.

## Patterns, Relationships, and Functions

- 3.01 Investigate patterns that occur when changing numerators or denominators of fractions. Model with concrete materials and extend to calculator investigations.
- 3.02 Identify and use the rules for divisibility.
- 3.03 Use patterns, relationships, and functions occurring in computation, geometry, graphs, and other applications to make generalizations and predict results.
- 3.04 Use models to represent variables, expressions, and relationships.
- 3.05 Use an organized approach and appropriate strategies including calculators to solve multi-step problems involving patterns, relationships, and functions.

## Data, Probability, and Statistics

- 4.01 Interpret and construct line graphs.
- 4.02 Explain the kinds of decisions that need to be made in selecting and constructing appropriate graphs including pictograph, bar, line plot, circle, and line graph.
- 4.03 Systematically collect, organize, display and interpret data both orally and in writing using information from a variety of content areas.
- 4.04 Compare increasingly complex displays of data, including multiple sets of data on the same graph, computer applications, and Venn diagrams.
- 4.05 Determine the mean of a given set of data using a calculator when appropriate.
- 4.06 Use the range, median, mean and mode to describe a set of data.
- 4.07 Show all arrangements (permutations) and combinations of up to four items; list and explain all possible outcomes in a given situation.
- 4.08 Compare experimental and theoretical (expected) results for a variety of simple experiments.
- 4.09 Use an organized approach and appropriate strategies to solve multi-step problems involving graphing, probability, and statistics. Use calculators and computers as appropriate.

**Grade 6  
Critical Curriculum Issues**

- **Computation with fractions, mixed numbers, and decimals**
- **Compare and order fractions, decimals, percents and integers**
- **Use order of operations**
- **Area formulas for triangles, parallelograms, and circles**
- **Relations and functions**
- **Analyze data**
- **Coordinate graphing**
- **Probability of simple events**
- **Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.**

**Skills to Maintain**

- Multiplication and division facts
- Estimate results and apply all operations with whole numbers
- Find the factors, common factors, and greatest common factor of numbers
- Compute with fractions
- Add and subtract with decimal numbers
- Identify, explain, and apply the commutative, associative, distributive and identity properties

**Number Sense, Numeration, and Numerical Operations**

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| 1.01 | Read, write and make models of numbers including percents and exponentials.  |
| 1.02 | Relate fractions, decimals, and percents.  |
| 1.03 | Compare and order fractions, decimals, and percents.   |
| 1.04 | Multiply and divide fractions, mixed numbers, and decimals using models and pictures; record solution.   |
| 1.05 | Multiply and divide fractions, mixed numbers, and decimals.  |
| 1.06 | Add and subtract fractions and mixed numbers with unlike denominators.   |
| 1.07 | Use estimation and mental math to solve problems with fractions, decimals, and percents; explain solution.   |
| 1.08 | Solve problems using prime factorization, common factors and common multiples. Explain solutions.  |
| 1.09 | Use models and pictures to relate concepts of ratio, proportion, and percent; record results.  |
| 1.10 | Use models and pictures to demonstrate understanding of integers. Record results.  |
| 1.11 | Compare and order integers.  |
| 1.12 | Use the order of operations to simplify numerical expressions with parentheses and exponents.  |
| 1.13 | Translate word problems into number sentences and solve. Explain solutions.  |
| 1.14 | Analyze problem situations, determine if there is sufficient information to solve the problem, identify missing or extraneous data, select appropriate strategies, and use an organized approach to solve multi-step problems; use calculators when appropriate. |

**Spatial Sense, Measurement, and Geometry**

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| 2.01 | Construct congruent segments, congruent angles, bisectors of line segments and bisectors of angles.  |
| 2.02 | Define and identify interior, exterior, complementary, and supplementary angles and pairs of lines including skew lines.   |
| 2.03 | Define and identify alternate interior, alternate exterior, corresponding and vertical angles.   |
| 2.04 | Identify and distinguish among similar, congruent and symmetric figures; name corresponding parts.   |
| 2.05 | Locate, give the coordinates of, and graph plane figures which are the results of translations or reflections in the first quadrant.   |
| 2.06 | Investigate and determine the relationship between the diameter and circumference of a circle and the value of pi; calculate the circumference of a circle.  |
| 2.07 | Identify the relationship between areas of triangles and rectangles with the same base and height.   |
| 2.08 | Use models to develop formulas for finding areas of triangles, parallelograms and circles.   |
| 2.09 | Calculate areas of triangles, parallelograms and circles.  |
| 2.10 | Model the concept of volume for rectangular solids as the product of the area of the base and the height.  |
| 2.11 | Convert measures of length, area, capacity, weight and time expressed in a given unit to other units in the same measurement system.   |
| 2.12 | Estimate solutions to problems involving geometry and measurement. Determine when estimates are sufficient for the measurement situation.  |
| 2.13 | Analyze problem situations, select appropriate strategies, and use an organized approach to solve non-routine and increasingly complex problems involving geometry and measurement. Use technology as appropriate. |

**Patterns, Relationships, and Functions**

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| 3.01 | Describe, extend and write rules for a variety of patterns.   |
| 3.02 | Generate a set of ordered pairs using a given rule which is stated verbally or algebraically.                                   |
| 3.03 | Given a group of ordered pairs, identify either verbally or algebraically the rule used to generate them and record results.    |
| 3.04 | Use variables to describe numerical expressions and relationships.  |
| 3.05 | Use graphs and tables to represent ordered pairs; describe the relationship; recognize both linear and nonlinear relationships. |
| 3.06 | Identify and use patterning as a strategy to solve problems.  |

**Data, Probability, and Statistics**

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|------|---|
| 4.01 | Create and evaluate graphic representations of data.  |
| 4.02 | Analyze data using spreadsheets.  |
| 4.03 | Locate points in all quadrants of the coordinate plane using ordered pairs.   |
| 4.04 | Use measures of central tendency to compare two sets of data.   |
| 4.05 | Construct convincing arguments based on analysis of data and interpretation of graphs.  |
| 4.06 | Design an experiment to test a theoretical probability; record and explain results.   |
| 4.07 | Make predictions based on the probabilities of simple events.   |
| 4.08 | Use inductive and deductive reasoning to solve problems.  |
| 4.09 | Analyze problem situations, use an organized approach, and select appropriate strategies and technology to solve problems involving probability and statistics. |

**Grade 7  
Critical Curriculum Issues**

- **Compute with integers**
- **Ratio, proportion, and percent**
- **Compare and order rational numbers**
- **Geometric transformations in the coordinate plane**
- **Proportional relationships and similar figures**
- **Volume**
- **Simple linear equations and inequalities**
- **Histograms**
- **Probability of independent events**
- **Analyze graphic representations of data**
- **Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.**

**Skills to Maintain**

- Estimate products; multiply with multi-digit factors
- Estimate quotients; divide with 2- and 3- digit divisors
- Use order of operations
- Find the factors, common factors, and greatest common factor of numbers
- Compute with whole numbers, decimals, and fractions
- Identify, explain, and apply the commutative, associative, distributive and identity properties

**Number Sense, Numeration, and Numerical Operations**

- 1.01 Write whole numbers in scientific notation; convert scientific notation to standard form; investigate the uses of scientific notation.
- 1.02 Compare and order rational numbers.
- 1.03 Model addition, subtraction, multiplication, and division of integers; record.
- 1.04 Compute with integers.
- 1.05 Write and solve proportions.
- 1.06 Estimate and solve problems using ratio, proportion and percent including discounts, taxes, commissions, and simple interest.
- 1.07 Use geometric models to develop the meaning of the square of a number and its positive square root; investigate and estimate square root, checking the results with a calculator.
- 1.08 Analyze and select appropriate operations, models, strategies and methods to solve a variety of multi-step problems using positive rational numbers, integers, and their inverses. Use calculators and computers where appropriate.

**Spatial Sense, Measurement, and Geometry**

- 2.01 Construct perpendicular and parallel lines.
- 2.02 Identify the congruent and supplementary relationships of the angles formed by cutting parallel lines by a transversal.
- 2.03 Locate, give the coordinates of, and graph plane figures which are the results of translations or reflections in all quadrants of the coordinate plane.
- 2.04 Use models to investigate the concept of the Pythagorean Theorem.
- 2.05 Build models of three-dimensional figures given end, side and top views.
- 2.06 Draw end, side and top views of three-dimensional figures given models; use appropriate technology.
- 2.07 Use models to find the surface area of rectangular solids and cylinders.
- 2.08 Use models to find the volume of prisms and cylinders.
- 2.09 Calculate the volume of rectangular solids.
- 2.10 Recognize the effect on the area and perimeter when one or two dimensions of a plane figure are changed.
- 2.11 Use proportions to express relationships between corresponding parts of similar figures.

**Patterns, Relationships, and Functions**

- 3.01 Evaluate algebraic expressions.
- 3.02 Model and solve simple equations and inequalities and graph their solutions; use appropriate technology.
- 3.03 Write or model a simple linear equation or inequality to solve a given problem; use appropriate technology.
- 3.04 Write a problem given a simple linear equation or inequality.
- 3.05 Describe, extend, analyze and create a wide variety of patterns to investigate relationships and solve problems; use appropriate technology.

**Data, Probability, and Statistics**

- 4.01 Interpret and construct histograms.
- 4.02 Compare and relate bar graphs and histograms.
- 4.03 Construct circle graphs using ratios, proportions, and percents.
- 4.04 Create, compare, contrast, and evaluate both orally and in writing, different graphic representations of the same data.
- 4.05 Identify appropriate uses of different measures of central tendency.
- 4.06 Recognize and identify misuses of statistical and numerical data.
- 4.07 Find all possible outcomes of simple experiments using such methods as lists, tree diagrams, frequency distribution tables, and the Fundamental Counting Principle.
- 4.08 Compute and apply simple permutations and combinations.
- 4.09 Find the probability of independent events.
- 4.10 Identify/explain the relationship between experimental results and theoretical probability.

**Grade 8  
Critical Curriculum Issues**

- **Computation with rational numbers**
- **Conversions among fractions, decimals, and percents**
- **Pythagorean Theorem**
- **Surface area and volume**
- **Linear equations and inequalities**
- **Box plots and scatter plots**
- **Probability of independent and dependent events**
- **Theoretical probabilities and experimental results**
- **Students will create and solve relevant and authentic problems using appropriate technology and applying these concepts as well as those developed in previous years.**

**Skills to maintain**

- Compute with whole numbers, decimals, and fractions
- Use order of operations
- Compute with integers
- Identify, explain, and apply the commutative, associative, distributive, inverse, and identity properties

**Number Sense, Numeration, and Numerical Operations**

- 1.01 Identify subsets of the real number system.
- 1.02 Estimate and compute with rational numbers.
- 1.03 Compare, order, and convert among fractions, decimals (terminating and non-terminating), and percents.
- 1.04 Solve problems involving percent of increase and percent of decrease.
- 1.05 Use scientific notation to express large numbers and numbers less than one. Write in standard form numbers given in scientific notation.
- 1.06 Use rules of exponents.
- 1.07 Estimate the square root of a number between two consecutive integers; using a calculator, find the square root of a number to the nearest tenth.
- 1.08 Solve problems involving exponents and scientific notation.
- 1.09 Determine the absolute value of a number.
- 1.10 Identify, explain, and apply the commutative, associative, and distributive properties, inverses, and identities in algebraic expressions.
- 1.11 Simplify algebraic expressions.
- 1.12 Analyze problems to determine if there is sufficient or extraneous data, select appropriate strategies, and use an organized approach to solve using calculators when appropriate.

**Spatial Sense, Measurement, and Geometry**

- 2.01 Use geometric concepts and modeling to interpret and solve problems.
- 2.02 Calculate distances and areas from scale drawings and maps.
- 2.03 Find the surface area of rectangular solids and cylinders.
- 2.04 Use models to investigate the relationship of the volume of a cone to a cylinder and a pyramid to a prism with the same base and height.
- 2.05 Find the volume of prisms, cylinders, pyramids, and cones, with and without models.
- 2.06 Use the Pythagorean Theorem to solve problems.
- 2.07 Determine the effect on the volume of solid figures when one or more dimension is changed.
- 2.08 Solve problems related to similar and congruent figures.
- 2.09 Locate, give the coordinates of, and graph plane figures which are the results of rotations (multiples of 90°). Graph plane figures which are similar to a given figure (dilations.)
- 2.10 Identify and draw 3-dimensional figures from different perspectives (top, side, front, corner); use appropriate technology.
- 2.11 Build 3-dimensional figures given various views.
- 2.12 Select appropriate units and tools for measurement tasks within problem-solving situations; determine precision and check for reasonableness of results.

**Patterns, Relationships, and Functions**

- 3.01 Use formulas in problem-solving situations.
- 3.02 Solve one- and two-step linear equations and inequalities.
- 3.03 Graph a linear equation using ordered pairs. Investigate the graphs of linear inequalities; use appropriate technology.
- 3.04 Investigate the concept of slope; use appropriate technology.
- 3.05 Describe, extend, and analyze a wide variety of geometric and numerical patterns, such as Pascal's triangle or the Fibonacci sequence; use appropriate technology.

**Data, Probability, and Statistics**

- 4.01 Interpret and construct box plots.
- 4.02 Collect data involving two variables and display on a scatter plot; interpret results; identify positive and negative relationships.
- 4.03 Interpret the mean, explain its sensitivity to extremes, and explain its use in comparison with the median and the mode.
- 4.04 Evaluate arguments based on data. Discuss random vs. biased sampling.
- 4.05 Find the probability of independent and dependent events.
- 4.06 Make predictions based on theoretical probabilities and experimental results.