



Standards Overview

Shanghai American School

Mathematics



Kindergarten

I. Number and Operations

Standard I Number and Operations - Understand numbers, ways of representing numbers, relationships among numbers and number systems - Understand meanings of operations and how they relate to one another - Compute fluently and make reasonable estimates

- 1. Sort sets on the basis of the number, size and other properties [4]
- 2. Count to determine the number in a group (to 20) [5]
- 3. Create sets of a given number [5]
- 4. Explore a variety of physical representations of numbers [4]
- 5. Count in a variety of ways [3]
- 6. Interpret ordinal numbers [2]
- 7. Recognize the meaning of halves when used in context [2]
- 8. Use symbols to represent numbers to 9 [4]
- 9. Determine which group has more, which has less/fewer, or whether groups are equivalent [4]

Grade 1

I. Number and Operations

Standard I Number and Operations - Understand numbers, ways of representing numbers, relationships among numbers and number systems - Understand meanings of operations and how they relate to one another - Compute fluently and make reasonable estimates.

- 1. Compare two sets for a size in a variety of ways
- 2. Create equivalent sets and sets that differ by small amounts
- 3. Count in a variety of ways
- 4. Sort sets based on number
- 5. Match quantities with numerals
- 6. Count beyond 10 in a variety of ways
- 7. Estimate amounts between 10 and 100
- 8. Demonstrate an understanding of simple fractional parts
- 9. Order numbers and use ordinal language
- 10. Explore the meaning of the numbers between 10 and 20
- 11. Model numbers grouped in tens and ones
- 12. Recognize that addition is used to represent separating situations
- 13. Recognize that addition is used to represent the joining of two groups
- 14. Recognize the relationship between addition and subtraction
- 15. Recognize

Grade 2

I. Number and Operations

Standard I Number and Operations - Understand numbers, ways of representing numbers, relationships among numbers and number systems - Understand meanings of operations and how they relate to one another - Compute fluently and make reasonable estimates

- 1. Order numbers and use ordinal language
- 2. Count in a variety of ways (backwards and forward and from different starting points [1]
- 3. Estimate the size of numbers to the nearest multiple of 10 [1]
- 4. Identify simple fractions using models (for example part of a set, whole, line)
- 5. Describe numbers in a variety of ways [1]
- 6. Demonstrate an understanding of base-10 groupings [1]
- 7. Model numbers to three places
- 8. Compare and order numbers by size up to 3 digits
- 9. Recognize, extend and create simple place-value patterns
- 10. Recognize that multiplication can be used to determine the total amount in groups of equal size [1]
- 11. Recognize that division can mean determining how

Grade 3

I. Number and Operations

Standard I Number and Operations - Understand numbers, ways of representing numbers, relationships among numbers and number systems - Understand meanings of operations and how they relate to one another - Compute fluently and make reasonable estimates

- 1. Compare and order whole numbers to 5 digits
- 2. Estimate the size of numbers to the nearest ten or hundred
- 3. Demonstrate an understanding of base-10 groupings (units, tens, hundreds, thousands)
- 4. Record, model, and interpret numbers up to 5 digits
- 5. Read and represents numbers in several ways up to 5 digits
- 6. Extend the place-value system to model and record numbers involving tenths
- 7. Order and compare decimals to tenths
- 8. Use simple fractions to describe situations (part of a whole and part of a set)
- 9. Represent fractions and mixed numbers using words, numerals, and physical models
- 10. Represent equivalent forms of simple fractions using models
- 11. Count money and make change up to \$5.00

Grade 4

I. Number and Operations

Standard I Number and Operations - Understand numbers, ways of representing numbers, relationships among numbers and number systems - Understand meanings of operations and how they relate to one another - Compute fluently and make reasonable estimates

- 1. Multiply mentally 2 digit numbers by 10 or 100
- 2. Solve mentally addition and subtraction computations to thousands
- 3. Develop and explain strategies for performing computations mentally
- 4. Divide 2 and 3 digit whole numbers by 1 digit whole numbers
- 5. Add simple fractions with common denominators with and without models
- 6. Relate multiplication and division facts
- 7. Demonstrate knowledge of the multiplication facts to 9x9
- 8. Demonstrate an understanding of various forms of remainders in division situations
- 9. Estimate sums and differences of whole numbers and decimals
- 10. Estimate the product of 3 digit by 1 digit numbers
- 11. Estimate the quotient of 3 digit by 1 digit numbers
- 12. Add and subtract decimals

Grade 5

I. Number and Operations

Standard I Number and Operations - Understand numbers, ways of representing numbers, relationships among numbers and number systems - Understand meanings of operations and how they relate to one another - Compute fluently and make reasonable estimates

- 1. Read and represent whole numbers up to a billion [17]
- 2. Interpret and model tenths, hundredths, and thousandths [38]
- 3. Interpret, rename and model common fractions [10]
- 4. Recognize the relationship between fractions and division [7]
- 5. Read and represents decimals to thousandths [42]
- 6. Identify and generate equivalent fractions [14]
- 7. Compare and order large numbers to a billion [10]
- 8. Multiply decimal numbers by whole numbers [17]
- 9. Divide decimal numbers by whole numbers [10]
- 10. Solve and create addition and subtraction problems involving whole numbers and/or decimals [10]
- 11. Solve and create

<p>that subtraction can be used to solve missing addend problems</p> <ul style="list-style-type: none">• 16. Recognize how to use addition or subtraction to solve comparison problems• 17. Move freely among representing an addition or subtraction situation with a picture, a model, or a number sentence• 18. Use mental strategies to find sums to 18 and differences from 18 or less• 19. Know simple addition facts from among those for which the total is 10 or less and know the corresponding subtraction facts• 20. Identify a penny, nickel, dime, quarter and dollar• 21. Determine the value of a small collection of coins (with a total value of up to 50 cents)• 22. Show different combinations of coins that have the same value up to 50 cents• 23. Use number patterns to help solve addition and subtraction problems	<p>many groups of a fixed size are in a larger or fair sharing [1]</p> <ul style="list-style-type: none">• 12. Demonstrate an understanding that addition can be used to solve subtraction problems and vice versa• 13. Create and solve word problems involving addition and subtraction• 14. Count money and make change using coins and a collar bill. Make change from one dollar• 15. Represent and write the value of money using the ¢ sign and in decimal form when using the \$ sign• 16. Develop and apply strategies to add and subtract facts to 20 with automaticity• 17. Demonstrate an understanding of basic principles of addition (commutative $3+2=5$, $2+3=5$, $5=2+3$ and associative $(4+3)+7=4+(3+7)$)• 18. Add 3 single-digit numbers• 19. Model and perform the addition of two-digit numbers, with or without grouping• 20. Model and perform the subtraction of two-digit numbers, with and without regrouping• 21. Estimate the sum or difference of two-digit numbers• 22. Use technology to solve problems involving sums or differences of larger numbers (example CD ROM, calculator)	<ul style="list-style-type: none">• 12. Recognize several meanings for multiplication (sets, array, number line)• 13. Recognize several meanings for division (sharing, how many groups)• 14. Recognize the relationship between multiplication and division• 15. Solve and create problems involving addition and/or subtraction• 16. Demonstrate fluency in multiplication facts through ten and corresponding division facts• 17. Identify and generate equivalent forms of whole numbers• 18. Use mathematical language and symbols to compare and order numbers $> < =$• 19. Solve and create problems involving multiplication and division up to two digits• 20. Add and subtract with and without regrouping (up to and including 5- digit numbers)• 21. Mentally add and subtract rounded numbers• 22. Use technology to solve problems involving larger numbers	<p>involving tenths and hundredths</p> <ul style="list-style-type: none">• 13. Add and subtract whole numbers to millions• 14. Multiply 2 and 3 digit numbers by 1 digit numbers• 15. Identify and represent factors and multiples of whole numbers through 100• 16. Identify and model fractions and mixed numbers• 17. Interpret and model decimal tenths and hundredths• 18. Compare and order whole numbers• 19. Compare and order fractions• 20. Rename fractions with and without the use of models• 21. Compare and order decimals to hundredths• 22. Generate equivalent forms of fractions and decimals• 23. Generate equivalent forms of commonly used fractions• 24. Round whole numbers to the nearest thousand• 25. Read and represent numbers to millions• 27. Solve and create word problems involving whole number computations• 28. Solve and create word problems involving addition and subtraction of decimals to hundredths• 29. Solve problems involving counting money and making change	<p>multiplication and division problems involving whole numbers and/or decimals [10]</p> <ul style="list-style-type: none">• 12. Estimate sums and differences involving decimals to the thousandths [10]• 13. Compare and order decimals numbers [38]• 14. Compare and order fractions using informal and formal methods [27]• 15. Separate composite numbers into their factors [10]• 16. Find sums of differences involving decimals to thousandths [10]• 17. Multiply 2, 3, and 4 digit numbers by 2 digit whole numbers [30]• 18. Calculate the product of 3 digit numbers [10]• 19. Divide by single digit numbers [23]• 20. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division using an organized approach, and verify and interpret results with respect to the original problem [10]
--	---	--	--	---

II. Algebra

Standard II Algebra - Understand patterns,

II. Algebra

Standard II Algebra - Understand patterns,

II. Algebra

Standard II Algebra - Understand patterns,

II. Algebra

Standard II Algebra - Understand patterns,

II. Algebra

Standard II Algebra - Understand patterns,

II. Algebra

Standard II Algebra - Understand patterns,

relations, and functions - Represent and analyze mathematical situations and structures using algebraic symbols - Use mathematical models to represent and understand quantitative relationships - Analyze change in various contexts

- 1. Count the results when small groups are combined [2]
- 2. Count the results when small groups are separated [2]
- 3. Determine how many more one group has than another [2]
- 4. Compare and order numbers to 10 [4]
- 5. Copy and extend patterns including those involving number, shape, size and color [11]
- 6. Copy patterns based on measurement attributes [2]
- 7. Create patterns and describe [7]
- 8. Model simple word problems [2]
- 9. Represent the same pattern in multiple ways [4]

relations and functions - Represent and analyze mathematical situations and structures using algebraic symbols - Use mathematical models to represent and understand quantitative relationships - Analyze change in various contexts

- 1. Create and reorganize physical configurations for numbers
- 2. Reproduce, extend, and create simple patterns based on numbers

relations, and functions - Represent and analyze mathematical situations and structures using algebraic symbols - Use mathematical models to represent and understand quantitative relationships - Analyze change in various contexts

- 1. Compare and contrast patterns
- 2. Demonstrate an understanding that there are often many ways to continue a pattern, unless a pattern rule is provided
- 3. Identify and use patterns in an addition table
- 4. Recognize, extend and create place-value patterns
- 5. Represent patterns using their own notation or symbolism
- 6. Solve simple open sentences involving addition and subtraction facts

relations, and functions - Represent and analyze mathematical situations and structures using algebraic symbols - Use mathematical models to represent and understand quantitative relationships - Analyze change in various contexts

- 1. Recognize principles of multiplication and division (commutative and associative properties)
- 2. Begin to estimate in multiplication and division situations (2 and 3 digit numbers)
- 3. Mentally add and subtract two-digit and one-digit numbers
- 4. Analyze and extend arithmetic patterns
- 5. Recognize the pattern implicit in the place-value system
- 6. Use and recognize the patterns in a multiplication table
- 7. Record a repeated addition pattern using multiplicative notation
- 8. Recognize the meaning of open sentences of the forms: $a \times b = \quad$, $a \times = c$, $x \times b = c$
- 9. Use patterns to make predictions and solve problems

relations, and functions - Represent and analyze mathematical situations and structures using algebraic symbols - Use mathematical models to represent and understand quantitative relationships - Analyze change in various contexts

- 1. Use models and words to describe, extend, and make generalizations of patterns (i.e., relationships occurring in computations, numerical patterns, geometry and graphs)
- 2. Represent and analyze patterns and functions using words (i.e., one, ten, hundred, thousand), tables and graphs
- 3. Construct a table of values to solve problems associated with a mathematical relationship
- 4. Represent mathematical relationships with equations or inequalities (i.e., $3 \times 4 = 7$)
- 5. Describe how a change in one variable affects the value of a related variable (i.e., in/out box)

relations, and functions - Represent and analyze mathematical situations and structures using algebraic symbols - Use mathematical models to represent and understand quantitative relationships - Analyze change in various contexts

- 1. Solve problems by using patterns [4]
- 2. Use variables as unknown quantities (e.g., $a + 7 = 10$) [20]
- 3. Continue a pattern from a given rule and extend it
- 4. Model patterns with physical materials and represent these patterns in charts [7]
- 5. Create a general rule from a pattern using words, graphs and physical materials [7]
- 6. Determine whether an open sentence is always, sometimes or never true [14]

III: Geometry

Standard III Geometry - Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships - Specify locations and describe spatial relationships using coordinate geometry and other representational systems - Apply transformations and use symmetry to analyze mathematical

III: Geometry

Standard III Geometry - Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships - Specify locations and describe spatial relationships using coordinate geometry and other representational systems - Apply transformations and use symmetry to analyze mathematical

III: Geometry

Standard III Geometry - Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships - Specify locations and describe spatial relationships using coordinate geometry and other representational systems - Apply transformations and use symmetry to analyze mathematical

III: Geometry

Standard III Geometry - Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships - Specify locations and describe spatial relationships using coordinate geometry and other representational systems - Apply transformations and use symmetry to analyze mathematical

III: Geometry

Standard III Geometry - Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships - Specify locations and describe spatial relationships using coordinate geometry and other representational systems - Apply transformations and use symmetry to analyze mathematical

III: Geometry

Standard III Geometry - Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships - Specify locations and describe spatial relationships using coordinate geometry and other representational systems - Apply transformations and use symmetry to analyze mathematical

situations - Use visualization, spatial reasoning, and geometric modeling to solve problems

- 1. Develop spatial sense, including position-in-space and the language associated with it [3]
- 2. Develop spatial sense, including eye-motor coordination [3]
- 3. Sort and build with 2-D and 3-D shapes [4]
- 4. Pattern with 2-D and 3-D shapes [4]
- 5. Recognize, name, describe, and compare 3-D shapes (including sphere, cylinder, cone, and cube) and 2-D shapes (including square, triangle, circle, and rectangle) [4]
- 6. Build 2-D shapes using structured materials [3]
- 7. Subdivide and change 2D shapes (i.e., a triangle can be cut into smaller triangles, a rectangle into smaller rectangles) [2]
- 8. Make transformations of figures and shapes [2]
- 9. Recognize familiar shapes occurring in the environment [4]

situations - Use visualization, spatial reasoning, and geometric modeling to solve problems

- 1. Create patterns with 3-D shapes [10]
- 2. Develop aspects of spatial sense, including visual memory [10]
- 3. Develop aspects of spatial sense, including figure ground perception [10]
- 4. Sort, build, and pattern with 2-D and 3-D shapes based on their attributes [10]
- 5. Recognize, name, describe, and represent a variety of 2-D and 3D shapes (square, triangle, circle, rectangle, rhombus, trapezoid, hexagon), (cylinder, sphere, cone, cube, prism, pyramid) [10]
- 6. Extend use of location words to include distance near, far, close to) and directional words (left and right) [10]
- 7. Identify the sides, faces and corners of 3D shapes [10]
- 8. Explore, build, divide, and change 2-D shapes [10]
- 9. Recognize and identify 2-D and 3-D shapes in the environment [10]
- 10. Cover figures and fill shape with countable non-standard unit [10]
- 11. Copy figures and draw simple shapes from memory [10]

situations - Use visualization, spatial reasoning, and geometric modeling to solve problems

- 1. Develop aspects of spatial sense, including perceptual constancy (the ability to recognize a shape when it is seen from a different viewpoint or from a different distance) perception of spatial relationships, and visual discrimination (i.e. various puzzles, e.g., pattern block, tan gram and jigsaw puzzles)
- 2. Recognize 3-D shapes from drawing and from alternative perspectives
- 3. Sort, build, and pattern with 2-D and 3-D shapes
- 4. Recognize, name, and represent parallel lines and right angles
- 5. Recognize, name, describe, and represent parallelograms
- 6. Recognize, name, describe, and represent triangular, square, and rectangular prisms and pyramids
- 7. Cut and assemble nets of cubes and triangular, square, and rectangular prisms and pyramids
- 8. Recognize surfaces and faces of 3-D shapes
- 9. Sort, build, and pattern with 2-D and 3-D shapes
- 10. Subdivide and change 2-D figures
- 11. Recognize, identify, describe, and represent reflective symmetry in 2-D shapes
- 12. Recognize

situations - Use visualization, spatial reasoning, and geometric modeling to solve problems

- 1. Recognize and create geometric patterns
- 2. Recognize figures or objects in space regardless of size, position or orientation
- 3. Identify segments, lines and rays
- 4. Identify similarities and differences between 3 dimensional figures
- 5. Recognize and represent angles that are less than / more than right angles
- 6. Recognize, name, describe, and represent congruent polygons
- 7. Recognize, name, describe, and represent kite, and some concave, convex, and regular polygons
- 8. Recognize, name, describe, and represent different prisms and pyramids
- 9. Cut and assemble net patterns for pentagonal and hexagonal prisms and pyramids
- 10. Build skeletons of various prisms and pyramids to focus on edges and vertices
- 11. Predict the results of combining triangles and / or quadrilaterals
- 12. Find the lines of reflection symmetry of polygons
- 13. Recognize, name, describe, and represent half and quarter turns of 2-D figures
- 14. Recognize and identify various polygons, prisms, and pyramids in realworld context
- 15. Make the connection for

situations - Use visualization, spatial reasoning, and geometric modeling to solve problems

- 1. Identify, describe, and model intersecting, parallel and perpendicular lines and line segments
- 2. Describe, clarify, compare, and model 2 and 3 dimensional objects according to their properties
- 3. Identify similarities and differences of quadrilaterals
- 4. Identify and define triangles based on angle measures (equilateral, right, acute, and obtuse triangles)
- 5. Identify lines and common polygons in the real world
- 6. Specify locations and plot ordered pairs in the positive quadrant (i.e., point A=4, 3)
- 7. Identify, describe and use reflections (flips), rotations (turns), and translations (slides) in solving geometric problems
- 8. Identify three dimensional shapes in the real world
- 9. Construct models for cylinders, cones, prisms and pyramids
- 10. Sort quadrilaterals under property headings (i.e., parallel lines, right angles)

situations - Use visualization, spatial reasoning, and geometric modeling to solve problems

- 1. Recognize, name, describe and represent perpendicular lines/segments, bisectors of angles and segments, and perpendicular-bisectors of segments [7]
- 2. Construct and describe right, obtuse, acute and scalene triangles [14]
- 3. Generalize about the diagonal properties of squares and rectangles and apply these properties (e.g., diagonals of squares and rectangles both bisect each other and diagonals of squares and rectangles both form 45 degree angles) [14]
- 4. Generalize about the properties of translations and reflections and apply these properties (e.g.; changing a triangle to a parallelogram by cutting off the triangle formed by joining the midpoints of two sides and rotating it about either of those midpoints) [7]
- 5. Explore quarter, half and three quarter-turn rotations with different centers [25]
- 6. Make generalizations about the rotation symmetry property of squares and rectangles, [25]
- 7. Draw circles and determine relationships between the radius, diameter,

- and identify reflective symmetry in the environment

- 13. Make the connection between reflective symmetry and one-half using squares, rectangles and circles
 - 14. Make the connection between even/odd numbers and rectangles
- rectangles between the arrays of squares forming them and the describing, of their dimensions; 2 X 3
- center and circumference [12]

- 8. Recognize and represent figures and transformed to other figures
 - 9. Explore how figures can be dissected and transformed to other figures (i.e., rectangle into a parallelogram) [14]
 - 10. Identify and define triangles based on side lengths (isosceles, equilateral, and scalene triangles) [14]
 - 11. Specify locations and plot ordered pairs on a coordinate plane (i.e., able to plot -1, -1) [21]

IV: Measurement	IV: Measurement	IV: Measurement	IV: Measurement	IV: Measurement	IV: Measurement
Standard IV Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement - Apply appropriate techniques, tools, and formulas to determine measurements	Standard IV Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement - Apply appropriate techniques, tools, and formulas to determine measurements	Standard IV Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement - Apply appropriate techniques, tools, and formulas to determine measurements	Standard IV Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement - Apply appropriate techniques, tools, and formulas to determine measurements	Standard IV Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement - Apply appropriate techniques, tools, and formulas to determine measurements	Standard IV Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement - Apply appropriate techniques, tools, and formulas to determine measurements
<ul style="list-style-type: none">1. Compare and order objects based on length, capacity, and mass [3]2. Sequence events (i.e., days of week, parts of the day, seasons, parts of story, classroom routines) [3]3. Sort items based on measurement attributes [3]4. Copy patterns based on measurement attributes [2]5. Identify and compare units of time (i.e., day, week, month, and year) [3]6. Use non-standard units to	<ul style="list-style-type: none">1. Demonstrate procedures (not involving units) to compare and/or order length, capacities, and areas2. Demonstrate procedures (not involving units) to compare and/or order masses and durations of time3. Identify and use non-standard units to estimate, measure and record length, capacity, time, mass, and area4. Read hours on an analog clock5. Use a thermometer to read temperatures both in centigrade and Fahrenheit	<ul style="list-style-type: none">1. Identify procedures not involving units to be used to compare areas2. Demonstrate a sense of how long 1 cm and 1 m are (in and yd)3. Estimate and measure length in non-standard and standard units4. Recognize and explain why standard units are used5. Demonstrate a sense of how much 1ml and 1Litre, and pint and gallon6. Estimate and measure capacity in non-standard and standard units7. Demonstrate a sense of how much 1 km is (1	<ul style="list-style-type: none">1. Estimate and measure length in meters, decimeters, and centimeters (yards, feet, inches)2. Estimate and measure in millimeters and liters (gallons, cups, pints)3. Estimate and measure mass in grams and kilograms (pounds and ounces)4. Estimate and measure area in non-standard units and square centimeters5. Solve problems using kilometers / miles6. Use appropriate units for capacity, mass, and length7. Read digital	<ul style="list-style-type: none">1. Demonstrate and describe perimeter as surrounding and area as covering a two-dimensional shape, and volume as filling a three-dimensional object2. Recognize and demonstrate that objects of various shapes can have the same area3. Recognize and demonstrate that objects of the same area can have different perimeters4. Measure volume, using non-standard units5. Name, measure and construct right angles, acute	<ul style="list-style-type: none">1. Solve simple problems involving the perimeters areas of regular polygons2. Calculate areas of triangles, rectangles, parallelograms and irregular quadrangles3. Measure right angles, acute angles, obtuse angles and reflex angles [18]4. Identify the relationship among the various metric units and the various U.S. customary systems and demonstrate the ability to convert between units5. Develop a formula and

estimate and measure length, capacity, mass and area [3]

- 6. Estimate, measure, and record length and weight measurements using standard units, metric and US customary to the nearest whole number
- 8. Estimate and measure mass using non-standard and standard units (g/kg; oz/lb)
 - 9. Estimate and measure time using non-standard units
 - 10. Read hours, half-hours and quarter hour on a clock
 - 11. Choose appropriate units with which to estimate and measure, and perform the measurements
 - 12. Demonstrate an understanding that the size of the unit used affected the number describing the measurement
 - 13. Demonstrate an understanding that 100 cm make up 1 m
- mile)

 - 8. Find elapsed time using a calendar / clock
 - 9. Identify several equivalences for various metric and U.S. customary units
 - 10. Find the perimeter and area for regular polygons using non standard units
 - 11. Continue to solve a wide variety of measurement problems
- and analog clocks to the nearest five minutes

 - 6. Estimate and determine the volume of rectangular prisms, using centimeter cubes
 - 7. Recognize that the measure of an angle indicates an amount of turn
 - 8. Develop formula for areas and perimeters of squares, rectangles, triangles and parallelograms
 - 9. Estimate and measure angles in degrees
 - 10. Use a thermometer to read temperatures
 - 11. Estimate and measure linear measurements in US customary and metric units
 - 12. Estimate and measure area in square centimeters
 - 13. Solve relevant problems involving US customary and metric systems
 - 14. Selects appropriate units to measure perimeter, area and volume
 - 15. Make simple unit conversions within the US customary and metric systems
- angles, obtuse angles and reflect angles

 - 6. Estimate and determine the volume of rectangular prisms, using centimeter cubes
 - 7. Recognize that the measure of an angle indicates an amount of turn
 - 8. Develop formula for areas and perimeters of squares, rectangles, triangles and parallelograms
 - 9. Estimate and measure angles in degrees
 - 10. Use a thermometer to read temperatures
 - 11. Estimate and measure linear measurements in US customary and metric units
 - 12. Estimate and measure area in square centimeters
 - 13. Solve relevant problems involving US customary and metric systems
 - 14. Selects appropriate units to measure perimeter, area and volume
 - 15. Make simple unit conversions within the US customary and metric systems
- calculate the area and perimeters of squares and rectangles [12]

 - 6. Solve simple problems involving volumes and capacity [12]
 - 7. Estimate angle size in degrees [11]
 - 8. Determine which unit is appropriate in a given situations and solve problems involving lengths and areas [13]
 - 9. Use tools to draw angles and triangles [14]
 - 10. Identify paths between points on a grad or coordinate plane and compare the lengths of the paths [7]
 - 11. Write, solve and verify solutions to multi-step problems involving measurements [7]

V: Data Analysis and Probability	V: Data Analysis and Probability	V: Data Analysis and Probability	V: Data Analysis and Probability	V: Data Analysis and Probability	V: Data Analysis and Probability
Standard V Data Analysis and Probability - Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them - Select and use appropriate statistical methods to analyze data - Develop and evaluate inferences and predication that are based on data - Understand and apply basic concepts of probability	Standard V Data Analysis and Probability - Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them - Select and use appropriate statistical methods to analyze data - Develop and evaluate inferences and predication that are based on data - Understand and apply basic concepts of probability	Standard V Data Analysis and Probability - Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them - Select and use appropriate statistical methods to analyze data - Develop and evaluate inferences and predication that are based on data - Understand and apply basic concepts of probability	Standard V Data Analysis and Probability - Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them - Select and use appropriate statistical methods to analyze data - Develop and evaluate inferences and predication that are based on data - Understand and apply basic concepts of probability	Standard V Data Analysis and Probability - Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them - Select and use appropriate statistical methods to analyze data - Develop and evaluate inferences and predication that are based on data - Understand and apply basic concepts of probability	Standard V Data Analysis and Probability - Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them - Select and use appropriate statistical methods to analyze data - Develop and evaluate inferences and predication that are based on data - Understand and apply basic concepts of probability
<ul style="list-style-type: none">1. Collect and organize data about issues of personal interest [4]	<ul style="list-style-type: none">1. Collect and organize data [8]2. Interpret and create concrete and picture	<ul style="list-style-type: none">1. Conduct simple surveys and record data2. Create and interpret pictographs and	<ul style="list-style-type: none">1. Select appropriate strategies for collecting, recording, organizing, and	<ul style="list-style-type: none">1. Create a plan for collecting data for a specific purpose2. Represent and interpret data	<ul style="list-style-type: none">1. Use double bar graphs to represent data [14]2. Display and interpret data

- 2. Form and interpret "people" graphs (students form the graph using a graphing mat in which each student stands in a box; i.e., color of T shirts) [4]
- 3. Interpret and create real and picture graphs [4]
- graphs
 - 3. Interpret and create pictographs and symbolic graphs [8]
 - 4. Pose oral questions in relation to conducting surveys and/or interpreting data
- symbolic bar graphs [1]
 - 3. Develop and modify predictions with respect to data collected or presented to them
 - 4. Demonstrate an understanding that some events are more likely to occur than others
 - 5. Demonstrate an understanding that probability predictions need not always come true [1]
- describing relevant data
 - 2. Interpret and create pictographs in which each symbol represents more than one item
 - 3. Read, interpret and create bar graphs using simple scales
 - 4. Implementing plans with respect to the collection of data
 - 5. Identify minimum, maximum, and mode of a data set
 - 6. Predict and record results in experiments using spinners, coins, dice, colored cubes, and other simple equipment
- using tables, bar graphs, line plots and line graphs
 - 3. Propose and explain interpretations and predictions based on data displayed in tables, charts and graphs
 - 4. Describe the characteristics of a set of data such as maximum, minimum, range and mode
 - 5. Determine the median of a set of data and describe what it indicates about the data
 - 6. Calculate the mean from a set of data
 - 7. Conduct simple probability experiments and draw conclusions from the results
 - 8. Represent the likelihood of possible outcomes for chance situations
 - 9. Relate the concepts of impossible and certain-to-happen events to numerical values of 0 (impossible) and 1 (certain)
 - 10. Use a diagram or appropriate language to compare the chance of each event occurring (e.g., impossible, unlikely, equal, likely, certain)
 - 11. Predict whether one simple outcome is more or less likely to occur
- using pictographs, bar graphs and pie graphs [18]
 - 3. Read and record data on coordinate graphs [21]
 - 4. Create and interpret line graphs [4]
 - 5. Group data appropriately and use stem-and-leaf plots to describe the data [4]
 - 6. Recognize the effects of certain changes in data on its mean (e.g., by withdrawing one piece of data the mean will change) [4]
 - 7. Explore and collect data that relates to real world issues [8]
 - 8. Interpret data using mean, mode, median, maximum, minimum and range [12]
 - 9. Provide a percentage probability of an event occurring (e.g., 50% chance of rain today) [15]

VI: Problem Solving

Standard VI Problem Solving - Build new mathematical knowledge through problem solving - Solve problems that arise in mathematics and in other contexts - Apply and adapt a variety of appropriate strategies to solve problems - Monitor and reflect on the process of mathematical problem solving

- 1. Describe the

likelihood of
simple events as
possible /
impossible and
more likely / less
likely: e.g.:
when using
spinners of
number cubes in
classroom
activities

Atlas Curriculum Mapping, Version 6.9.2
© Copyright 2009, Rubicon