

At the end of the school year, students will be able to... (No Calculators Allowed)

GOAL 6 Number Sense and Computation (35%)

Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.

STANDARD A

Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.

Representing and Ordering (15%)

- _____ Read, write, recognize, and model equivalent representations of whole numbers and their place values up to 100,000. (*Introduce: up to 1,000,000*)
- _____ Identify and write (in words and standard form) whole numbers up to 100,000. (*Introduce: up to 1,000,000*)
- _____ Recognize a fraction represented with a pictorial model. (*Introduce: Read, write, recognize, and model equivalent representations of fractions; divide regions or sets to represent a fraction.*)
- _____ Represent multiplication as repeated addition.
- _____ Order and compare whole numbers up to 10,000 using symbols ($>$, $<$, or $=$) and words (e.g., greater/more than, less than, equal to, between). (*Introduce: up to 100,000*)
- _____ Order and compare decimals expressed using monetary units. (*Introduce: Order and compare decimals through hundredths.*)
- _____ (*Introduce: Order and compare fractions having like denominators with or without models.*)
- _____ Identify and locate whole numbers and halves on a number line. (*Introduce: fourths*)
- _____ Solve problems involving descriptions of numbers, including characteristics and relationships (e.g., odd/even, factors/multiples, greater than, less than).

STANDARD B

Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication and division) and their properties, algorithms, and relationships. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.

STANDARD C

Computation, Operations, Estimation, and Properties (20%)

- _____ Solve problems and number sentences involving addition and subtraction with regrouping. (*Introduce: multiplication up to three-digit by one-digit*)
- _____ Solve problems involving the value of a collection of bills and coins whose total value is \$10.00 or less, and make change. (*Introduce: total value is \$100.00 or less*)
- _____ Model and apply basic multiplication facts (up to 10×10), and apply them to related multiples of 10 (e.g., $3 \times 4 = 12$, $30 \times 4 = 120$). (*Introduce: up to 12×12 and division facts*)
- _____ (*Introduce: Model situations involving addition and subtraction of fractions with like denominators.*)
- _____ Use the inverse relationships between addition and subtraction to complete basic fact sentences and solve problems (e.g., $5 + 3 = 8$ and $8 - 3 = \square$).
- _____ (*Solve problems involving the commutative and distributive properties of operations on whole numbers, e.g., $8 + 7 = 7 + 8$, $27 \times 5 = (20 \times 5) + (7 \times 5)$*)
- _____ Solve problems involving the multiplicative identity of one (e.g., $3 \times 1 = 3$) and the additive identity of zero (e.g., $3 + 0 = 3$).
- _____ (*Introduce: Use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences and solve problems, e.g., $4 \times 3 = 12$, $12 \div 3 = \square$.*)
- _____ Make estimates appropriate to a given situation with whole numbers.

GOAL 7 Measurement (20%)

Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

STANDARD A

Measure and compare quantities using appropriate units, instruments, and methods.

STANDARD B

Estimate measurements and determine acceptable levels of accuracy.

STANDARD C

Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.

Units, Tools, Estimation, and Applications (20%)

- _____ Solve problems involving simple elapsed time in compound units (e.g., hours, minutes, days). (*Introduce: elapsed time in compound units that occur in the same half day – a.m. only or p.m. only.*)
- _____ Select and use appropriate standard units and tools to measure length (to nearest inch or cm), time (to nearest minute), and temperature (to nearest degree). (*Introduce nearest 1/2 inch or cm*)
- _____ Solve problems involving perimeter of a polygon with given side lengths or a given non-standard unit (e.g., paper clip).
- _____ Solve problems involving the area of a figure when whole and half square units are shown within the figure.
- _____ (*Introduce: Solve problems involving the perimeter of a polygon with given side lengths and the area of a square, rectangle, or irregular shape composed of rectangles using diagrams, models, and grids or by measuring (may include sketching a figure from its description.)*)
- _____ Compare and estimate length (including perimeter), area, and weight/mass using referents. (*Introduce: volume*)
- _____ Determine the volume of a solid figure that shows cubic units.
- _____ Solve problems involving simple unit conversions within the same measurement system for time and length. (*Introduce: weight/mass*)

GOAL 8 Algebra (10%)

Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

STANDARD A

Describe numerical relationships using variables and patterns.

Representations, Patterns, and Expressions (5%)

- _____ Determine a missing term in a pattern, describe a pattern, and extend a pattern when given a description or pattern.
- _____ Write an expression to represent a situation. (*Introduce: Write an expression using letters or symbols to represent an unknown quantity.*)
- _____ (*Introduce: Evaluate algebraic expressions with a whole number variable value e.g., evaluate $3 + m$ when $m = 4$.*)

STANDARD B

Interpret and describe numerical relationships using tables, graphs and symbols.

Connections Using Tables, Graphs, and Symbols

- _____ (*Introduce: Identify or represent situations with well-defined patterns using words, tables, and graphs e.g., represent temperature and time in a line graph.*)
- _____ (*Introduce: Translate between different representations (table, written, or pictorial) of whole number relationships.*)

STANDARD C

Solve problems using systems of numbers and their properties.

STANDARD D

Use algebraic concepts and procedures to represent and solve problems

Writing, Interpreting, and Solving Equations (5%)

- _____ Represent simple mathematical relationships with number sentences (equalities and inequalities).
- _____ Solve one-step addition and subtraction equations that have a missing number or missing operation sign (e.g., $3 + \square = 5$, $6 - 1 = 7$). (*Introduce: Solve for the unknown in an equation with one operation e.g., $10 = \square + 3 + 2$, $\square - 1 = 3$.*)
- _____ Solve word problems involving unknown quantities (may include more than one step).

GOAL 9 Geometry (20%)

Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

STANDARD A**Demonstrate and apply geometric concepts involving points, lines, planes and space.****Properties of Single Figures and Coordinate Geometry (15%)**

- _____ Identify, describe, and sketch two-dimensional shapes (triangles, squares, rectangles, pentagons, hexagons, and octagons – *(Introduce: quadrilaterals)* according to the number of sides, length of sides, and number of vertices. *(Introduce: right angles.)*
- _____ Identify and describe three-dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices).
- _____ *(Introduce: Differentiate between polygons and non-polygons.)*
- _____ Locate and identify points using numbers and symbols on a grid, and describe how points relate to each other on a grid (e.g., ♥ is 2 units below ☼, point A is 3 units to the right of point B). *(Introduce: Graph, locate, identify points, and describe paths using ordered pairs – first quadrant.)*
- _____ Identify whether or not a figure has a line of symmetry, and sketch or identify the line of symmetry. *(Introduce: one or more lines of symmetry)*
- _____ Identify images resulting from flips (reflections), slides (translations), or turns (rotations).
- _____ Identify parallel lines. *(Introduce: Identify and sketch parallel and perpendicular lines and right angles)*

STANDARD B**Identify, describe, classify and compare relationships using points, lines, planes and solids.****Relationships Between and Among Multiple Figures (5%)**

- _____ Identify the two-dimensional components of a three-dimensional object.
- _____ Identify a three-dimensional object from its net.
- _____ Predict the result of putting shapes together and taking them apart.
- _____ Identify congruent and similar figures by visual inspection.
- _____ Determine the distance between two points on the number line in whole numbers.

GOAL 10 Data Collection and Statistical Analysis (15%)

Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

STANDARD A**Organize, describe, and make predictions from existing data.****STANDARD B****Formulate questions, design data collection methods, gather and analyze data and communicate findings.****Data Analysis and Statistics (10%)**

- _____ Read and interpret data represented in a pictograph, bar graph, Venn diagram (with two circles), tally chart, or table. *(Introduce: line(dot) plot, line graph, and circle graph)*
- _____ Complete missing parts of a pictograph, bar graph, tally chart, or table for a given set of data. *(Introduce: Create a pictograph, bar graph, tally chart, or table for a given set of data.)*
- _____ Determine the mode, given a set of data or a graph. *(Introduce: range)*

STANDARD C**Determine, describe and apply the probabilities of events.****Probability (5%)**

- _____ Classify events using words such as certain, most likely, equally likely, least likely, possible, and impossible.
- _____ Describe the chances associated with a context present visually, including using the response format “3 out of 4”. *(Introduce: $\frac{3}{4}$)*