

At the end of the school year, students will be able to... (Calculators Allowed)

GOAL 6 Numbers Sense and Computation (35%)

Demonstrate and apply a knowledge of 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 1,000,000. (*Introduce: up to 100,000,000*)
- _____ Identify and write (in words and standard form) whole numbers up to 1,000,000. (*Introduce: Read, write, recognize, model, and interpret numerical expressions from a given description or situation.*)
- _____ Read, write, recognize, and model equivalent representations of fractions; divide regions or sets to represent a fraction. (*Introduce: improper fractions and mixed numbers*)
- _____ [*Introduce: Recognize, translate between, and model multiple representations of decimals, fractions less than one (halves, quarters, fifths, and tenths) and percents (0%, 25%, 50%, 75%, and 100%).*]
- _____ (*Introduce: Read, write, recognize, and model decimals and their place values through thousandths.*)
- _____ Represent multiplication as repeated addition.
- _____ Order and compare whole numbers up to 100,000. (*Introduce: up to 1,000,000*)
- _____ Order and compare decimals through hundredths.
- _____ Order and compare fractions having like denominators with or without models. (*Introduce: unlike denominators*)
- _____ Identify and locate whole numbers, halves, and fourths on a number line. (*Introduce: thirds*)
- _____ Solve problems involving descriptions of numbers, including characteristics and relationships (e.g., odd/even, factors/multiples, greater than, less than). (*Introduce: square numbers*)

STANDARD B

Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication and division) and their properties, algorithms, and relationships.

STANDARD C

Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.

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

- _____ Solve problems and number sentences involving addition and subtraction with regrouping and multiplication (up to three-digit by one-digit). (*Introduce: multiplication and division using whole numbers*)
- _____ Solve problems involving the value of a collection of bills and coins whose total value is \$100.00 or less, and make change. (*Introduce: Solve problems and number sentences involving addition and subtraction of decimals through hundredths with or without monetary labels.*)
- _____ Model and apply basic multiplication and division facts (up to 12×12), and apply them to related multiples of 10 (e.g., $3 \times 9 = 27$, $30 \times 9 = 270$, $6 \div 3 = 2$, $600 \div 3 = 200$). (Mastery of multiplication and division basic facts)
- _____ Model situations involving addition and subtraction of fractions with like denominators. (*Introduce: unlike denominators*)
- _____ Solve problems involving the commutative and distributive properties of operations on whole numbers (e.g., $8 + 7 = 7 + 8$, $27 \times 5 = (20 \times 5) + (7 \times 5)$). (*Introduce: identity property*)
- _____ Use the inverse relationships between addition/subtraction 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. (*Introduce: fractions and decimals*)

STANDARD D

Solve problems using comparisons of quantities, ratios, proportions and percent.

Ratios, Proportions, and Percents (0%)

- _____ (*Introduce: Identify and express ratios using appropriate notation (a/b, a to b) and identify equivalent ratios.*)
- _____ (*Introduce: Solve problems involving proportional relationships, including unit pricing*)
- _____ (*Introduce: Read, write, recognize, and model percents – 0%, 25%, 50%, 75%, 100%.*)

GOAL 7 Measurement (20%)

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

STANDARD A
STANDARD B
STANDARD C

Measure and compare quantities using appropriate units, instruments, and methods
Estimate measurements and determine acceptable levels of accuracy.
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., 1 hour and 40 minutes) that occur in the same half day (a.m. only or p.m. only). *(Introduce: elapsed time any time)*
- _____ Select and use appropriate standard units and tools to measure length (to nearest $\frac{1}{2}$ inch or $\frac{1}{2}$ cm), time, and temperature. *(Introduce: $\frac{1}{4}$ inch or mm and mass/weight, capacity, and angles)*
- _____ Solve problems involving perimeter of a polygon with given side lengths and 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). *(Introduce: triangle and using given formulas)*
- _____ Compare and estimate length (including perimeter), area, volume, and weight/mass using referents. *(Introduce: angles $0^\circ - 180^\circ$)*
- _____ Determine the volume of a solid figure that shows cubic units. *(Introduce: right rectangular prism using appropriate formula or strategy)*
- _____ Solve problems involving simple unit conversions within the same measurement system for time, length, and weight/mass. *(Introduce: compound units)*
- _____ *(Introduce: Solve problems involving map interpretation, e.g., one inch represents five miles, so two inches represents ten miles)*

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. *(Introduce: identify errors)*
- _____ *(Introduce: Construct and identify a rule that can generate the terms of a given sequence.)*
- _____ Write an expression using letters or symbols to represent an unknown quantity.
- _____ Evaluate algebraic expressions with a whole number variable value (e.g., evaluate $3 + m$ when $m = 4$). *(Introduce: e.g., evaluate $m+m+3$ when $m = 4$)*

STANDARD B

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

Connections Using Tables, Graphs, and Symbols (2%)

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

STANDARD C
STANDARD D

Solve problems using systems of numbers and their properties.

Use algebraic concepts and procedures to represent and solve problems.

Writing, Interpreting, and Solving Equations (3%)

- _____ Represent simple mathematical relationships with number sentences (equalities and inequalities). *(Introduce: Represent problems with equations and inequalities.)*
- _____ Solve for the unknown in an equation with one operation (e.g., $10 = \square + 3 + 2$, $\square - 1 = 3$). *(Introduce: $2+n=20$, $n \div 2 = 6$)*
- _____ 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 (*Introduce: classify*) two-dimensional shapes (triangles, quadrilaterals, pentagons, hexagons, and octagons) according to the number of sides, length of sides, number of vertices, and right angles (*Introduce: right, acute, and obtuse interior angles*).
- _____ Identify and describe three-dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices).
- _____ Differentiate between polygons and non-polygons.
- _____ (*Introduce: Solve problems using properties of triangles e.g., sum of interior angles of a triangle is 180° .*)
- _____ (*Introduce: Identify, describe, and sketch circles, including radius and diameter.*)
- _____ Graph, locate, identify points, and describe paths using ordered pairs (first quadrant).
- _____ Identify whether or not a figure has one or more lines of symmetry, and sketch or identify all lines of symmetry.
- _____ Identify images resulting from flips (reflections), slides (translations), or turns (rotations). (*Introduce: Identify, describe, and predict results of reflections, translations, and rotations of two-dimensional shapes.*)
- _____ Identify and sketch parallel and perpendicular lines and right angles. (*Introduce: acute and obtuse angles*)

STANDARD B

Identify, describe, clarify 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 composing or decomposing shapes or figures.
- _____ Identify congruent and similar figures by visual inspection.
- _____ (*Introduce: Determine if figures are similar, and identify relationships between corresponding parts of similar figures.*)
- _____ Determine the distance between two points on the number line in whole numbers. (*Introduce: horizontal or vertical number line*)

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, line (dot) plot, Venn diagram (with two circles), tally chart, table, line graph, or circle graph.
- _____ Create a pictograph, bar graph, tally chart, or table for a given set of data.
- _____ Determine the mode and range, given a set of data or a graph. (*Introduce: median with an odd number of data points and mean*)

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" or $\frac{3}{4}$.
- _____ (*Introduce: Solve problems involving the probability of a simple event, including representing the probability as a fraction between zero and one.*)
- _____ (*Introduce: Apply the fundamental counting principle in a simple problem e.g., How many different combinations of one-scoop ice cream cones can be made with 3 flavors and 2 types of cones?*)