

## Scope and Sequence

### Mathematics

### Applied Math

Description: Students will study data analysis, measurement, basic algebraic concepts, and practical geometry of the "visual world" and the practical applications of Algebra, Geometry, and data analysis. Designed to extend students' skills in the fundamentals of arithmetic and problem solving and familiarize students with real-life situations in which their math skills can be used. Computation with whole numbers, decimals and common fractions is reviewed as they are incorporated in applications. A calculator and/or computer will be used where applicable.

Departmental assessments are given to measure individual student, class, and grade level achievement in math. Data are collected by each teacher and used to monitor progress and make plans for instruction. At the grade level, the data are used to monitor and adjust curriculum and instruction. End of quarter, end of semester, and/or end of course exams may be used.

| Unit Name/Description          | Content and/or Skills   |
|--------------------------------|---|
| Ratio, Proportion, and Percent | Convert ratios $\leftrightarrow$ percent $\leftrightarrow$ decimal<br>Unit rate/unit price (determining better buy)<br>Solve percent problems finding part, whole or percent<br>Applications of percent (tip, tax, discount, coupon comparison)<br>Percent increase and decrease<br>Compare ratios<br>Solve proportional problems<br>Scale drawings and map scales<br>Conversions using proportions |

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|---------------------------|---|
| <p>Basics of Geometry</p> | <p>Identify basic geometric figures</p> <p>Identify types of angles visually and with a protractor</p> <p>Identify adjacent, supplementary, complementary, and vertical angles</p> <p>Identify parts of a right triangle</p> <p>Identify isosceles, right, obtuse, acute and equilateral triangles</p> <p>Construct figures</p> <p>Find angle measures</p> <p>Given values, find perimeter</p> <p>Given variable sides, express perimeter</p> <p>Given values, find area of rectangular figures</p> <p>Given side lengths, find the area of quadrilaterals and triangles</p> <p>Given area and one side length, find the other side length</p> <p>Calculate area of spaces made of 2 or more standard shapes</p> <p>Calculate the circumference and area of circles</p> <p>Calculate construction costs using area and perimeter</p> <p>Find volume of prisms and cylinders</p> <p>Find surface area of prisms and cylinders</p> <p>Given volume, find missing side</p> |
| <p>Probability</p>        | <p>Basics of probability</p> <p>Theoretical probability</p> <p>Experimental probability</p> <p>Compound probability</p> <p>Diagram of sample space</p>  |

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| <p>Statistics and Data Analysis</p> | <p>Display data using bar graphs, pie charts, dot plots, and histograms</p> <p>Measures of central tendency (mean, median, mode and range)</p> <p>Determine interquartile range</p> <p>Display data using box-and-whisker plots</p> <p>Compare two sets of data using graphs and charts</p>  |
| <p>Number Sense</p>                 | <p>Add, subtract, multiply and divide positive and negative numbers (integers)</p> <p>Powers and Exponents</p> <p>Absolute value of numbers</p> <p>Operations of fractions</p> <p>Order of operations (PEMDAS)</p> <p>Combine like terms</p> <p>Given values, evaluate an expression</p>   |
| <p>Solving Algebraic Equations</p>  | <p>Determine a value that makes an equation true</p> <p>Solve one step equations with integers, fractions, and decimals</p> <p>Solve two step equations</p> <p>Solve multi-step equations involving like terms on the same side and opposite sides</p> <p>Translate from verbal expressions into mathematics</p> <p>Solve word problems with linear equations</p> <p>Given variables sides and perimeter, solve for the variable</p> |
| <p>Radicals and Exponents</p>       | <p>Order rational and irrational numbers</p> <p>Identify perfect squares</p> <p>Estimate square roots</p> <p>Simplify perfect squares (numeric only) and non-perfect squares</p>   |

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|-----------------|--|
|                 | <p>Add and subtract like radicals</p> <p>Add and subtract unlike radicals</p> <p>Multiply and divide radicals</p> <p>Properties of exponents</p>   |
| Factoring Rules | <p>Prime factorization</p> <p>Factor polynomials using a greatest common factor</p> <p>Factor quadratics where <math>a = 1</math> (sum and product rule)</p> <p>Factor using difference of two squares</p> <p>Factor quadratics where <math>a \neq 1</math> (split the middle term or guess/check)</p> |