

TRI-COUNTY CHARTER SCHOOL PARTNERSHIP

**Power Standards  
Math – Seventh Grade**

**STRAND A: NUMBER SENSE, CONCEPTS, AND OPERATIONS**

**Standard 1: The student understands the different ways numbers are represented and used in the real world.**

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*MA.A.1.3.3: The student understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.*

2. Describes the meanings of rational and irrational numbers using physical or graphical displays.

*MA.A.1.3.4: The student understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.*

1. Knows the relationships among fractions, decimals, and percents.
4. Converts a number expressed in one form to its equivalent in another form.

**Standard 2: The student understands number systems.**

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*MA.A.2.3.1: The student understands and uses exponential and scientific notation.*

4. Expresses numbers in scientific notation as numbers in standard form.

**Standard 3: The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.**

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*MA.A.3.3.2: The student selects the appropriate operation to solve problems involving addition, subtraction, multiplication, and division of rational numbers, ratios, proportions, and percents, including the appropriate application of the algebraic order of operations.*

1. Knows the appropriate operation to solve real-world problems involving fractions, decimals, and integers.
4. Applies order to operations to solve problems (parentheses, exponents, multiplication, division, addition, and subtraction).
5. Knows proportional relationships and uses tables, graphs, or "constant ratio" relationships to solve and explain problems.

**STRAND B: MEASUREMENT**

**Standard 1: The student measures quantities in the real world and uses the measures to solve problems.**

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*MA.B.1.3.2: The student uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.*

1. Finds the measure of an angle by measuring with a protractor and applying angle relationships (for example, corresponding, complementary, supplementary interior, exterior).

*MA.B.1.3.3: The student understands and describes how the change of a figure in such dimensions as length, width, height, or radius affects its other measurements such as perimeter, area, surface area, and volume.*

3. Solves real-world or mathematical problems involving perimeter, area, circumference, surface area and volume and how these are affected by changes in the dimensions of the figures.

**Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).**

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*MA.B.2.3.1: The student uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.*

3. Finds measures of length, weight or mass, and capacity or volume using proportional relationships and properties of similar geometric figures (for example, using shadow measurement and properties of similar triangles to find the height of a flag pole).

**STRAND C: GEOMETRY AND SPATIAL SENSE**

**Standard 1: The student describes, draws, identifies, and analyzes two- and three-dimensional shapes.**

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*MA.C.1.3.1: The student understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two- and three- dimensions.*

6. Knows the properties of two- and three-dimensional figures.

**Standard 2: The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed.**

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*MA.C.2.3.1: The student understands the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformation, including flips, slides, turns, and enlargements.*

3. Recognizes, draws, and describes congruent and similar figures.

**Standard 3: The student uses coordinate geometry to locate objects in both two- and three-dimensions and to describe objects algebraically.**

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*MA.C.3.3.1: The student represents and applies geometric properties and relationships to solve real-world and mathematical problems.*

3. Demonstrates the Pythagorean relationship in right triangles using models or diagrams.

*MA.C.3.3.2: The student identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties of lines.*

2. Identifies and plots ordered pairs in all four quadrants of the coordinate system.

**STRAND D: ALGEBRAIC THINKING**

**Standard 2: The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations.**

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*MA.D.2.3.1: The student represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.*

1. Translates verbal expressions and sentences into algebraic expressions and equations.
6. Graphs linear equations on the coordinate plane from a table of values.

*MA.D.2.3.2: The student uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.*

1. Knows how to solve linear equations and inequalities representing real-world situations, using pictures, models, manipulatives (such as algebra tiles), or other strategies.

**STRAND E: DATA ANALYSIS AND PROBABILITY**

**Standard 1: The student understands and uses the tools of data analysis for managing information.**

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*MA.E.1.3.1: The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.*

3. Constructs, interprets, and explains displays of data, such as tables and graphs (circle

graphs, single- and multiple-bar graphs, and single and multiple-line graphs) and explains how different displays of data lead to different interpretations.

*MA.E.1.3.2: The student understands and applies the concepts of range and central tendency (mean, median, and mode).*

2. Draws conclusions from an analysis of range and central tendency of a set of real-world data.

**Standard 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.**

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*MA.E.2.3.2: The student determines odds for and odds against a given situation.*

1. Computes the mathematical odds for and against a specified outcome in given real-world experiments.