# Family Friendly Math

## GUIDE FOR SIXTH GRADE

Log on to the SC Department of Education website, for the complete standards.

## Steps to Success

This document is designed to:

• Provide examples of the standards, skills, and knowledge your child will learn in mathematics

**The South Carolina College- and Career-Ready Standards for Mathematics:**

- Outline the knowledge and skills students must master so that, as high-school graduates, they have the expertise needed to be successful in college or careers.
- Provide a set of grade-level standards, "stair steps," based on the previous grade's standards which serve as the foundation for the next grade.
- Ensure that no matter where a student lives in South Carolina, the expectations for learning are the same.

Human knowledge now doubles about every three years. Therefore, revision of South Carolina's standards occurs periodically to respond to this growth of knowledge and increase of needed skills so our students will be ready for college or jobs. The College-and Career-Ready Standards prepare students for dealing with the growing mass of information by not only emphasizing content knowledge but by also stressing the skills of reasoning, analyzing data, and applying information to examine and solve situations.

South Carolinians developed these academic standards for South Carolina's children. The Mathematics standards are aligned with the Profile of the South Carolina Graduate, which summarizes the knowledge, skills, and habits employers expect. Developed by business leaders, the Profile is approved by the South Carolina Chamber of Commerce and endorsed by the Superintendents' Roundtable as well as South Carolina's colleges and universities. The Profile demands world-class knowledge and skills, and emphasizes critical thinking and problem solving, communication, and interpersonal skills.

## DATA, PROBABILITY, AND STATISTICAL REASONING

Sixth graders will analyze data sets to identify their statistical elements. They will create graphs and plots to represent data sets, along with interpreting measures of center and spread for those data sets. They will be introduced to probability with simple and complementary events and learn that probabilities can be written as a fraction, decimal, or percent.

- Create graphs (boxplots) for real-world and mathematical situations
- Describe data by examining the median and mode
- Organize and analyze data given in graphs or data sets
- Identify the sample size of numerical data sets.
- Find the probability of an event and connect probability to sampling (e.g., calculating the probability of getting a heads when flipping a coin or getting the sum of seven when tossing number cubes)

## MEASUREMENT, GEOMETRY, AND SPATIAL REASONING

Sixth graders will use the characteristics of two-dimensional and three-dimensional shapes learned in earlier grades to help them calculate area, surface area, and volume using models, nets, and formulas. Students will use angle measures to find and identify complementary or supplementary angles, along with exploring angles using a protractor. They will be introduced to all four quadrants of the coordinate plane and begin plotting and graphing ordered pairs in all four quadrants, to include graphing lines and polygons.

- Determine area of triangles and quadrilaterals in real-world and mathematical situations
- Create nets of 3-D shapes; use the nets to calculate surface area (the outside of a shoebox)
- Find volume of rectangular prisms (what fits inside a shoebox) in real-world and mathematical situations
- Measure angles using a protractor
- Categorize angles as complementary or supplementary
- Graph points and shapes on the coordinate plane in all 4 quadrants

## NUMERICAL REASONING

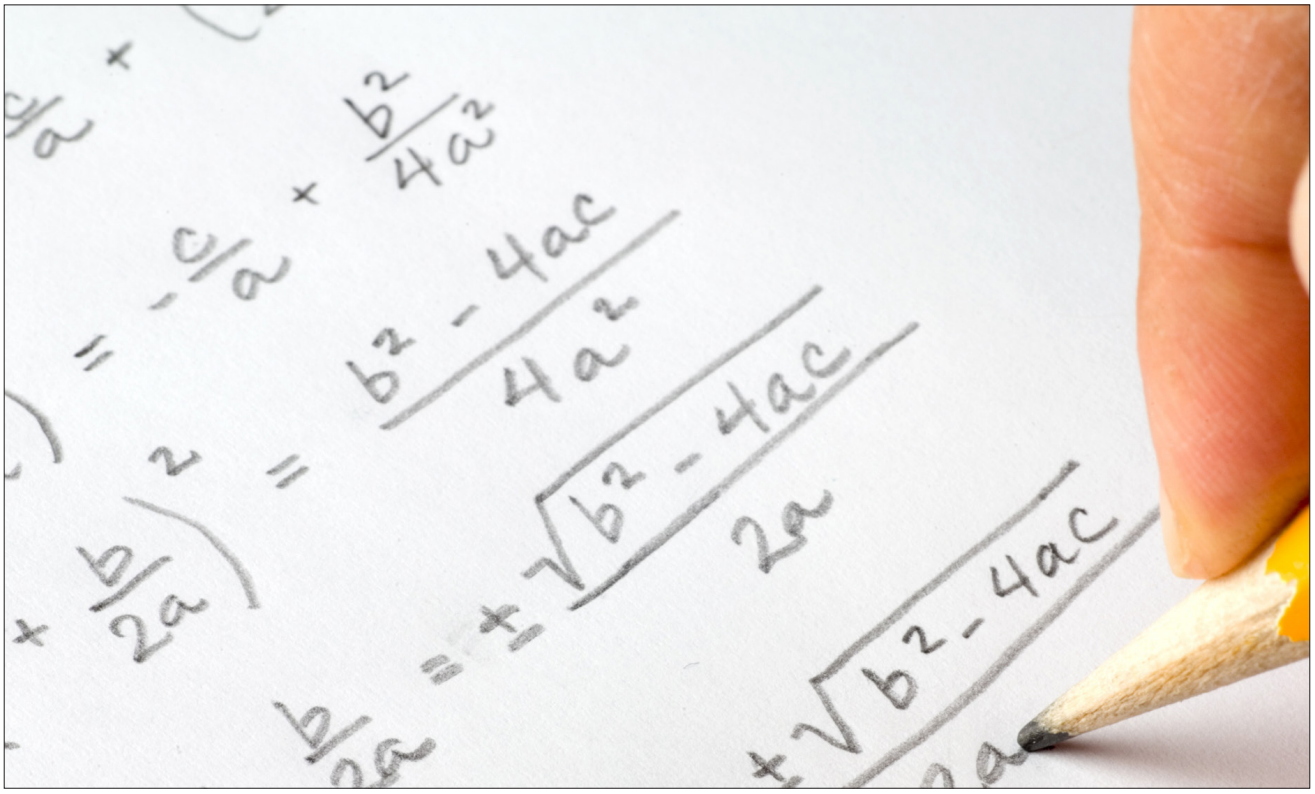
Sixth graders will utilize multiple representations of real numbers to translate, simplify, and solve problems using mathematical and real-world applications. Students will use their prior knowledge of whole numbers to expand into operations with integers and positive rational numbers. They will deepen their understanding of fractions, decimals, and percentages through ordering, sorting, and finding absolute value. The emphasis will be on understanding negative numbers.

- Recognize rational numbers (numbers that can be written as fractions) in real-world and mathematical situations
- Understand the different ways of representing rational numbers (fractions, decimals, or percentages)
- Compare and order positive rational numbers using is greater than (>), is less than (<) or is equal to (=)
- Represent real-world situations using integers (positive and negative whole numbers)

# PATTERNS, ALGEBRA, AND FUNCTIONAL REASONING

Sixth graders will expand their understanding of algebraic concepts, being introduced to functions. They will learn the correct terminology related to algebraic expressions, equations, and inequalities, along with distinguishing between expressions and equations, and equations and inequalities. One-step simple equations and inequalities will be used to solve a variety of problems using positive rational numbers. Students will also be introduced to ratios and rates, and how to use them in real-world situations.

- Analyze relationships in tables, graphs, and equations of independent and dependent variables (input/output tables)
- Write, simplify, and evaluate algebraic expressions for real-world and mathematical problems
- Write and solve equations and inequalities for real-world and mathematical problems (e.g., the distance (D) traveled by a train in time (t) might be expressed by an equation D=85t, where D is in miles and t is in hours)
- Use ratios to solve real-world and mathematical problems
- Use the mathematical properties to create and justify equivalent expressions
- Add, subtract, multiply, and divide with positive and negative whole numbers
- Apply all operations with positive rational numbers (fractions, decimals, whole numbers) to solve real-world and mathematical problems



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*The South Carolina Education Oversight Committee (EOC) is an independent, nonpartisan group of 18 educators, business people, and elected officials appointed by the legislature and governor. The EOC enacts the South Carolina Education Accountability Act of 1998, which sets standards for improving the state's K-12 educational system. The EOC reviews the state's education improvement process, assesses how schools are doing, and evaluates the standards schools must meet to build the education system needed to compete in this century.*