



STAFFORD COUNTY PUBLIC SCHOOLS

Curriculum Overview Sixth Grade Mathematics

Course Description:

The Grade 6 Standards of Learning are taught in this course to prepare students for successful daily living and further study in algebra and geometry. Emphasis is placed on continuing to develop and to extend problem solving abilities and number sense to maintain a solid foundation in Mathematics. Students will learn appropriate and correct uses of technology in Mathematics. Computation skills with fractions, decimals and percents will be further developed to insure student success in solving problems including consumer math problems. Lessons will include estimating, interpreting and organizing data, predicting, solving linear equations, and using mathematics in everyday situations. Other units to be studied are geometry, measurement and ratios. Students will be introduced to proportions, percents and integers. Students will use approved scientific calculators wherever appropriate. Students enrolled in this class will take the Grade 6 Standards of Learning test. Students who successfully complete this class may take Grade 7 Mathematics.

Essential Skills/Processes:

The development of problem solving skills and logical reasoning is a major goal of the mathematics program at every level. Students will develop a wide range of mathematical skills and strategies for understanding and solving a variety of problem types, with an increased emphasis on consumer mathematics and practical problems.

Mathematics has its own language, the vocabulary and symbols are very important to a student's understanding of concepts and use of mathematics to solve problems. Students will use mathematical skills, symbols, vocabulary to read mathematics, discuss mathematics, write about mathematics, do mathematics, and solve problems. Students build on the concrete reasoning experiences developed in elementary school while developing the deeper mathematical understandings required for success in more complex learning experiences.

Technology is an important tool in both learning mathematics and solving problems in mathematics. To use technology appropriately and effectively students must know the basic facts, understand concepts, and be able to estimate and reason logically.

Students are more likely to be successful if they are:

- self-motivated,
- able to recall and use prior math skills,
- willing to practice skills regularly, including homework, and
- persistent in problem solving

Essential Knowledge:

Number and Number Sense (10 items)

- Describe and compare two sets of data using ratios using appropriate notations (such as, a/b , a to b , and $a:b$).
- Identify, represent, order, describe and compare integers (including absolute value of integers)
- Investigate and describe fractions, decimals and percents as ratios
- Identify a given fraction, decimal or percent from a representation
- Demonstrate equivalent relationships among fractions, decimals, and percents (*complete items without the use of a calculator*)
- Compare and order fractions, decimals, and percents (*complete items without the use of a calculator*)
- Demonstrate multiple representations of multiplication and division of fractions
- Investigate and describe concepts of positive exponents and perfect squares

Computation and Estimation (9 items)

- Solve problems that involve multiplying and dividing fractions and mixed numbers (*complete items without the use of a calculator*)

- Estimate solutions and then solve single-step and multistep practical problems involving addition, subtraction, multiplication and division of fractions
- Solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of decimals
- Evaluate whole number numerical expressions, using the order of operations (*complete items without the use of a calculator*)

Measurement and Geometry (12 items)

- Comparisons between measurements in the U.S. Customary System of measurement and measurements in the metric system (*The intent is for students to make “ballpark” comparisons and not to memorize factors between U.S. and metric units.*)
- Define π (π) as the ratio of the circumference of a circle to its diameter
- Solve practical problems involving circumference and area of a circle, given the diameter or radius
- Solve practical problems involving area and perimeter
- Describe and determine the volume and surface area of a rectangular prism
- Identify and graph the coordinates of a point in a coordinate plane
- Determine congruence of segments, angles, and polygons
- Describe and identify properties of quadrilaterals

Probability, Statistics, Patterns, Functions, and Algebra (19 items)

- Given a problem situation; construct circle graphs; draw conclusions and make predictions, using circle graphs; compare and contrast graphs that present information from the same data set
- Describe mean as balance point and decide which measure of center is appropriate for a given purpose
- Compare and contrast dependent and independent events and determine probabilities for dependent and independent events
- Identify and extend geometric and arithmetic sequences.
- Solve one-step linear equations in one variable involving whole number coefficients and positive rational solutions.
- Investigate and recognize the identity properties for addition and multiplication; the multiplicative property of zero; and the inverse property for multiplication.
- Graph inequalities on a number line.

Resources:

- Stafford County Public Schools: <http://stafford.schoolfusion.us/>
- Middle School Program of Studies: <http://stafford.schoolfusion.us/> Click on For Parents/Students tab.
- VA Standards of Learning: http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/review.shtml
- School Report Card (VA Department of Education): http://www.doe.virginia.gov/statistics_reports/school_report_card/index.shtml
- Prentice Hall: Mathematics Course 1 ©2010
<http://phschool.com/webcodes10/index.cfm?fuseaction=home.gotoWebCode&wcprefix=aqk&wcsuffix=0099>