



VIRGINIA BEACH CITY PUBLIC SCHOOLS
CHARTING THE COURSE

Department of Teaching & Learning
Parent/Student Course Information

ADVANCED MATHEMATICS 6
(MA 3110)
One year

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

FOCUS OF MIDDLE SCHOOL MATHEMATICS LEARNING

- To build on students' concrete reasoning experiences developed in the elementary grades
- To construct through active learning experiences a more advanced understanding of mathematics
- To develop deep mathematical understandings required for success in abstract learning experiences
- To apply mathematics as a tool in solving real world problems

COURSE DESCRIPTION

Advanced Mathematics 6 is a course for sixth grade students who are transitioning from the emphasis placed on whole number arithmetic in elementary school to the foundations of algebra. The course focuses on the development of problem-solving skills and the acquisition of mathematical vocabulary and symbols. The active engagement of students along with the use of manipulatives (i.e. number lines, fraction circles, algebra tiles, and two-color counters) and technology, such as Chromebooks and the Desmos calculator, will allow students to develop an understanding of the mathematical principles they are learning. Facility in the use of technology will not be a substitute for students' understanding of quantitative concepts and proficiency in basic computations. Topics include: operations with fractions and mixed numbers; operations with integers; concepts involving exponents and square roots; representing proportional relationships between two quantities; identifying slope as a rate of change; solving and graphing one-step and two-step linear equations and inequalities; solving practical problems involving perimeter and area of triangles and rectangles; solving practical problems involving circumference and area of circles; solving practical problems involving volume and surface area of prisms and cylinders; properties of quadrilaterals; basic geometric concepts in the coordinate plane; observations and inferences about data in circle graphs and histograms.

PREREQUISITE

Mathematics 5

OPTIONS FOR NEXT COURSE

Advanced Mathematics 7

REQUIRED TEXTBOOK

There is no textbook. Mathspace is the adopted digital resource for this course.

RECOMMENDED CALCULATOR

TI-30Xa SEVA or use Desmos online calculator

Virginia Standards of Learning
Advanced Mathematics 6 – MA 3110

Number and Number Sense

- 6.1 The student will represent relationships between quantities using ratios, and will use appropriate notations, such as $\frac{a}{b}$, a to b, and a:b.
- 6.2 The student will
- represent and determine equivalencies among fractions, mixed numbers, decimals, and percents; and
 - compare and order positive rational numbers.
- 6.3 The student will
- identify and represent integers;
 - compare and order integers; and
 - identify and describe absolute value of integers.
- 6.4 The student will recognize and represent patterns with whole number exponents and perfect squares.

Computation and Estimation

- 6.5 The student will
- multiply and divide fractions and mixed numbers;
 - solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and
 - solve multistep practical problems involving addition, subtraction, multiplication, and division of decimals.
- 6.6 The student will
- add, subtract, multiply, and divide integers;
 - solve practical problems involving operations with integers; and
 - simplify numerical expressions involving integers.

Measurement and Geometry

- 6.7 The student will
- derive π (π);
 - solve problems, including practical problems, involving circumference and area of a circle; and
 - solve problems, including practical problems, involving area and perimeter of triangles and rectangles.
- 6.8 The student will
- identify the components of the coordinate plane; and
 - identify the coordinates of a point and graph ordered pairs in a coordinate plane.
- 6.9 The student will determine congruence of segments, angles, and polygons.

Probability and Statistics

- 6.10 The student, given a practical situation, will
- represent data in a circle graph;
 - make observations and inferences about data represented in a circle graph; and
 - compare circle graphs with the same data represented in bar graphs, pictographs, and line plots.

6.11 The student will

- a) represent the mean of a data set graphically as the balance point; and
- b) determine the effect on measures of center when a single value of a data set is added, removed, or changed.

Patterns, Functions, and Algebra

6.12 The student will

- a) represent a proportional relationship between two quantities, including those arising from practical situations;
- b) determine the unit rate of a proportional relationship and use it to find a missing value in a ratio table;
- c) determine whether a proportional relationship exists between two quantities; and
- d) make connections between and among representations of a proportional relationship between two quantities using verbal descriptions, ratio tables, and graphs.

6.13 The student will solve one-step linear equations in one variable, including practical problems that require the solution of a one-step linear equation in one variable.

6.14 The student will

- a) represent a practical situation with a linear inequality in one variable; and
- b) solve one-step linear inequalities in one variable, involving addition or subtraction, and graph the solution on a number line.

Number and Number Sense

7.1 The student will

- a) investigate and describe the concept of negative exponents for powers of ten;
- b) compare and order numbers greater than zero written in scientific notation;
- c) compare and order rational numbers;
- d) determine square roots of perfect squares

Measurement and Geometry

7.4 The student will

- a) describe and determine the volume and surface area of rectangular prisms and cylinders; and
- b) solve problems, including practical problems, involving the volume and surface area of rectangular prisms and cylinders.

7.6 The student will

- a) compare and contrast quadrilaterals based on their properties

Probability and Statistics

The student, given data in a practical situation, will

- a) represent data in a histogram;
- b) make observations and inferences about data represented in a histogram; and
- c) compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs.

Patterns, Functions, and Algebra

7.10 The student will

- a) determine the slope, m , as rate of change in a proportional relationship between two quantities and write an equation in the form $y = mx$ to represent the relationship;
- b) graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in $y = mx$ form where m represents the slope as rate of change

7.12 The student will solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable.

7.13 The student will solve one-step linear inequalities in one variable, including practical problems, involving addition, subtraction, multiplication, and division, and graph the solution on a number line. Please Note: This standard has been modified to only include one-step inequalities. Two-step inequalities is covered in Advanced Math 7.

Aaron C. Spence, Ed.D., Superintendent
Virginia Beach City Public Schools
2512 George Mason Drive, Virginia Beach, VA 23456-0038

Produced by the Department of Teaching and Learning.
For further information, please call (757) 263-1070.

Notice of Non-Discrimination Policy

Virginia Beach City Public Schools does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation/gender identity, pregnancy, childbirth or related medical condition, disability, marital status, age, genetic information or veteran status in its programs, activities, employment, or enrollment, and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and regulations (including, but not limited to, Policies 2-33, 4-4, 5-7, 5-19, 5-20, 5-44, 6-33, 6-7, 7-48, 7-49, 7-57 and Regulations 4-4.1, 4-4.2, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, enrollment, counseling services, physical education and athletic, vocational education, instructional materials, extracurricular activities and employment.

Title IX Notice: Complaints or concerns regarding discrimination on the basis of sex or sexual harassment should be addressed to the Title IX Coordinator, at the VBCPS Office of Student Leadership, 641 Carriage Hill Road, Suite 200, Virginia Beach, 23452, (757) 263-2020, Mary.Dees@vbschools.com (student complaints) or the VBCPS Department of School Leadership, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (757) 263-1088, Elizabeth.Bryant@vbschools.com (employee complaints). Additional information regarding Virginia Beach City Public Schools' policies regarding discrimination on the basis of sex and sexual harassment, as well as the procedures for filing a formal complaint and related grievance processes, can be found in School Board Policy 5-44 and School Board Regulations 5-44.1 (students), School Board Policy 4-4 and School Board Regulation 4-4.3 (employees), and on the School Division's website at **Diversity, Equity and Inclusion/Title IX**. Concerns about the application of Section 504 of the Rehabilitation Act should be addressed to the Section 504 Coordinator/Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Plaza Annex/Family and Community Engagement Center, 641 Carriage Hill Road, Suite 200, Virginia Beach, VA 23452.

The School Division is committed to providing educational environments that are free of discrimination, harassment, and bullying. Students, staff, parents/guardians who have concerns about discrimination, harassment, or bullying should contact the school administration at their school. Promptly reporting concerns will allow the school to take appropriate actions to investigate and resolve issues. School Board Policy 5-7 addresses non-discrimination and anti-harassment, Policy 5-44 addresses sexual harassment and discrimination based on sex or gender. Policy 5-36 and its supporting regulations address other forms of harassment.

Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write the Department of Teaching and Learning, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone 263-1070 (voice); fax 263-1424; 263-1240 (TDD) or email her at Dena.McElligott@vbschools.com.

vbschools.com
your virtual link to Hampton Roads' largest school system



VIRGINIA BEACH CITY PUBLIC SCHOOLS
CHARTING THE COURSE

No part of this publication may be produced or shared in any form without giving specific credit to Virginia Beach City Public Schools.

(revised August 2021)