

Program of Studies High School Mathematics

This Program of Studies (POS) defines the instructional program that must be implemented in all high school mathematics courses. It describes the curriculum content and identifies essential knowledge and skills of each mathematics course. Teachers have the responsibility to accommodate individual students' needs.

Required instructional materials and equipment listed in Section E of this document are to be used in the delivery of the program. Supplemental or substitute materials must be approved through the process outlined in Regulation 3005.3.

School Board Policy 3201 requires that teachers seek permission from their principals prior to deviating from this POS relative to curriculum content or stated standards and goals. Prior to granting permission, principals may request the advice or assistance of appropriate Instructional Services Department instructional specialists or the coordinator and must have the final approval of the area superintendent and the assistant superintendent for Instructional Services.

Program Rationale

The 1998 Program of Studies (POS) for Mathematics, grades 9-12, represents the goals and objectives of mathematics courses offered in Fairfax County Public Schools (FCPS). It is the primary source of mathematics course content and sequencing in FCPS.

The underlying goals of the mathematics program are based on the *Curriculum and Evaluation Standards for School Mathematics* from the National Council of Teachers of Mathematics, 1989. The program contains all the mathematics standards defined by the Standards of Learning (SOL) for the Commonwealth of Virginia, 1995. The intent of the program is to provide appropriate learning experiences so that **all** students:

- master the objectives in the SOL.
- become mathematical problem solvers.
- learn to communicate mathematically.
- learn to reason mathematically.

Specifically, the mathematics program focuses on problem solving and applying mathematics to real-world situations, rather than practicing isolated procedures to find answers to textbook exercises. Thus, **all** students should be provided the opportunity to develop:

- the ability to set up problems with appropriate operations.
- the knowledge of a variety of techniques to approach and solve problems.
- an understanding of the underlying mathematical features of a problem.
- the ability to work with others on problems.
- the ability to see the applicability of mathematical ideas to common and complex problems.
- the ability to develop and work with open-ended problem situations.

Changes in technology and the expansion of areas in which mathematics is applied have resulted in growth and changes in the discipline of mathematics itself. Therefore, the mathematics program is based on the assumptions that:

- graphing calculators are available to all students at appropriate times.
- a computer is available in every mathematics classroom for demonstration purposes.
- every student has access to a computer for individual and small group work.
- students will learn to use the computer as a tool for processing information and performing calculations to investigate and solve problems.

Acknowledgments

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- committees of teachers who developed the strands and objectives for each of the high school mathematics courses.
- mathematics department chairpersons who reviewed and made recommendations for revisions to the document.
- committees of teachers who developed and tested activities to promote student success with the objectives in the POS.
- committees of teachers who aligned this document to standards in the Virginia Standards of Learning and the Fairfax Framework for Student Success.
- teachers of pilot programs who developed and tested objectives and materials for new courses.
- Tom Nuttall, mathematics coordinator, who coordinated the work of the committees and reviewed and approved this document.

Janie R. Smith, Director
High School Instruction

Nancy F. Sprague, Assistant Superintendent
Department of Instructional Services

Daniel A. Domenech, Superintendent
Fairfax County Public Schools