

Gifted and Talented Mathematics Class Descriptions

The Middle School Gifted and Talented (G/T) Mathematics Program is an accelerated and enriched sequence that provides opportunities for highly able students to increase the depth and breadth of the learning of mathematics by studying advanced-level concepts and skills in the middle school as they move into the high school curriculum. The content and subject matter have been developed to incorporate the Maryland State Learning Outcomes and the Maryland Core Learning Goals for mathematics as well as national standards, which reflect current research in mathematics educational practices. The curriculum provides concepts at least two years accelerated above the general education curriculum, allowing students to complete algebra and geometry in middle school.

The real-world orientation to the Gifted and Talented curriculum provides the student many opportunities to apply mathematical content to real-life situations. Challenging outside projects and long-term assignments are frequently used as an integral part of the program in order to enable students to extend and apply the mathematics learned in the classroom.

Students participating in Gifted and Talented mathematics classes are expected to read technical matter on a regular basis in order to gather information about challenging mathematical concepts. Teachers frequently encourage students to search for answers to problems presented in the readings. Writing helps students clarify their own thinking and express their own ideas. Therefore, students are expected to use the readings to write explanations of concepts or justifications of their thinking in order to communicate mathematical ideas to others. Technology is integrated throughout the Gifted and Talented Mathematics Program in order to facilitate students' problem solving skills. Students learn to use scientific calculators, graphing calculators, and spreadsheets in their solutions and explanations.

Students entering the Gifted and Talented Mathematics Program as sixth graders and who continue in the G/T mathematics sequence in seventh and eighth grades have the opportunity to complete mathematics courses through Differential Equations in high school.

Grade Six Pre-Algebra G/T

Students participating in the sixth-grade Gifted and Talented mathematics class use problem solving techniques and study advanced mathematics skills from an in-depth perspective. Throughout the course, the mathematics skills are integrated with data analysis, algebra, geometry, and problem solving. The skills involve working with rational numbers, ratio, proportion, percent, equations, inequalities, statistics, and probability. Homework and study skills are also important components for successful completion of the course. This course prepares students for the seventh-grade Algebra I/Data Analysis G/T course.

Grade Seven Algebra I/Data Analysis G/T

In the seventh grade, students pursue an accelerated Algebra I/Data Analysis course. Students expand in breadth and depth on concepts beyond what would be expected of a high school student who studies Algebra I/Data Analysis. Graphing calculators are an integral part of

the course. Instructional topics include variables, functions, exponents, systems of equations, data analysis, probability, and application of those concepts. Homework, which requires a substantial amount of reading and writing, is an integral part of the program and is assigned to students on a regular basis. This course prepares students for the eighth grade Geometry G/T course.

Grade Eight Geometry G/T

The eighth-grade Gifted and Talented mathematics program is an enriched and accelerated Geometry course. Students expand in breadth and depth on concepts beyond what would be expected of a high school student who studies Geometry. This class involves in-depth problem solving in mathematics using the graphing calculator and the computer as appropriate. Essential critical thinking and problem solving skills are developed and enhanced. Instructional topics include graphing techniques, inductive and deductive reasoning, radicals, constructions, proof, coordinate geometry, and introduction to transformational geometry. Homework, which requires a substantial amount of reading and writing, is an integral part of the program and is assigned to students on a regular basis. This course prepares students for the ninth-grade Algebra II G/T class. Refer to “Sample Secondary Mathematics Course Sequences” (Teacher Resource Sheet 4.3) for additional information regarding course sequencing and student selection guidelines.