MS Math Curriculum Descriptions

Directions: *Please write a description of the subject areas reflected below. Describe in paragraph form the program components and highlights. To see samples of grade level descriptors of each subject, click on the appropriate links below, then tap the appropriate subject tab on the linked website.*

MS Math **General Description**	
Grade 6	Grade 6 Math Course Overview Grade 6 Math course follows the Challenge by Choice design and offers opportunities for discovery and risk-taking as students interact with mathematical situations that occur in the world around them at various levels of challenge. Students will build both their procedural and conceptual fluency when working with whole numbers, fractions, decimals, as well as negative numbers. They will develop analytical thinking and communication skills as they learn how to select and use a variety of strategies to solve problems and share their mathematical thinking. Students will be empowered to successfully apply these skills in a variety of contexts with perseverance and confidence. Concepts covered will include Number Sense and Algebraic Thinking, Operations with Decimals and Fractions, Ratios, Proportions, and Percents, as well as Area, Perimeter and Volume.
Grade 7	Grade 7 Pre-Algebra & Geometry Course Overview Grade 7 math course follows the Challenged by Choice design. Its major focus is to explain the concept of numbers and how they are manipulated, managed, and represented on the *xy*-coordinate system. The crucial skills gained in this course include analysis of numerical relations and spatial-visual understanding of graphing principles. The skills they learn in this course will be applied throughout their higher math education, and will prove useful in standardized testing, such as the MAP and SAT. The 7th grade math course centers on building the foundations of the student's algebra. They will be introduced to variables, expressions, order of operations and basic problem solving skills. The course also introduces students to absolute value, the coordinate plane and different algebraic properties. The students will then build on this basic knowledge by learning how to solve multi-step equations and inequalities and the complex algebraic functions that accompany them,

	such as exponents. They will build on their existing knowledge of fractions by examining ratios, proportions and probability, and converting to/from decimals. Additionally, students will be introduced to percents and problems requiring the application of percents.
Grade 8	<u>Grade 8 Algebra & Geometry Course Overview</u> The main goal of 8th grade math course, which uses the Challenged by Choice design, is to provide students with a thorough and extensive study of linear and quadratic functions and graphing on the *xy*-coordinate system. The course starts off with a quick review of basic algebraic concepts, such as variables, order of operations, exponents and problem solving skills. They will gain a thorough introduction to functions, the basis of all of algebra and higher mathematics, such as calculus. Students will learn how to solve linear equations, including multi step equations, equations with multiple variables and equations involving decimals, as well as write a linear equation based on the graph of a line. The 8th grade math course also gives the students a thorough introduction of functions and quadratic equations. They will learn all the operations associated with the two, such as factoring and graphing. The end of the course takes the students' knowledge of algebra one step further by introducing them to some basic concepts of geometry. The skills learned in this course will help the student through schoolwork, and will provide a thorough algebraic background for all standardized testing, including the MAP and the SAT
Grade 9	<u>Grade 9 Algebra Course Overview</u> The main goal of 9th grade math course is to provide students with a thorough and extensive study of quadratic functions, quadratic inequalities, algebraic expansion and quadratic factorization, and trigonometry. The course starts off with a quick review of basic algebraic concepts, such as linear equations and inequalities and solving of linear systems. They will gain a thorough understanding to linear and quadratic functions, the basis of all of algebra and higher mathematics, such as calculus. Students will learn how to: graph and solve quadratic equations, including expansion and quadratic factorization, use quadratic formula, use operations with polynomials, as well as write a quadratic equation based on the graph of a parabola. The end of the course takes the students' knowledge of algebra one step further by introducing them to trigonometry functions. The skills learned in this course will help the student through

	schoolwork, and will provide a thorough algebraic background for all standardized testing, including the MAP and the SAT
Grade 10	<u>Grade 10 Advanced Algebra and Pre-Calculus</u> Math 10 course is designed to further develop analytical thinking and deductive reasoning among students so that they can solve problems. Emphasis is given to an in-depth understanding of concepts, together with meaningful acquisition and refinement of advanced algebra and pre-calculus skills. The topics will focus on properties of functions and their interpretations in an applied and theoretical context. They will review previous skills of algebra, polynomials, trigonometry, exponents,logarithms and rational functions and view them through the prism of mathematical analysis. Students will complete a variety of performance tasks that will allow them to explore mathematical topics and modelling real life situations through the use of technology, in order to prepare them for their future IB Education.