

Stockton Collegiate International Schools
MYP Mathematics
Level 1, Grade 6

I. Course Description

Mathematics is a universal language that is a central foundation for the pure sciences, engineering, technology, and social sciences. Inherently included in the study of mathematics is a development of analytical reasoning and problem-solving skills that are vital to logical, abstract, and critical thinking. These skills are very important for all students, in and outside of school, as they pertain greatly to real world problems and decision-making in everyday life.

This course will introduce and expand upon previously learned mathematical concepts in a comprehensible and clear manner. Students will be encouraged to use appropriate strategies and mathematical terms to interpret and solve various problems through critical and creative thinking. Students will also have the chance to appreciate the usefulness of mathematics as they solve realistic problems that could be applied to the outside world.

Each of the MYP fundamental concepts will be directly incorporated into the daily activities of this course. Communication, holistic learning, and international cultural awareness will be a big part of each lesson. Also embedded in this course are each of the characteristics of the IB learner profile. Students will be encouraged to be inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced, and reflective.

II. State Standards and MYP Objectives

The aim of teaching this course is to allow students to: recognize that mathematics is all around us, appreciate the usefulness of mathematics, develop a mathematical curiosity, be able to communicate with mathematical terminology, and develop knowledge of the content.

MYP Objectives	California State Standards
<i>Knowledge and understanding:</i> Students know and demonstrate understanding of the concepts.	2.2 – Students demonstrate an understanding that <i>rate</i> is a measure of one quantity per unit value of another quantity.
<i>Investigating patterns:</i> Students draw conclusions consistent with findings.	2.2 – Students use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.
<i>Communication in mathematics:</i> Students use mathematical language in written explanations.	3.2 – Students express in symbolic form simple relationships arising from geometry.
<i>Reflection in mathematics:</i> Students explain why their results make sense.	2.1 – Students solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.

III. Areas of Interaction

The areas of interaction will broaden the academic experience for all students as they will have the ability to exercise their critical thinking and communication skills. Students will experience multiple approaches to learning as they will work in various ways, including individual and group activities. Group activities will encourage students to communicate their ideas to their peers while maintaining a focus on their own individual learning. Students will connect the content to real-world applications, including ways to help and serve the community. Students will investigate health and social education, developing an ability to interact with others in a way that is cohesive for all. They will understand our role in the environment and how we can use what we have learned to improve our surroundings. Finally, students will develop an appreciation for the mathematics behind human ingenuity and analyze why these ideas were created and how they have helped our advancement.

IV. Texts and Resources

Students will be required to bring a spiral notebook to class everyday to take notes. They will come to class prepared with pencils and paper. They will also need their Algebra I textbook.

University of Chicago School Mathematics Project: Advanced Algebra: Chicago, IL: McGraw Hill, 2008

V. Methodology

Various teaching strategies will be used in the classroom with a focus on student learning. Questions will always be encouraged as they are important in academics in general, but especially in mathematics. Students will learn the content through different kinds of interaction, including a heavy emphasis on group work as well as direct instruction. Doing so will help transition the class from activity to activity while giving students the opportunity to communicate and share their ideas with their peers. Students will have projects that will allow them to explore mathematical concepts in greater detail. There will be an emphasis on students showing all their work and earning partial credit if they can demonstrate that they understand the content.

VI. Methods of Assessment

The single most important aim of assessment at Stockton Collegiate is to support and encourage student learning. Teachers will use formative assessments to guide their instruction day-by-day. These assessments are generally not included in the students' final grades. Summative assessments are the students' opportunity to demonstrate their level of achievement at the end of a unit and are included as part of a final grade. The MYP approach to assessment recognizes the importance of the processes of learning as well as the products of learning. The MYP assessment model is criterion-related, meaning that it is based upon pre-determined criteria to which all students (and parents) have access.

Criteria A – Knowledge and Understanding

Criteria B – Investigating Patterns

Criteria C – Communication in Mathematics

Criteria D – Reflection in Mathematics

Name of Unit	Unit Question	Assessment
Integers	How are segments divided into parts?	Unit Test
Percentages	Why do people use the metric system?	Real World Problem
Using Addition	What does opposite mean in mathematics?	Unit Test
Using Subtraction	How do angle classifications help us?	Unit Test
Statistics	Why are various charts needed?	Real World Problem
Multiplication	What does it mean to multiply numbers together?	Unit Test
Division	How are multiplication and division related?	Unit Test
Ratios	Where are ratios seen in the real world and how are they used?	Real World Problem
Area and Volume	How are area and volume similar and different?	Real World Problem
Probability	How can we determine if a game is fair?	Real World Problem
Drawing Figures	What are transformations?	Unit Test
Triangles and Quadrilaterals	Why is the shape of a figure important?	Unit Test
Data	What kind of data can be meaningful?	Real World Problem

VII. Grading Policy

Grades will be determined using a combination of MYP marks and more traditional assessments. These grades will be combined to produce a composite mark of A, B, C, D, or F at the end of each semester according to traditional percentage guidelines (90-100: A; 80-89: B; 70-79: C; 60-69: D). Heavy emphasis will be given to a student's level of competency at the end of the grading period.