



# Tohoku International School

## Secondary School Course Syllabus

<b>Course Title:</b> Geometry	<b>Teacher:</b> Mr. Stephen Messano <b>Email:</b> smessano@tisweb.net
<b>Grade Levels:</b> Grade 9 - 10	<b>Time Frame:</b> 37 weeks
<p><b>Course Description:</b></p> <p>The key concepts in Geometry are equations, graphs, functions, and real-life applications. This course explores in greater depth many of the concepts already encountered in Grade 8 Math. Students who complete this course successfully should be ready to take Trigonometry and Math Analysis or Statistics and Probability in Grade 11 and 12.</p> <p>This course will prepare students for success in college, and in their careers and daily lives in the 21<sup>st</sup> century. Students will develop their abilities to understand and solve mathematical problems, think critically, and communicate ideas clearly. As students explore the material presented in this course, they should begin to see the connections and applications between mathematics and the world around them.</p> <p>This course will emphasize the critical thinking skills Analysis (break down objects or ideas into simpler parts and find evidence to support generalizations), Synthesis (compile component ideas into a new whole or propose alternative solutions), and Evaluation (make and defend judgments based on internal evidence or external criteria).</p>	
<p><b>Course Philosophy:</b></p> <p>How are airport runways named? How can we program robots to investigate live volcanoes? If two sailboats are travelling side-by-side on the open sea, will their paths ever cross? How can a bridge supported by cables stay suspended? How far from the net should a goalkeeper stand to defend the goal? This is why we study Geometry. In Geometry, we strive to achieve a better understanding of our lives through <i>measuring the world</i>.</p>	
<p><b>Course Objectives</b></p> <p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Explain and solve various mathematical concepts through graphs, constructions, diagrams and pictures</li> <li>• Apply various geometrical concepts to real world contexts</li> <li>• Solve and evaluate questions using a variety of mathematical operations and formulas</li> <li>• Use inductive and deductive reasoning to create mathematical proofs</li> <li>• Identify various features and solve problems related to the field of geometry</li> <li>• Understand and apply geometric principles to a famous literary piece</li> <li>• Analyze, synthesize and evaluate various geometric principles</li> </ul>	
<p><b>Units of Study:</b></p> <ul style="list-style-type: none"> <li>• Basics of Geometry</li> <li>• Reasoning and Proofs</li> <li>• Parallel and Perpendicular lines</li> <li>• Transformations</li> <li>• Triangles</li> <li>• <i>Flatland</i> Project</li> <li>• Quadrilaterals and other polygons</li> <li>• Similarity</li> <li>• Circles</li> </ul>	

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***A community of learners preparing for life in an evolving global society***

## Geometry (Cont'd)

### **Assessments**

#### Projects – 15%

Each student will be expected to complete several projects throughout the school year. There are various types of formats for these projects: research papers, posters, video projects, in-class presentations, math skits, etc. Some projects will be done individually; others will be in pairs or small groups. Detailed information will be provided at the time the project is assigned.

#### Quizzes (20%) & Tests (40%)

Students should expect one or two quizzes per week. They will always be announced in advance. Students may use their graphing calculator and math notebook on most quizzes. When a quiz is returned to a student, s/he has the option of revising any mistakes on that quiz, re-submitting it, and receiving up to half the points missed. At the end of each chapter or unit of study, there will be a test to assess each student's understanding. They will always be announced in advance. Students may use their graphing calculator and math notebook on most tests. When a test is returned to a student, s/he has the option of revising any mistakes on that test, re-submitting it, and receiving up to half the points missed.

#### Final Exam – 15%

At the end of each semester, there will be a 90-minute exam on all of the major topics covered during that term. Students may use their graphing calculator and one page (A4 size) of handwritten notes, front and back. Their page of notes will be turned in along with their exam.

#### Learning Skills – 10%

Attendance, organization, homework completion and the ability to take initiative and work independently and in groups all play a role in student success and are important for achieving the course expectations.

### **Course Specific Materials Required**

- Graphing calculator (TI-84 Plus or equivalent)
- Pencils, erasers, etc.
- Graph paper notebook
- Homework/handout folder
- Ruler/straightedge
- Textbooks: Big Ideas Math: Geometry, by Larson and Boswell