



Tohoku International School

Secondary School Course Syllabus

Course Title: Grade 8 Mathematics	Teacher: Mr. Zane Clifford Email: zclifford@tisweb.net
Grade Level: Grade 8	Time Frame: 37 weeks
Course Description: <p>The key concepts in Grade 8 Math are equations, graphs, and real-life applications. This course explores many of the ways mathematics relates to the world around us. Students will also study the connections among the various branches of mathematics, especially algebra, geometry, and statistics. Upon successful completion of this course, students will have a strong foundation for the rest of the mathematics courses they will take in high school. Students will develop their abilities to understand and solve mathematical problems, think critically, and communicate ideas clearly.</p>	
Course Philosophy: <p>How can the head of a company complete a construction project on time? During a special holiday time, how can we determine which gifts to buy using a fixed budget? How can we know the energy stored in a spring, given a fixed extension? What are examples of congruent shapes in the architecture we see around us? This is why we study Math. Grade 8 Math looks at questions like these and challenges us to find the answers.</p>	
Course Objectives: <p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none">• Explain and solve various mathematical concepts through tables, equations, graphs and diagrams• Apply various mathematical formulae and concepts to real world contexts• Solve and evaluate questions using a variety of mathematical operations and formulas• Construct, evaluate and interpret data• Identify various features and solve problems related to the field of geometry• Identify various features and solve problems related to the field of Algebra	
Units of Study: <ul style="list-style-type: none">• Direct and Inverse Proportions• Linear Graphs and Simultaneous Linear Equations• Expansion and Factorization of Quadratic Expressions• Quadratic Equations and Graphs• Algebraic Fractions and Formulas• Congruence and Similarity• Pythagoras' Theorem• Trigonometric Ratios• Volume and Surface Area of Pyramids, Cones, and Spheres• Probability of Single Events• Statistical Diagrams• Averages of Statistical Data	

Grade 8 Mathematics (cont'd)

Assessments:

- **Projects (20%)**
 - Each student will be expected to complete a special project each semester.
 - 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 (30%)**
 - Students should expect one or two quizzes per week.
 - Quizzes 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.

- **Tests (40%)**
 - At the end of each chapter or unit of study, there will be a test to assess each student's understanding.
 - Tests 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.

- **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 course expectations.

Course Specific Materials Required

- Graphing calculator (TI-84 Plus or TI-84 Plus Silver Edition or equivalent)
- B5 math notebook with graph paper, divided into two sections (Notes and Homework)
- Folder for saving quizzes, tests, and other papers
- Textbook: New Syllabus Mathematics, 7th Edition, Book 2, Shinglee Publishers PTE Ltd.