Olympian High School

"*Where Champions are Made*"

Course Syllabus

Integrated Math I

Revised July, 2014

Olympian High School

Course Syllabus

Integrated Math I

Instructor		**Phone**	
Room		**E-mail**	

Course Description:
The fundamental purpose of Mathematics I is to formalize and extend students' understanding of linear functions and their applications. The critical topics of study deepen and extend understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend. Mathematics I uses properties and theorems involving congruent figures to deepen and extend understanding of geometric knowledge from prior grades. The courses in the Integrated Pathway follow the structure began in the K-8 standards of presenting mathematics as a coherent subject, mixing standards from various conceptual categories. (Taken from the *Mathematics Frameworks* adopted by the State Board of Education on November 6, 2013.)

Pre-requisites:
Completion of Math 8.

All courses at Olympian High School emphasize the following Habits of Mind, College Readiness Skills, and Reading Strategies:

Habits of Mind (for college Preparation)

Build Intellectual Perseverance (the persistent pursuit of knowledge)

- Promote the value of a strong work ethic
- Cultivate sustained effort through repeated practice

Develop Metacognition

- Encourage thinking about the quality of one's own and others' thought processes
- Practice intellectual humility
- Become comfortable with the discomfort of ambiguity

Create Intellectual Curiosity and Rigorous Engagement

- Foster a desire to know
- Require inquiry and investigation

College Readiness Skills

- **Knowledge** – describe using discipline-specific academic language
- **Comprehension** – summarize by distinguishing the main idea from supporting detail
- **Application** – relate/apply the appropriate tools/processes to new situations
- **Analysis** – compare and contrast in order to support inferences and draw conclusions
- **Synthesis** – combine ideas in order to develop new insights
- **Evaluation** – justify according to a set of standards or criteria

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Purposeful Reading Strategies for Mathematics

Pre-reading: Previewing
Skimming
Predicting

First Reading Strategies: Identifying text structure
Identifying unknown words and phrases,
Identifying key terms and concepts
Posing questions to clarify

Re-reading Strategies: Confirming key concepts and main ideas
Finding answers to posed questions
Summarizing the learning

Citizenship Expectations:
Students are expected to be active participants and make a positive contribution to the atmosphere and work of the classroom. They are also expected to complete their assignments on time, arrive on time prepared to learn, and follow all classroom rules.

Homework Policy:
Homework and practice are valued as a necessary component to the learning process. The primary purpose of homework is to build understanding in order to increase student achievement ad demonstrated on a summative assessment. Homework will be scored based upon on completion.

Assessments:
Short quizzes will serve as "formative" assessments throughout each unit. These are used to inform instruction. Summative assessments (Unit Exams) will include constructed response, multiple-choice, open ended, and on-demand writing questions. Unit summative assessments may be retaken to improve mastery of topics. (See "Mastery Model" section below).

Grading Policy: Students' grades will be based on the following:

- 80% Assessment
- 20% Formative Work

Standard letter grades (A to F) will be assigned to indicate student progress towards mastery of learning objectives and district/state standards.

Mastery Model:

Olympian High School's Mastery Model grading principle is based on the following beliefs:
1. All Students can achieve at high levels

2. Not all students learn at the same rate
3. All learning targets are clear and transparent
4. All assessments meet district standards
5. Deep understanding or higher levels of proficiency are achieved only as a result of trial, practice and adjustments based on feedback and more practice.
6. Students learn more when their school/teacher offers timely, directive and systematic interventions that guarantee them additional time and support when they experience difficulty.
7. Re-teaching and re-assessment opportunities provide student access to mastery (and teach perseverance).

Mastery Model Protocol (before next unit ends):

1. Complete tutoring/study guide or other work as assigned by teacher.
2. Study to prepare for re-test
3. Re-test

Accessing Grades:

Students and parents in all mathematics classes will be able to access grade reports and scores at any time by logging on to www.jupitergrades.com .

Overview of Course Content Standards:

(Taken from the Mathematics Frameworks adopted by the SBE on November 6, 2013.)

Number and Quantity

Quantities

- Reason quantitatively and use units to solve problems.

Algebra

See Structure in Expressions

- Interpret the structure of expression

Creating Equations

- Create equations that describe number or relationships.

Reasoning with Equations and Inequalities

- Understand solving equations as a process of reasoning and explain the reasoning.
- Solve equations and inequalities in one variable.
- Solve systems of equations.
- Represent and solve equations and inequalities graphically.

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Functions

Interpreting Functions

- Understand the concept of a function and use function notation.
- Interpret functions that arise in applications in terms of the context.
- Analyze functions using different representations.

Building Functions

- Build a function that models a relationship between two quantities.
- Build a new function from existing functions.

Linear, Quadratic, and Exponential Models

- Construct and compare linear and exponential models and solve problems.
- Interpret expressions for functions in terms of the situation they model.

Geometry

Congruence

- Experiment with transformations in the plane.
- Understand congruence in terms of rigid motions.
- Make geometric constructions.

Expression Geometric Properties with Equations.

- Use coordinates to prove simple geometric theorems algebraically.

Statistics and Probability

Interpreting Categorical and Quantitative Data

- Summarize, represent, and interpret data on a single count or measurement variable.
- Summarize, represent, and interpret data on two categorical and quantitative variables.
- Interpret linear models.

Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.