***TMSA Math 2 Course Syllabus***

***Teacher Contact Information***

Neslihan Soyuer

nsoyuer@tmsacademy.org

[http://soyuermath.weebly.com](http://soyuermath.weebly.com/)

***Course Outline***

Math 2 will build on algebra topics previously studied in math 1 and also build on or introduce geometry concepts. You can think of math 2 as the beginning of algebra 2 (a continuation of math 1) and the beginning of geometry. Math 3 will finish these two topics. Therefore, math 2 and math 3 lay the foundation for higher mathematics, such as precalculus.

***School Provided Materials***

We will be using components of the 2015 Pearson Geometry and 2015 Pearson Algebra 2 textbooks for instruction, as well as additional supplementary materials as needed. These books will be available to use during the day at school and students will have online access to the textbooks at home. Homework and other assignments may be assigned through the online textbook. These are some of the online resources that we will be using.

[www.pearsonrealize.com](http://www.pearsonrealize.com)

<https://www.mathxlforschool.com>

<https://app.studyisland.com>

***Required Student Materials***

Students need a **graphing calculator**, such as a TI-83 or TI-84. There are specific components of the course and subsequent end of the year exam that require these calculators. Students are expected to organize their class materials how they see fit, but we recommend a **1.5” binder** with materials organized in chronological order. PENCILS ONLY. Optional: graph paper, ruler and erasable colored pencils for class activities.

***STEM Integration***

Triangle Math and Science Academy is now integrating STEM instruction into all courses. For math 2, this means that for the majority of our class time, students will be investigating material in a collaborative manner through problem-solving, rather than receive total direct instruction.

***Units and Essential Questions***

* *Math I Review* - touching on topics essential for math 2
* *Unit 1: Quadratic Functions*
	+ We will build on students’ understanding of quadratics in standard form and investigating why multiple forms of the same function can be helpful in solving problems
	+ What are the advantages of a quadratic function in vertex form? In standard form?
	+ How is any quadratic function related to the parent quadratic function y=x2?
	+ How are the real solutions of a quadratic equation related to the graph of the related quadratic function?
	+ Quadratic functions are helpful in representing projectile motion, income and profit, etc.
* *Unit 2: Radical Functions*
	+ Students have previously studied square roots and perfect squares, but we will be looking into square root functions as well as solving square root and a few other radical equations, looking for structure in expressions and determining when we arrive at extraneous solutions.
	+ To simplify the *n*th root of an expression, what must be true about the expression?
	+ When you square each side of an equation, is the resulting equation equivalent to the original?
* *Unit 3: Inverse Variation*
	+ Direct variation has been a topic of study, directly or indirectly, for students for many years in math class. However, inverse variation is also important to discuss, especially pertaining to real world situations, such as gas left in your tank vs. how many miles you’ve drive. As one variable increases, the other decreases!
	+ What are the key features of an inverse variation function? How can the key features be identified using different representations?
	+ How can I create and solve inverse variation equations in order to solve problems?
* *Unit 4: Transformations*
	+ Translations, reflections, rotations, and dilations are actually *functions*.
	+ How can you change a figure’s position without changing its size and shape? How can you change a figure’s size without changing its shape?
	+ How can you represent a transformation in the coordinate plane?
	+ Applications of transformations can be seen artwork, architecture, and even video game design!
* *Unit 5: Patterns with Lines and Angles*
	+ This unit is all about mathematical *thinking*. Students will learn many methods of proof and what it means to truly prove that a conjecture is true.
	+ How can you make a conjecture and prove that it is true?
	+ How do you prove that two lines are parallel?
	+ What is the sum of the measures of the angles of a triangle?
	+ Our goal with this unit for students to grasp the concept of proof and logical reasoning as well as discover geometric relationships, helping students develop their abilities to critique reasoning of others and form viable arguments.
* *Unit 6: Triangle Congruence*
	+ Students will extend their understanding of angles and triangles to proving that triangles are congruent and proving if a triangle is isosceles or equilateral.
	+ How do you identify corresponding parts of congruent triangles?
	+ How do you show that two triangles are congruent?
	+ How can you tell whether a triangle is isosceles or equilateral?
* *Unit 7: Right Triangles and Trigonometry*
	+ Previously, students have studied the Pythagorean Theorem and solving for a missing side of a right triangle. Now, students will find missing sides and angles of right triangles given less information and using trigonometric ratios.
	+ How do you find a side length or angle measure in a right triangle?
	+ How do trigonometric ratios relate to similar triangles?
	+ This unit allows students to combine their algebraic skills with geometric thinking to develop special right triangle ratios. Also, students will be discovering patterns in these special triangles.
* *Unit 8: Probability*
	+ What is the difference between experimental probability and theoretical probability?
	+ What is a frequency table?
	+ Probability isn’t always straightforward and a matter of picking marbles from a bag; we will be investigating condition probability and how to determine the probability of an event given that another event has already happened.

***TMSA Plagiarism and Cheating Policy (From Student Handbook)***

*Cheating and plagiarism are deceptive choices made by students to misrepresent the student’s true knowledge of the subject material (cheating) or misrepresenting information as their own ideas/concepts/words by not giving proper credit to the original source (plagiarism). All papers or projects submitted at TMSA are required to be in the student’s own words unless stated in writing by the teacher otherwise.  Therefore, any copying of information from the Internet or any other source (i.e. “cutting & pasting”, etc.) is considered plagiarism. However, quotations, drawings and/or pictures may be taken from the Internet or other source as long as they are properly cited in the document.* Please note that students may suffer additional consequences from their clubs/organizations for instances of cheating and plagiarism. Below are the classroom consequences for cheating/plagiarism:

* First offense: assignment is given automatic, permanent zero. The teacher will create a discipline write up for the student and contact the parents.
* Subsequent offenses:  assignment is given automatic, permanent zero. The teacher will create a discipline write up for the student and the Discipline Coordinator will determine further consequences.

**GRADING POLICY:**

* **60% Major**
	+ **Ex: Tests**
	+ **There are no test retakes. Credit will not be given for test corrections, though they are highly encourages.**
* **30% Medium**
	+ **Ex: Quizzes/Projects**
	+ **Can be independent, group, take home, or online to be completed in class or at home.**
	+ **There are no quiz retakes. Credit will not be given for quiz corrections, though they are highly encouraged.**
* **10% Minor**
	+ **Ex: Homework/Classwork**

***Homework Policy***

* Homework may be given as a handout, assigned through study island, Pearson, mymathlab or some other form of assessment.
* Students can expect homework after every class, though Mrs. Soyuer may try not to send HW home on the weekends.
* Homework is checked for completion only as answers are provided
* Homework should show all work for credit
* Late policy: if you do not have your homework on the due date, you have until the next time we meet to turn it in for half credit. After this, the grade will remain a zero.
* Mrs. Soyuer will put in weekly homework assignments into powerschool.
* It is unacceptable for a student to go to the teacher at the end of the quarter and ask for missing work and partial credit. You have the next class meeting to turn in late homework only.

 **Final Grades: Each quarter is worth 20% and the NCFE Math II Final Exam is worth 20%.**

***Making poor choices***

1st time – Verbal warning
2nd time – Conference with student / Refocus Form will be sent home
3rd time – Parent contact (phone, e-mail, or form sent home)
4th time – Lunch detention
5th time – Office Referral which may lead to Parent/Student/Dean/Teacher conference

\*\*\*If your behavior is highly disruptive, disrespectful, or dangerous you will be removed from the classroom immediately to ISS ROOM.

 **SIGNATURE PAGE FOR MATH II.**

**Please return this page signed. It counts as our first homework assignment.**

**This syllabus constitutes an academic contract between parent, teacher and student.**

**Agreement: I have read the Math II course overview. I agree to abide by the conditions outlined in this course description, come to class prepared to work and participate in class activities, exhibiting respect, cooperation and honesty with my teacher and fellow students. I will place this syllabus in the front of my notebook for future reference.**

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 Print Student’s Name: Please be neat!

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Student’s Signature Date

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Parents’ Signature Date

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 Parent email: Please be neat!

**NOTE: If you would like your student included on class emails, absent work and general communication, please write their email address below.**

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Student email: Please be neat!

**Please email me with any comments or concerns.**

**Mrs.Soyuer**

**TMSA Math II Teacher**

YUMMY PERMISSION SLIP

Students / groups may receive such rewards as ice-cream, doughnut & pizza parties throughout the year. Your child needs your permission to be rewarded in that way.

Please sign accordingly and list any allergy information below.

□ YES, I would like my child to receive food and drink from his teacher.

□ NO, I would like my child NOT to receive food and drink from his teacher.

If you have checked YES above, please include allergy info:

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Parent Name and Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name: