Math 8 Syllabus - Blue Ridge Middle School

Teacher: Scott Forster

Contact Information:

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Website (hyperlink)   **Tutoring Times:** Tuesday/Thursday   3:45-4:15 pm

Course Title: Math 8

Textbook Title:
- *South Carolina Reveal Math (Course 3)* - McGraw Hill
- *ALEKS* student software

Course Description:

The standards for Math 8 continue the work started in sixth and seventh grades in these four strands: Data, Probability, and Statistical Reasoning (DPSR); Measurement, Geometry, and Spatial Reasoning (MGSR); Numerical Reasoning (NR); and Patterns, Algebra, and Functional Reasoning (PAFR). Woven throughout all four strands are concepts building on students' understanding with problem solving to provide context to the problems they are solving, which will foster critical thinking and collaboration skills.

For a complete understanding of the essential knowledge and skills in mathematics, read the SCCCR Mathematics Standards in their entirety; the five process standards will be incorporated throughout this course.

Power Standards for Math 8:
- 8.DPSR.1.1 Create and analyze scatter plots to represent numerical data sets in mathematical and real-world situations.
- 8.DPSR.2.2 Calculate and interpret the probability of compound independent and dependent events.
- 8.PAFR.1.1 Define an equation in slope-intercept form (y = mx + b) as being a linear function
- 8.PAFR.1.2 Identify and describe the constant rate of change and the y-intercept of a linear function.
- 8.MGSR.1.2 Find the distance between any two points in the coordinate plane using the Pythagorean Theorem.
- 8.MGSR.1.3 Given the Pythagorean Theorem, determine unknown side lengths in right triangles in mathematical and real-world situations.
- 8.MGSR.2.1 Determine missing angle measurements created when parallel lines are cut by a transversal.
- 8.NR.1.1 Convert any form of a rational number to any other form including fractions (mixed

numbers), decimals, and percentages.

- 8.NR.2.2 Classify and order the subsets of real numbers in the number system including natural, whole, integer, rational, and irrational numbers.
- 8.PAFR.3.2 Approximate non-perfect square roots and cube roots to nearest tenth. Limit to square roots less than or equal to 400 and cube roots less than or equal to 1,000.
- 8.PAFR.2.1 Solve multi-step one variable equations and inequalities with variables on both sides with rational coefficients.
- 8.MGSR.3.7 Describe the effect of a series of transformations, including dilations, translations, rotations, and reflections, on two-dimensional figures using coordinates on the coordinate plane.
- 8.MGSR.3.1 Describe the results of transformations on a given figure using geometric terminology from the definitions of the transformations.

Course Scope and Sequence

The instructional resources used in this course consist of eight units:

Unit 1 - Introduction to Math 8
- Review of graphing and identifying points on the coordinate plane

Unit 2 - Congruence and Similarity
- Describe the characteristics of translations, reflections, rotations, and dilations.
- Translate, reflect, rotate, and dilate figures.
- Describe a sequence of transformations that map one figure (a preimage) onto another (the image).
- Explain why two figures are congruent using rigid motions.
- Determine whether a pair of triangles is similar by using Angle-Angle Similarity.
- Find distances or lengths that are difficult to measure directly by using properties of similar triangles.

Unit 3 - Linear Relationships and Equations
- Graph a proportional relationship and describe the slope as the constant of Proportionality.
- Compare two different proportional relationships by comparing the slopes.
- Explain why the hypotenuses of similar triangles have equal slopes.
- Derive the equations $y = mx$ for a line through the origin and $y = mx + b$ for a line intercepting the y-axis at b.
- Solve linear equations with variables on both sides.
- Determine the number of solutions to linear equations.

Unit 4 - Understand and Analyze Functions
- Identify and use qualitative features of relationships.
- Determine if a relation is a function by using a table or mapping diagram.
- Represent functions in different forms and determine if a function is linear or nonlinear from multiple representations.
- Analyze functions to interpret their rate of change and initial values.
- Compare functions represented in different forms.

Unit 5 - Patterns of Association
- Represent bivariate data on a scatter plot.
- Investigate and interpret patterns in bivariate data.

Unit 6 - Angles, Triangles and the Pythagorean Theorem
- Explore using relationships among angles formed when two parallel lines are crossed by a transversal.
- Explore the relationships between the interior and exterior angles of a triangle.
- Calculate and estimate square roots.
- Apply the Pythagorean Theorem to determine the measures of the sides of a right triangle, to determine the length of a diagonal line on the coordinate plane, and in real-world applications.
- Use the converse of the Pythagorean Theorem to analyze triangles.

Unit 7 - Volume
- Find the cube root of a value.
- Find volumes of cylinders, cones, and spheres and use volumes to solve problems.
- Use volume formulas to solve problems in a context.

Unit 9 - Irrational Numbers and Exponents
- Explore converting rational numbers into repeating decimals.
- Use a number line to locate, compare, and order rational and irrational numbers.
- Generate equivalent expressions using zero and negative exponents and properties of powers.

Materials Needed for Course:

- Consumable Textbook (provided by teacher)
- Pencils
- Notebook paper
- Chromebook (provided by BRMS)

Classroom Expectations:

While in my classroom, I expect students to…

Grading Policy/Practices:

(Based on Greenville County School District Assessment Guidelines)

Students will complete a minimum of 3 major assignments and 8 minor assignments per quarter. Assignments will be graded based on completion and accuracy. Minor assignments will count for 50% of a student's overall grade and major assignments will count for 50% of a student's overall grade.

Late Work:

Greenville County Schools is committed to Building a Better Graduate by creating college and career-ready students. As such, students must develop character traits that align with workplace expectations. Some examples of these include responsibility, a strong work ethic, and self-direction. Students are expected to give their best effort when completing assignments and should strive to complete them by the due date. Students are expected to turn in ALL assignments and should never have a Not Handed In (NHI) recorded in the grade book. Extra opportunities are available for students to make up work through tutoring times and at other times designated by the teacher.

- Teachers will accept late work with no penalty to the student up to 5 days after the original due date. This does not include projects and multi-day assignments that occur during class time.
- Students may attend the teacher's office hours to complete assignments promptly.
- A teacher may extend the deadline for accepting late work, but cannot reduce the time allowed.

The work, although submitted late, will not receive a point reduction. Work can be accepted late across grading periods **only** by notable exception and approval of the teacher and/or administrator.

Makeup Work:

To receive full credit for make-up work, all work must be submitted within five school days, immediately following an absence. In cases of prolonged illness beyond 5 days, special consideration will be given. It is the responsibility of the students, not the teachers, to arrange for make-up work.

- Work assigned before the absence or field trip will be due the day the student returns.
- Tests assigned before the absence will be taken on the scheduled test date or the date arranged with the teacher.
- If a student misses a test or quiz while absent, on the first day back, arrangements should be made with the teacher to make up the assessment within 5 days.
- In general, work is done before or after school to avoid missing class time. Arrangements may also be made with the teacher to make up assignments during support times, such as tutoring times or after-school remediation. Arrangements should be made with the teacher to complete this on time.
- Students are expected to check teacher websites and Google classrooms for assignments during any absence.

Retake/Redo/Revise Expectations:

Since the goal is for students to master content and skills, students will be allowed to retake/redo major tests only; however, students must commit to doing their part in preparing for the re-test. **Students must initiate the request** to retake/redo a test within 10 days of receiving the grade on the test. Students are allowed to retake/redo a major test one time. The student and parent must complete this form and submit it to the teacher. The student must complete a minimum of 2 tasks to prepare for the re-take. One of the tasks is required, and that is to meet with the teacher for a tutoring session during the teacher's office hours. Following a re-test, the higher grade will be recorded in the grade book. Students may retake a test if their initial score is below 80. Scores of 80 and above are not eligible for retake/redo.

BRMS Request to Retest Form