Course Overview: Algebra - 8
The fundamental purpose of this course is to formalize and extend the mathematics that students learned in their previous course. Because it combines the 8th grade math content standards and Algebra 1 math content standards, the course moves at a much faster pace with increasingly challenging problems designed to integrate the 8th grade and Algebra 1 content. Students are expected to take responsibility for their own learning in this course. It is the expectation that if the course moves too fast or becomes more of a challenge than students expected, selecting Pre-Algebra instead is a perfectly acceptable choice. Options to accelerate to get to AP Calculus during high school exist beyond this course.

Units and Activities: What will we be learning about and doing in this course?
In this course, we will be working with problems developed and refined by mathematics professionals at Phillips Exeter Academy. These problem sets cycle through a variety of common themes over the year and allow students to see that the various mathematical topics and understandings are inherently connected. Emphasis is placed on students being able to coherently write (with proper mathematical notation) and explain their solution method.

Standards: What knowledge and skills will I gain by the end of this course?

Anchor Standards: This course will assess the knowledge and skills students build in key Anchor Standards. A student will have multiple opportunities to show their proficiency in each Anchor Standard. Below, each Anchor Standard for this course is named and described.

Sense Making, the ability to adjust to a problem that is given and determine the correct skills to apply to solve the presented problem.
Reasoning, the ability to use mathematical reasoning to prove or explain why something is correct or incorrect.
Modeling, the ability to show understanding of a given topic in a number of different models.
Making Use of Structure, the ability to see and use the underlying structure of concepts.
Recognizing and Using Patterns, the ability to determine patterns of functions to develop a strategy to solve a number of problems.

Course Standards: This course builds student knowledge and skill using the CCSS mathematical standards.
The Number System

- Know that there are numbers that are not rational, and approximate them by rational numbers.

Expressions and Equations

- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.

Functions

- Define, evaluate, and compare functions.
Use functions to model relationships between quantities.

Geometry

- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Statistics and Probability

- Investigate patterns of association in bivariate data.

Seeing Structure in Expressions

- Interpret the structure of expressions
- Write expressions in equivalent forms to solve problems

Arithmetic with Polynomials and Rational Functions

- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors of polynomials
- Use polynomial identities to solve problems
- Rewrite rational functions

Creating Equations

- Create equations that describe numbers 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

Assessment of Learning:
For information about assessment types, scoring, and overall grade calculation: click here.

Communication:

How Do I Access Work from Home, and What Should I Expect?
- All work will be posted in Google Classroom.
- The work will be explained during our in-person meetings and/or by video posted to Google Classroom.
- The work will also be explained in our Class Planner posted to Google Classroom.
- If you have any questions, email your teacher.

How Do I Know What My Grades Are?
- On Summative Assessments, teachers will provide both a 4-point grade and a letter grade.
- You can monitor your progress in the following ways:
  - By reading feedback and scoring returned to students on summative assessments.
  - By monitoring the scores and Overall Course Mastery Grade in the Parent/Student portal on JumpRope. Reminders to check grades will be sent from the school.
Communicating with your teacher if you are unclear.

**Where Can I Find This Syllabus during the School Year?**
- This syllabus will be available on the school website in each subject’s department tab once the school year is up and running. It will also be available in our Google Classroom.

**How Do I See What’s Due?**
- Assignment and summative assessment due dates with handouts are posted in Google Classroom, with connection to Google Calendar, for student access.

**How Do I See What’s Past Due?**
- If a student is missing a grade on an assessment, it will be listed in the red “Missing Assessment” section of the JumpRope Parent/Student Portal along with any attachments. Please contact your teacher if you have any questions.

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**Materials:**
- Three Ring Binder (1.5-2”)
- Graph notebook or graph paper
- Writing Utensil

**Schoolwide Procedures:**
Please see the Student Handbook for Procedures and Policies related to: Due dates and deadlines, extra credit, retaking assessments, and turnaround time for grade entry.

**Personal Mobile Devices:** This class will follow the procedures outlined in the student handbook.

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**Classroom Expectations:**
Students are expected to take responsibility for their own learning in this course. This includes: (1) being attentive and involved in classroom small and large group activities and discussions, (2) approaching homework with understanding and communicating through written work the problem and process, rather than getting an answer, as the goal, (3) getting assistance with difficult problems during office hours, (4) keeping notebooks organized with problem sets and class notes, (5) making arrangements to make-up missed classes and making up the work assigned on any day absent. All homework problems, regardless if assessed formally or informally, must be attempted by the due date. Honesty and academic integrity are essential, students are responsible for their learning. Respect for other students in class is of utmost importance. Regular communication with Mr. Bremel is the best way to make sure students are keeping up and on track to reach the desired outcomes of the course.