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 to take Intro to Algebra instead is a perfectly acceptable choice.

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

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**Assessment of Learning**

**Assessment Types:**

Three types of assessments will be used to determine if you have gained the necessary knowledge and skills of this course: Formative assessments, Summative assessments, and Habits of Work for Learning. Each is briefly described below:

**Formative Assessments:** *Formative = Forming my knowledge and skills.* Formative Assessments receive a weight of .1 in the overall grade. Formative assessments are information for teachers, students, and parents on the progress students are making as they practice gaining knowledge and skills found in Anchor Standards. Teachers use the results of these assessments as data to understand individual student learning needs, adjust instructional pathways, and modify lessons to help students better meet course standards. Students use the results of these assessments to determine how they are progressing and to plan steps to ensure their success.
Summative Assessments: Summative = Summation of my knowledge and skills. Summative Assessments can receive three different weights: 1, 1.5, or 2 depending on the size of the assessment, and therefore have the greatest impact on the Overall Course Mastery Grade. Summative assessments are used as a measure of independent student achievement in Anchor Standards. Throughout this course, summative assessments provide benchmark student achievement data. A summative assessment will always have clear scoring criteria for students to understand how they are performing.

Habits of Work for Learning: Habits of Work for Learning (HOWLs) are skills and dispositions that are essential to the learning process but do not provide evidence of what a student knows or can do in relation to content. WUHSMS teachers work to foster Habits of Work for Learning in three categories: preparation, participation, and perseverance.

Assessment Scoring:
Teachers will provide framing for summative assessment scores using proficiency level scoring criteria for grading similar to the example below:

<table>
<thead>
<tr>
<th>Anchor Standard: Computational Modeling</th>
<th>Course Standards: NGSS HS-L2-1 Use mathematical and/or computational representations to support explanations of factors that affect the carrying capacity of ecosystems at different scales. NGSS HS-LS2-4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I can identify the components of a system.</td>
</tr>
<tr>
<td>Representation</td>
<td>1.0*</td>
</tr>
<tr>
<td>HOWL Scoring</td>
<td>NC*</td>
</tr>
<tr>
<td></td>
<td>Beginning</td>
</tr>
<tr>
<td></td>
<td>I can use a given computational model to explore relationships between components of a system.</td>
</tr>
</tbody>
</table>

*scores in the “Beginning range” are well below proficient and thus they are below passing.

How is my Overall Course Grade Determined?
Overall course grades will be reported as letter grades and will be comprised of:
- Formative & Summative Scores: 95%
- HOWLs: 5%

For more information, please see the WUHSMS student handbook.
Communication:
How Do I Know My Grades?
● On Summative Assessments, a teacher 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
  ○ By monitoring the grades sent home quarterly through report cards

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.

How Do I See What’s Due?
● Summative assessment due dates and handouts are posted to the blue “Upcoming Assessment” section of the JumpRope Parent/Student Portal on or before the day they are assigned to students.

How Do I See What’s Past Due?
● If a student is missing an assessment, it will be listed in the red “Missing Assessment” section of the JumpRope Parent/Student Portal along with any attachments.

Best Way to Contact Me:

The best way of contacting me would be through email, pbremel@wcsu.net

Materials:

Three Ring Binder (1.5-2”)
Graph notebook or graph paper
Writing Utensil
Growth Mindset

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
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 the problem and process, rather than getting an answer, as the goal, (3) getting assistance with difficult problems during ARE time, (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. Attendance for the entire class is important. Students must be on time. Students are not to pack up early and absolutely will not wait by the door to be excused.

Teacher Contact Information:

Phone: 802-457-1317 Ext. 1004
Email: pbremel@wcsu.net

I have read this syllabus, and I have contacted the teacher with any questions I have.

Student name (printed): ________________________________

Student Signed: ________________________________ Date: __________________

Parent/Guardian name (printed): ________________________________

Parent Signed: ________________________________ Date: __________________

KEEP TOP PORTION FOR YOUR RECORDS AND RETURN THIS PORTION TO
Mr. Poublon BY 9/6/19