

Lowell Jr. / Sr. High School

Algebra Topics
2018-2019 Syllabus

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Class Periods: 2nd (8:55am-9:46am)
3rd (10:00am-10:51am)
6th (1:15pm-2:05pm)
Prep Period: 1st (8:00am-8:51am)

Class Objectives

Students will...

- Review basic math skills and [re-]gain mastery in basic operations with integers, fractions, and decimals.
- Successfully evaluate algebraic expressions and solve equations.
- Graph lines based on algebraic equations and create algebraic equations from graphed lines.
- Accurately factor polynomials.
- Show mastery in working with probability and basic statistics.
- Show accurate understanding of algebraic terms.
- Consistently show learned mathematical processes within problems in written form.
- Show solid understanding of Pre-Algebra level Geometry.
- Become prepared for further classes at the Algebra I and Above level.

Pre-requisites

You must be an 9th-12th grader who has not yet been successful in an Algebra I class, and/or has been recommended for the course by a teacher and/or administrator.

Grading

- 60% of your total grade is based on Tests. If an unacceptable grade is earned on a test, students will be given the opportunity to review, get help, and re-take the test.
- 30% of your total grade is based on in-class activities, including lessons and diagnostic assessments. Points are generally earned through accuracy and completion.
- 10% of your grade is based on **being on time, being prepared, being on task, having a good attitude, and putting forth your best effort.**
- Extra Credit opportunities may become available for students, but are not part of the regular curriculum.

Grading Scale

100% - 90%	A
89% - 80%	B
79% - 70%	C
69% - 60%	D
59% - 0%	F

Classroom Expectations

- Finish your food and/or drinks before entering the classroom. Bottled water is allowed.
- Show up on time to class, prepared to participate in the day's activities.
- Give your best effort on all assigned class work.
- Participate fully, stepping out of your comfort zone when necessary.
- Be respectful towards yourself and others at all times.
- If you miss something in class, it is your responsibility to ask for that information at an appropriate time.
- If you are absent (excused or not), it is your responsibility to find out what you may have missed and make up the work as soon as possible.
- If you have a planned absence coming up (scheduled appointments, family trips, etc.), collect upcoming work ahead of time, so you will be caught up when you return.

Behavior

Behavior that contributes to a creative, safe, and productive learning environment is welcomed joyously. Further expectations are listed in the LHS Student Handbook, with which every student must be familiar.

Mathematical Practices Standards:

HS.MP.1 Make sense of problems and persevere in solving them.

HS.MP.2 Reason abstractly and quantitatively.

HS.MP.3 Construct viable arguments and critique the reasoning of others.

HS.MP.4 Model with mathematics.

HS.MP.5 Use appropriate tools strategically.

HS.MP.6 Attend to precision.

HS.MP.7 Look for and make use of structure.

HS.MP.8 Look for and express regularity in repeated reasoning.

Class Topics (and Related Standards):*

- **Foundations of Algebra**

- A.SSE.1 Interpret expressions that represent a quantity in terms of its context.

- **Linear Equations**

- A.CED.1 Create equations and inequalities in one variable and use them to solve problems.

- A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

- A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.

- A.REI.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

- **Functions**

- A.CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

- **Inequalities**

- A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.

- **Linear Systems**

- A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.

- A.REI.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

- A.REI.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

- **Polynomials**

- A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

- **Probability and Statistics**

- S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).

- S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

- S.ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

- S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

- **Foundations of Geometry**

- 1) Understand and apply the Pythagorean Theorem. This includes the converse of the theorem. (8.G.B.7) If possible, the distance formula should not be taught. Teach them to use the Pythagorean theorem. (8.G.B.8)

- 2) Verify experimentally the properties of rotations, reflections, and translations. (8.G.A.1)

- 3) 2-D figures are congruent if the second can be obtained by rotations, reflections, and translations. (8.G.A.2)

- 4) 7th grade area and volume standards. These include area and circumference of a circle (7.G.B.4) and area and volume problems involving rectangles, triangles, and right prisms. (7.G.B.6)

*Coursework is mostly based on materials from Odysseyware's Blended Learning Library Algebra I Resources course. Assessments and supporting activities have been created by Mr. Klatt.

Note: The pacing of this course is designed around the students enrolled. For this reason, not all of the above topics will necessarily be covered during this school year.