

Mathematics

Algebra 1

Course Syllabus

Prerequisites: Successful completion of Math 8, Accelerated 2 or Foundations for Algebra

Credits: 1.0 Math, Merit

Algebra I formalizes and extends the mathematics students learned in the middle grades. Six critical areas comprise Algebra 1: Relationships Between Quantities and Reasoning with Equations, Linear Functions, Exponential Functions, Quadratic Functions, Descriptive Statistics, and a survey of other Nonlinear Functions. The critical areas deepen and extend understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend, and students engage in methods for analyzing, solving, and using quadratic functions. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

In all mathematics courses, the Standards for Mathematical Practice apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

INTRODUCTION:

Typically in a Math class, to understand the majority of the information it is necessary to continuously practice your skills. This requires a tremendous amount of effort on the student's part. Each student should dedicate study time for his/her mathematics class. Some hints for success in a Math class include: attending class daily, asking questions in class, and thoroughly completing all homework problems with detailed solutions as soon as possible after each class session.

<u>INSTRUCTOR INFORMATION:</u>	<u>CLASS INFORMATION:</u>
Name: E-Mail Address: Planning Time: Phone Number:	CLASS MEETS: Daily ROOM: 3 TEXT: <i>Algebra 1</i> , enVision - Pearson

CALCULATORS: For Algebra 1, a TI-84 graphing calculator is required.

GRADING:

High School Mathematics

The goal of grading and reporting is to provide the students with feedback that reflects their progress towards the mastery of the content standards found in the Algebra 1 Curriculum Framework Progress Guide.

Factors	Brief Description	Grade Percentage Per Quarter
Class Work	This includes all work completed in the classroom setting, including: Group Participation <ul style="list-style-type: none">• Notebooks• Warm-ups• Vocabulary• Written responses• Journals/Portfolios• Group discussions• Active participation in math projects• Assignments students complete via online resources Completion of assignments	35%
Independent	This includes all work completed outside the classroom to be graded on its completion and student's preparation for class (materials, supplies, etc.) Assignments can include, but are not limited to: <ul style="list-style-type: none">• Assignments students complete via online resources• Performance Tasks• Journals/Portfolios Other Tasks as assigned	25%
Assessment	This category entails both traditional and alternative methods of assessing student learning: <ul style="list-style-type: none">• Group discussions• Performance Tasks• Problem Based Assessments• Exams• Quizzes• Portfolios• Research/Unit Projects• Oral Presentations• Surveys <i>An instructional rubric should be created to outline the criteria for success and scoring for each alternative assessment.</i>	40%

Your grade will be determined using the following scale:

90% - 100% - A

80% - 89% - B

70% - 79% - C

60% - 69% - D

59% and below - E

Student's Name _____

Parent's/Guardian's Signature _____



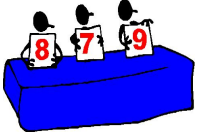


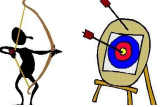


Date _____ Teacher - Mrs. Carolyn Bennett

Algebra 1

Course Sequence

Concept	Standards
Unit 1: Linear Equations and Functions	
Creating Equivalent Linear Expressions and Interpreting Their Structure	A.SSE.1a, A.SSE.1b, A.SSE.2
Creating and Using Linear Equations and Inequalities in One Variable to Solve Problems	A.CED.1, A.CED.4, A.REI.1, A.REI.3, 8.EE.7a, 8.EE.7b
Understanding, Identifying, and Applying Functions and Function Notation	F.IF.1, F.IF.2
Recognizing Arithmetic Sequences as Linear Functions	F.LE.2, F.IF.3
Calculating and Identifying Average Rate of Change for Linear Functions	F.IF.6, F.LE.1a, F.LE.1b
Creating, Graphing, and Interpreting Linear Functions	A.CED.2, A.REI.10, F.BF.1a, F.IF.4, F.IF.5, F.IF.7a, F.LE.1a, F.LE.1b, F.LE.2, F.LE.5
Identifying the Effects of Transforming Linear Functions	F.BF.3
Fitting Linear Functions to Bivariate Data	S.ID.6a, S.ID.6b, S.ID.6c, S.ID.7, S.ID.8, S.ID.9, 8.SP.1, 8.SP.2, 8.SP.3, 8.SP.4
Comparing the Properties of Linear Functions	F.IF.9
Creating and Solving Systems of Linear Equations	A.REI.5, A.REI.6, A.REI.11, A.CED.3, 8.EE.8a, 8.EE.8b, 8.EE.8c
Creating and Graphing Systems of Linear Inequalities	A.REI.12, A.CED.3
Creating Equivalent Linear Expressions and Interpreting Their Structure	A.SSE.1a, A.SSE.1b, A.SSE.2
Unit 2: Exponential Equations and Functions	
Creating Equivalent Expressions Using Exponents and Interpreting Their Structure	A.SSE.1a, A.SSE.1b, A.SSE.2, A.SSE.3c, 8.EE.1, 8.EE.3, 8.EE.4
Creating and Using Exponential Equations in One Variable to Solve Problems	A.CED.1, F.IF.2
Recognizing Geometric Sequences as Exponential Functions	F.LE.2, F.IF.3
Calculating and Identifying Average Rate of Change for Exponential Functions	F.IF.6, F.LE.1a, F.LE.1c
Creating, Graphing, and Interpreting Exponential Functions	A.CED.2, A.REI.10, F.BF.1a, F.IF.2, F.IF.4, F.IF.5, F.LE.1a, F.LE.1c, F.LE.2, F.LE.5
Fitting Exponential Functions to Bivariate Data	S.ID.6a, S.ID.6b
Comparing the Properties of Functions	F.IF.9
Solving Equations and Simultaneous Equations Using Intersection Points	A.REI.11
Unit 3: Quadratic Equations and Functions	
Performing and Understanding Operations on Rational and Irrational Numbers	N.RN.3

Creating Equivalent Polynomial Expressions and Interpreting Their Structure	A.APR.1, A.SSE.1a, A.SSE.1b, A.SSE.2, A.SSE.3a, A.SSE.3b
Creating and Using Quadratic Equations in One Variable to Solve Problems	A.CED.1, A.CED.4, A.REI.1, A.REI.4a, A.REI.4b, 8.G.9
Calculating Average Rate of Change for Quadratic Functions	F.IF.6, F.LE.3
Creating, Graphing, and Interpreting Quadratic Functions	A.APR.3, A.CED.2, A.REI.10, F.BF.1a, F.IF.2, F.IF.4, F.IF.5, F.IF.7a, F.IF.8a
Identifying the Effects of Transforming Quadratic Functions	F.BF.3
Fitting Quadratic Functions to Bivariate Data	S.ID.6a, S.ID.6b
Comparing the Properties of Functions	F.IF.9
Solving Equations and Simultaneous Equations Using Intersection Points	A.REI.11
Performing and Understanding Operations on Rational and Irrational Numbers	N.RN.3
Unit 4: Special Nonlinear Functions	
Graphing and Interpreting Absolute Value Functions	F.IF.2, F.IF.4, F.IF.5, F.IF.7b
Graphing and Interpreting Piecewise Functions and Step Functions	F.IF.2, F.IF.4, F.IF.5, F.IF.7b
Graphing and Interpreting Square Root and Cubed Root Functions	F.IF.2, F.IF.4, F.IF.5, F.IF.7b
Comparing the Properties of Functions	F.IF.9
Solving Equations and Simultaneous Equations Using Intersection Points	A.REI.11

Standards for Mathematical Practice	Student Friendly Language
1. Make sense of problems and persevere in solving them. 	<ul style="list-style-type: none"> I can try many times to understand and solve a math problem.
2. Reason abstractly and quantitatively. 	<ul style="list-style-type: none"> I can think about the math problem in my head, first.
3. Construct viable arguments and critique the reasoning of others. 	<ul style="list-style-type: none"> I can make a plan, called a strategy, to solve the problem and discuss other students' strategies too.
4. Model with mathematics. 	<ul style="list-style-type: none"> I can use math symbols and numbers to solve the problem.
5. Use appropriate tools strategically. 	<ul style="list-style-type: none"> I can use math tools, pictures, drawings, and objects to solve the problem.
6. Attend to precision. 	<ul style="list-style-type: none"> I can check to see if my strategy and calculations are correct.
7. Look for and make use of structure. 	<ul style="list-style-type: none"> I can use what I already know about math to solve the problem.
8. Look for and express regularity in repeated reasoning. 	<ul style="list-style-type: none"> I can use a strategy that I used to solve another math problem.

Standards for Mathematical Practice

Parents' Guide

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. As your son or daughter works through homework exercises, you can help him or her develop skills with these Standards for Mathematical Practice by asking some of these questions:

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

- What are you solving for in the problem?
- Can you think of a problem that you have solved before that is like this one?
- How will you go about solving it? What's your plan?
- Are you making progress toward solving it? Should you try a different plan?
- How can you check your answer? Can you check using a different method?

2. Reason abstractly and quantitatively.

- Can you write or recall an expression or equation to match the problem situation?
- What do the numbers or variables in the equation refer to?
- What's the connection among the numbers and the variables in the equation?

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

- Tell me what your answer means.
- How do you know that your answer is correct?
- If I told you I think the answer should be (offer a wrong answer), how would you explain to me why I'm wrong?

4. Model with mathematics.

- Do you know a formula or relationship that fits this problem situation?
- What's the connection among the numbers in the problem?
- Is your answer reasonable? How do you know?
- What does the number(s) in your solution refer to?

5. Use appropriate tools strategically.

- What tools could you use to solve this problem? How can each one help you?
- Which tool is more useful for this problem? Explain your choice.
- Why is this tool (the one selected) better to use than (another tool mentioned)?
- Before you solve the problem, can you estimate the answer?

6. Attend to precision.

- What do the symbols that you used mean?
- What units of measure are you using? (for measurement problems)
- Explain to me (a term from the lesson).

7. Look for and make use of structure.

- What do you notice about the answers to the exercises you've just completed?
- What do different parts of the expression or equation you are using tell you about possible correct answers?

8. Look for and express regularity in repeated reasoning.

- What shortcut can you think of that will always work for these kinds of problems?
- What patterns) do you see? Can you make a rule or generalization?