



## Course Overview

Algebra 1 course is designed to equip students with the skills and enduring understandings necessary to solve one- and multi-step equations and linear inequalities, graph and interpret linear functions, solve systems of equations and inequalities, work with exponential and quadratic functions, perform polynomial operations, analyze data, and understand word problems by forming and solving equations that model them.

## Unit One

**Getting Started with Algebra and Single-Variable Equations**

Time Frame

30 days

## Unit Two

**Exploring Linear Functions**

Time Frame

33 days

## Unit Three

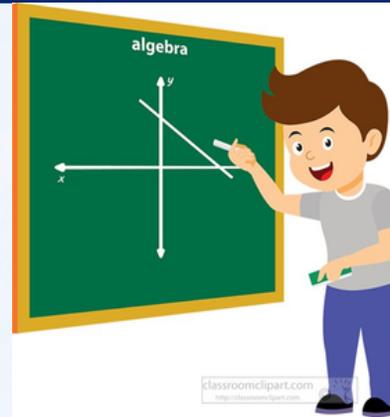
**Working with Multiple Linear Relationships (Systems of Equations)**

Time Frame

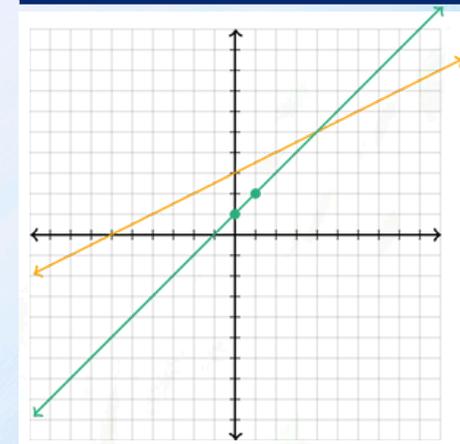
30 days

$$2 + \square = 5$$

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## Focus of the Unit

**Get started with algebra, real numbers, and solving one-variable equations/inequalities**

## Focus of the Unit

**Explore linear functions, graphing lines, modeling relationships, transformations, and piecewise functions**

## Focus of the Unit

**Work with systems of linear equations and inequalities, including solving methods**

Course Title

# Algebra I



# INNOVATIVE ARTS ACADEMY

Course Overview

Algebra 1 course is designed to equip students with the skills and enduring understandings necessary to solve one- and multi-step equations and linear inequalities, graph and interpret linear functions, solve systems of equations and inequalities, work with exponential and quadratic functions, perform polynomial operations, analyze data, and understand word problems by forming and solving equations that model them.

## Unit Four

Working with Polynomials

Time Frame

34 days

## Unit Five

Exploring Curved Relationships  
(Quadratic Functions)

Time Frame

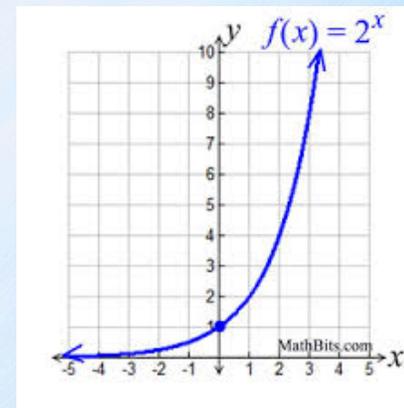
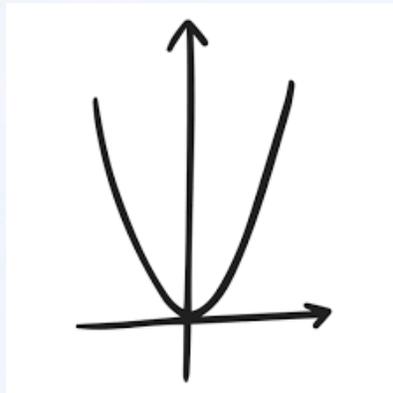
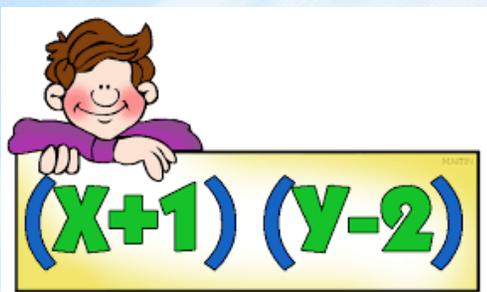
30 days

## Unit Six

Growing and Shrinking Over Time  
(Exponential Functions) and  
Analyzing Data

Time Frame

23 days



### Focus of the Unit

Perform operations on polynomials:  
multiplying, adding, subtracting, dividing  
and modeling with polynomial functions

### Focus of the Unit

Explore, analyze, graph, and solve  
quadratic functions and equations;  
model relationships

### Focus of the Unit

Build exponential functions, analyze  
sequences, summarize and interpret  
data distributions

<b>Unit Title</b>	<b>Unit 1: Getting Started with Algebra and Single-Variable Equations</b>
<b>Time Frame</b>	30 days



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	<b>Essential Question</b>
	<ul style="list-style-type: none"> <li>How can algebraic expressions, equations, and inequalities help us represent and solve real-world problems involving a single variable?</li> </ul>

	<b>Focus of the Unit</b>
	<b>Get started with algebra, real numbers, and solving one-variable equations/inequalities</b>

<b>Standards</b>	CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems CC.2.2.HS.D.7 Create and solve one-variable equations and inequalities
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<b>Learning Targets</b>
I can write, interpret, and simplify linear expression

<b>Learning Targets</b>
I can solve linear equations with grouping symbols and variables on both sides

<b>Learning Targets</b>
I can solve linear inequalities in one variable

<b>Learning Targets</b>
I can use linear equations and inequalities to represent and solve real-world problems

$$2 + \square = 5$$

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<b>Resources</b>	<b>HMH Textbook resources, IXL, Google Drive, Formative Assessments</b>
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**Unit Title**

## Unit 2: Exploring Straight-Line Relationships (Linear Functions)

**Time Frame**

33 days



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### Essential Questions

- How can linear functions represent and describe real-world relationships
- How can we interpret their graphs and properties?



### Focus of the Unit

**Explore linear functions, graphing lines, modeling relationships, transformations, and piecewise functions**

### Standards

CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations  
CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities

### Learning Targets

I can understand the concept of a function

### Learning Targets

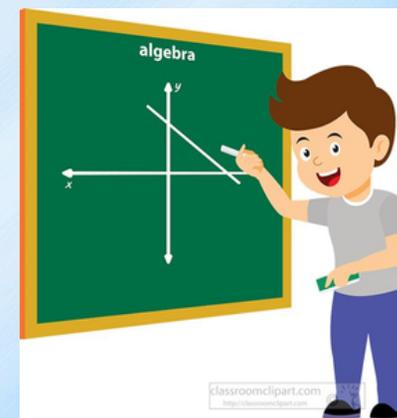
I can compare properties of two functions represented in different ways

### Learning Targets

I can graph functions expressed symbolically and show key features

### Learning Targets

I can write a function that describes a relationship between two quantities



### Resources

**HMH Textbook resources, IXL, Google Drive, Formative Assessments**

<b>Unit Title</b>	<b>Unit 3: Working with Multiple Linear Relationships (Systems of Equations)</b>
<b>Time Frame</b>	30 days



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	<b>Essential Question</b>
	<ul style="list-style-type: none"> <li>How can we use systems of linear equations and inequalities to represent and solve problems involving multiple conditions simultaneously?</li> </ul>

	<b>Focus of the Unit</b>
	<b>Working with Multiple Linear Relationships (Systems of Equations)</b>

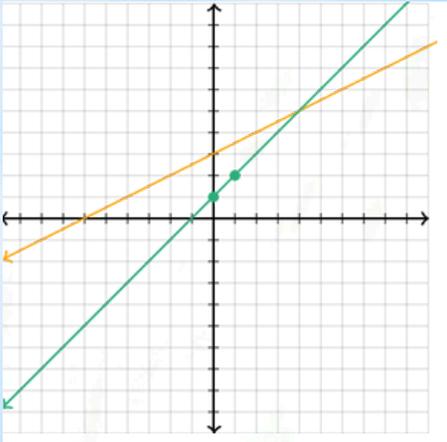
<b>Standards</b>	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities CC.2.2.HS.D.7 Create and solve systems of equations and inequalities to model and solve contextual problems
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<b>Learning Targets</b>
I can solve systems of linear equations by graphing

<b>Learning Targets</b>
I can represent constraints using systems of equations and inequalities

<b>Learning Targets</b>
I can solve systems of linear equations using algebraic methods like substitution or elimination

<b>Learning Targets</b>
I can interpret solutions to systems in the context of modeling problems



<b>Resources</b>	<b>HMH Textbook resources, IXL, Google Drive, Formative Assessments</b>
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<b>Unit Title</b>	<b>Unit 4: Working with Polynomials</b>
<b>Time Frame</b>	34 days



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	<b>Essential Question</b>
	<ul style="list-style-type: none"> <li>How are operations with polynomials similar to operations with integers?</li> </ul>

	<b>Focus of the Unit</b>
	<b>Perform operations on polynomials: multiplying, adding, subtracting, dividing and modeling with polynomial functions</b>

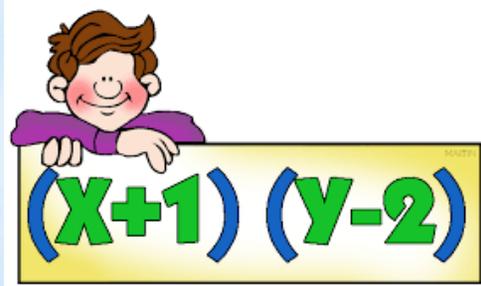
<b>Standards</b>	CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials CC.2.2.HS.D.5 Use polynomial identities to solve problems
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<b>Learning Targets</b>
I can add and subtract polynomial expressions

<b>Learning Targets</b>
I can multiply polynomials

<b>Learning Targets</b>
I can simplify expressions using polynomial operations and exponent rules

<b>Learning Targets</b>
I can understand that polynomials behave similarly to integers under addition, subtraction, and multiplication



<b>Resources</b>	<b>HMH Textbook resources, IXL, Google Drive, Formative Assessments</b>
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<b>Unit Title</b>	<b>Unit 5: Exploring Curved Relationships (Quadratic Functions)</b>
<b>Time Frame</b>	30 days



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	<b>Essential Questions</b>
	<ul style="list-style-type: none"> <li>How can different forms of a quadratic function reveal its properties?</li> </ul>

	<b>Focus of the Unit</b>
	<b>Explore, analyze, graph, and solve quadratic functions and equations; model relationships</b>

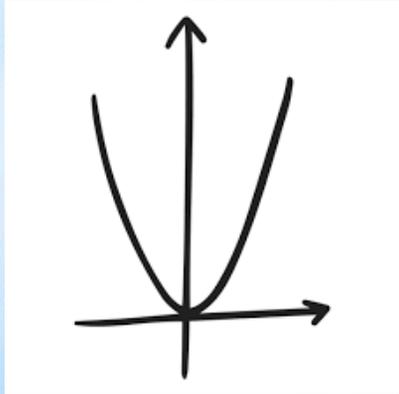
<b>Standards</b>	<p>CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations</p> <p>CC.2.2.HS.C.4 Analyze the effect of parameters on the graphs of functions and make connections between equations and transformed functions</p>
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<b>Learning Targets</b>
I can graph quadratic functions and identify key features like the vertex and intercepts

<b>Learning Targets</b>
I can solve quadratic equations by graphing, factoring, completing the square, and using the quadratic formula

<b>Learning Targets</b>
I can choose and produce equivalent forms of quadratic expressions to reveal properties

<b>Learning Targets</b>
I can solve simple systems of linear and quadratic equations algebraically and graphically



<b>Resources</b>	<b>HMH Textbook resources, IXL, Google Drive, Formative Assessments</b>
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<b>Unit Title</b>	<b>Unit 6: Growing and Shrinking Over Time (Exponential Functions) and Analyzing Data</b>
<b>Time Frame</b>	23 days



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	<b>Essential Questions</b>
	<ul style="list-style-type: none"> <li>How can exponential functions and sequences model patterns of growth and decay over time?</li> <li>How can we use data analysis to understand and interpret real-world information?</li> </ul>

	<b>Focus of the Unit</b>
	<b>Growing and Shrinking Over Time (Exponential Functions) and Analyzing Data</b>

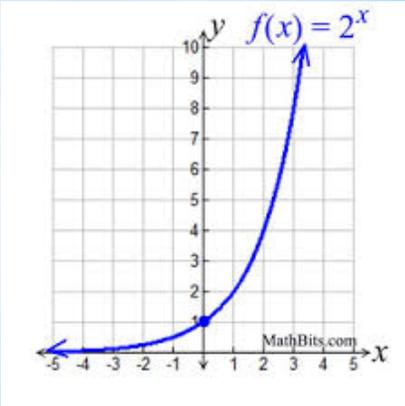
<b>Standards</b>	CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities
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<b>Learning Targets</b>
I can write and graph exponential functions to model growth and decay.

<b>Learning Targets</b>
I can examine graphs of exponential functions and describe their key features like intercepts and end behavior

<b>Learning Targets</b>
I can summarize categorical data in two-way frequency tables and interpret relative frequencies.

<b>Learning Targets</b>
I can recognize that sequences are functions and find explicit rules for arithmetic and geometric sequences



<b>Resources</b>	<b>HMH Textbook resources, IXL, Google Drive, Formative Assessments</b>
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