

ALGEBRA HONORS CURRICULUM GUIDE:

Enduring Understanding:

Math is a system for organizing the world quantitatively. It gives us tools to describe and predict change in order to make informed decisions in our world.

Linear, quadratic, and exponential relationships are algebraic functions which allow us to organize data and make decisions in our world.

Simplifying expressions and solving equations allows us to take a complex situation and make it simple.

Measuring angles and using their properties allow us to navigate through and build our world.

UNIT and ESSENTIAL UNDERSTANDING	STANDARDS:	Assessments:	Frameworks
<ul style="list-style-type: none"> ■ Timeline 	<p>Students will:</p> <ul style="list-style-type: none"> ■ Know how to recognize whether experimental data is linear or nonlinear. ■ Be able to make and interpret qualitative graphs. ■ Know how to pick the appropriate range of an equation that makes sense for a given context. <p>***This unit will be used to review independent and dependent variables, relationships, tables, and graphs.,.</p>	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio 	<p>AI.D.2 AI.P.3</p>
<p>Qualitative Graphing –</p> <ul style="list-style-type: none"> - Why is it important to be able to predict change? - How can you use a pattern to predict outcomes? <ul style="list-style-type: none"> ■ 2 weeks 	<p>Linear Relationships –</p> <ul style="list-style-type: none"> - How can an equation express a relationship we see in the everyday world? - When two related quantities change, how can we tell whether the change is predictable? - What has constant change? - How can math be used to model these changes? - What does it mean to solve an equation? <ul style="list-style-type: none"> ■ <i>Impact – Chapter 1</i> ■ 5 weeks 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio 	<p>AI.N.4 AI.P.1 AI.P.4 AI.P.5 AI.P.6 AI.P.11 AI.P.12</p>

UNIT and ESSENTIAL UNDERSTANDING <ul style="list-style-type: none"> ■ CMP Book ■ Timeline 	STANDARDS: Students will:	Assessments:	Frameworks
Geometry – Lines and Angles - What is an angle? - How do we use an angle? <ul style="list-style-type: none"> ■ <i>Impact – Chapter 2.1/2.2</i> ■ 2 Weeks 	<ul style="list-style-type: none"> ■ Know how to draw a best fit line (linear vs. non-linear, starting point) ■ Be able to measure angles. ■ Know what an angle is (relationship to 360 degrees) ■ Know the relationships of interior and exterior angles of polygons ■ Solve real world problems involving angles. ■ Vocabulary: Adjacent, Acute, Obtuse, Right, Complementary, Supplementary, Vertical, Transversal, Corresponding angles 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio 	8.G.1 8.G.3
Exponents and Exponential Variation – - How do I know if a relationship is exponential? - How does a change in one variable affect the change in another? - How do exponential relationships compare to other relationships? <ul style="list-style-type: none"> ■ <i>Impact Chapter 4</i> ■ 3 Weeks 	<ul style="list-style-type: none"> ■ Be able to calculate values of expressions with positive and negative integer exponents. ■ Understand and use the laws of exponents (with scientific notation). ■ Know what exponential growth is and be able to recognize it in a table, graph, equation ($y=ab^x$ form), and situation. ■ Be able to solve exponential problems in life (particularly interest problems) ■ Be able to simplify radical expressions 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio ■ 	A.I.P.1 A.I.P.4 A.I.P.11 A.I.P.12
Algebraic Expressions <ul style="list-style-type: none"> ■ <i>Impact Chapter 5</i> ■ 4 Weeks 	<ul style="list-style-type: none"> ■ Be able to write equivalent expressions (using area models). ■ Know the distributive, commutative, and associative properties, and how they help us to solve problems. ■ Be able to simplify expressions ■ Be able to multiply binomials ■ Be able to recognize perfect square trinomials and the differences of squares. 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio ■ 	A.I.N.1 A.I.P.2 A.I.P.7 A.I.P.8
Inequalities and Linear Systems <ul style="list-style-type: none"> ■ <i>Impact Chapter 7</i> ■ 4 Weeks 	<ul style="list-style-type: none"> ■ Be able to use algebraic methods to solve linear equations that involve all types of rational numbers. ■ Understand the symbolic representation of inequalities. ■ Be able to solve and graph basic inequalities (one and two variables). ■ Be able to recognize and solve a system of linear equations by graphing, substitution and linear combinations ■ Be able to set up, solve, and graph solutions on a number line for simple and compound inequalities 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio 	A.I.N.1 A.I.N.2 A.I.P.2 A.I.P.10 A.I.P.12

Algebra Honors Units (Page 3)

UNIT and ESSENTIAL UNDERSTANDING <ul style="list-style-type: none"> ■ CMP Book ■ Timeline 	STANDARDS: Students will:	Assessments:	Frameworks
Coordinate Geometry - How can we find the distance between two points? - How does the Pythagorean Theorem help us solve real problems? ■ 2 weeks	<ul style="list-style-type: none"> ■ Be able to find the distance between two points on a coordinate grid using the distance formula ■ Be able to find the midpoint of a line segment on a coordinate grid. ■ Be able to find the area of figures on a coordinate grid 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio 	8.N.7 8.G.4
Absolute Value, Quadratic, and Inverse Relationships - How do I know if a relationship is quadratic? - How does a change in one variable affect the change in another? - How do quadratic relationships compare to other relationships? ■ <i>Impact Chapter 8</i> ■ 6 Weeks	<ul style="list-style-type: none"> ■ Be able to recognize, solve, and graph absolute value equations ■ Be able to recognize inverse relationships ■ Know what a quadratic equation is and be able to recognize it in a table, graph, equation, and situation. ■ Be able to recognize and write the vertex, factored, and standard forms of a quadratic equation 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio 	A1.N.1 A1.N.2 A1.P.1 A1.P.4 A1.P.11
Solving Quadratic Equations ■ <i>Impact Chapter 9</i> ■ 6 Weeks	<ul style="list-style-type: none"> ■ Be able to complete the square and know what it is useful ■ Be able to derive and use the quadratic formula ■ Be able to solve quadratic equations by factoring ■ Be able to recognize and use triangular, rectangular, and diagonal number patterns to find formulas for a variety of problems (painted cube problem). ■ Be able to use quadratic functions to solve gravity and maximizing area problems. 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio ■ 	A1.N.3 A1.N.4 A1.P.9 A1.P.11
Rational Expressions ■ <i>Impact Chapter 12</i> ■ 2 Weeks	<ul style="list-style-type: none"> ■ Be able to work with algebraic fractions (add, subtract, and multiply) 	<ul style="list-style-type: none"> ■ Tests ■ Classwork ■ Problem of the Week ■ Homework ■ Projects ■ Portfolio ■ 	A1.N.1 A1.P.8