Algebra 1A (#0595)

Description: This course will study some of the major algebra readiness topics. Heavy emphasis will be placed on building number sense, including work with integers, fractions, and decimals. Students will also spend considerable time working with algebraic symbols and properties, writing and evaluating mathematical expressions, and solving problems through multiple representations (including tables and graphs). Students who successfully complete Algebra 1A can enroll in either regular education Algebra 1B or special education Algebra 1B.

Credits: 1

Prerequisites:

Textbook/Resources: Larson, R. and Boswell, *Big Ideas Math Algebra 1.* Big Ideas Learning, *2015.* (ISBN 9781608408382)

Required Assessments:

Board Approved:8/18/16

AASD Mathematics Goals for K-12 Students
- **Become mathematical problem solvers.**
- **Learn to reason mathematically.**
- **Learn to communicate mathematically.**
- **Make mathematical connections.**
- **Develop conceptual understanding of mathematics.**
- **Develop procedural fluency.**

- **Learn to use technology app**

AASD Mathematics Standards for Students in Algebra Mathematical Practice Standards
1. Make Sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

	Essential Learning Objective (big Rocks) Domain	Performance Indicators	Assessment
6.EE.B	Reason about and solve one-variable equations and inequalities	6.EE. B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.6:Use variables to represent numbers and write expressions when solving a real-world or	Rubrics

		mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 6.EE.B.7: Solve real-world and mathematical problems by writing and solving equations of the form x+p=q and px=q for cases in which p, q and x are all nonnegative rational numbers. 6.EE.B.8: Write an inequality of the form x>c or x<c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x>c or x<c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	
6.EE.C	**Represent and analyze quantitative relationships between dependent and independent variable**	6.EE.C.9: Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	**Rubrics**
7.RPA Tasks	**Analyze proportional relationships and use them to**	7.RPA.A.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	**Rubrics**

	solve real-world and mathematical problems	7.RPA.A.2: Recognize and represent proportional relationships between quantities 7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems.	
7NS.A	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers	7.NS.A.1 Apply and extend previous understanding of addition and subtraction to add and subtract rational number; represent addition and subtraction on a horizontal or vertical number line diagram. 7.NS.A.2: Apply and extend previous understanding of multiplication and division and of fractions to multiply and divide rational numbers 7.NS.A.3: Solve real-world and mathematical problems involving the four operations with rational numbers.	**Rubrics**
7.EE.A	Use properties of operations to generate equivalent expressions	7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. 7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a+0.05a=1.05a means that "increase by 5%" is the same as "multiply by 1.05."	**Rubrics**
A.CED.1	Create equations and inequalities in	• Create linear, quadratic, rational and exponential equations and inequalities in one	**Rubrics**

	one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	variable and use them in a contextual situation 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.**	• Create equations in two or more variables to represent relationships between quantities. • Graph equations in two variables on a coordinate plane and label the axes and scales.	**Rubrics**
A.CED.3	**Represents constraints by equations or inequalities, and by systems of equations**	• Write and use a system of equations and/or inequalities to solve a real world problem. Recognize that the equations and inequalities represent the constraints of the problem. Use the Objective Equation and	**Rubrics**

	and /or inequalities, and interpret solutions as viable or non – viable options in a modeling context.	the Corner Principle to determine the solution to the problem (linear programming)	
A.CED.4	Rearrange formula to highlight a quantity of interest, using the same reasoning as in solving equations.	• Solve multi-variable formulas or literal equations, for a specific variable.	Rubrics
A.RE1.1	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.	• Assuming an equation has a solution, construct a convincing argument that justifies each step in the solution process. Justifications may include the associative, commutative, and division properties, combining like terms, multiplication by 1, etc.	Rubrics

		Construct a viable argument to justify a solution method.		
AREI.3		Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	• [Solve linear equations in one variable, including coefficients represented by letters.](#) • [Solve linear equations in one variable, including coefficients represented by letters](#).	**Rubrics**