Stage 1 – Desired Results

Department: Mathematics	Course: Algebra I

Course Understandings

Students will understand that . . .

1. Algebra I often connects the concrete to the abstract
2. Algebra I is a universal language using numbers, symbols, and operations with emphasis on the concept of variable and the families of functions; linear, quadratic and exponential. Algebra I relies heavily on the use of transformations in equations through symbolic manipulation
3. Algebra I develops the following problem-solving strategies; logical reasoning, organization, classification, and graphing

Course Essential Questions

1. Which problem solving strategy should I use?
2. Is my answer reasonable?
3. What is a symbol? What is a rule? How do they help us?

Course Achievement Targets

Knowledge *Students will know how to:*	*Students will be able to use their Knowledge to* ***Reason and Solve Problems***	*Students will be able to Demonstrate Mastery of* ***Performance Skills***	*Students will be able to* ***Create Quality Projects***
K1. properties of operations, e.g. commutative, associative, distributive K2. first degree equations, inequalities, and systems of solving, graphing and analyzing K3. how to add, subtract, multiply, divide and raise to a power and factor polynomials K4. recognize special factoring patterns K5. the three methods of solving quadratic equations: factoring, graphing, and the quadratic formula K6. basic operations of radicals and the Pythagorean Theorem K7. special Right Triangles, Pythagorean Triples K8. basic Formulas: area, perimeter and volume K9. solving proportions	R1. draw a detailed graph and analyze quadratic functions R2. derive equations through a visual inspection of the graph, including linear, quadratic and exponential R3. use properties of geometric figures to solve problems R4. predict and describe a result of transformations R5. find approximate solutions to problems involving square roots R6. estimate the reasonableness of computations and solutions	S1. perform Matrix operations S2. simplify numerical expressions S3. perform basic operations on polynomials S4. find solutions to quadratic equations using factoring, graphing, and quadratic formula S5. solve and model solutions of linear equations and inequalities, absolute value, quadratic and exponential equations S6. select, create and interpret appropriate models for data S7. approximate a line of best fit	P1. See other columns. Products are at the option of teacher with a minimum of one per semester.