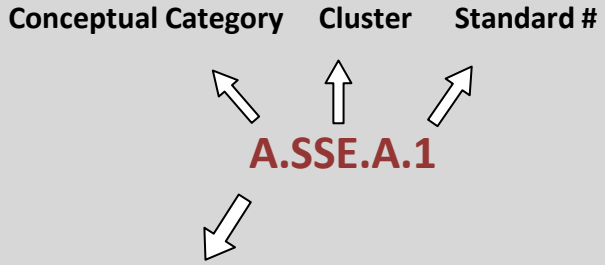
Campbell County Schools
Algebra IA
1st Nine Weeks

Mathematical Practices:

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.

Common Core Coding Explanation:



Domains Examples:
SSE- Seeing Structure in Expressions
REI- Reasoning with Equations & Inequalities
CED- Creating Equations that Describe

Domain	Common Core State Standard	Aligned Activities		Aligned Lessons
Number and Quantity: Quantities	Reason quantitatively and use units to solve problems: N-Q.A.1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays N-Q.A.2. Define appropriate quantities for the purpose of descriptive modeling. N-Q.A.3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.			

Number and Quantity Overview: The Real Number System	**Use properties of rational and irrational numbers.** N.RN.B.3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.			
Algebra: Arithmetic with Polynomials and Rational Expressions	Perform arithmetic operations on polynomials: A.APR.A.1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.			
Algebra: Seeing Structure in Expressions	A-SSE.A.1. Interpret expressions that represent a quantity in terms of its context. a) A-SSE.A.1a. Interpret parts of an expression, such as terms, factors, and coefficients. b) A-SSE.A.1b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.			

Algebra: Creating Equations	Create equations that describe numbers or relationships: A-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions*. A-CED.A.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. A-CED.A.3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods*. A-CED.A.4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R*.			

Algebra: Reasoning with Equations and Inequalities	A.REI.A.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. Construct a viable argument to justify a solution method.			
Algebra: Reasoning with Equations and Inequalities	A.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters			

Algebra: Reasoning with Equations and Inequalities	Represent and Solve Equations Graphically: A.REI.D.10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). A.REI.D.11. Explain why the x-coordinates of the points where the graphs of the equations *y = f(x)* and *y = g(x)* intersect are the solutions of the equation *f(x) = g(x)*; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where *f(x)* and/or *g(x)* are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.★ *Note: Distinguish between functions versus non-functions with these graphs instead of specific characteristics of these function types.			
Functions: Interpreting Functions	Understand the concept of a function and use function notation: F.IF.A.1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f(x)* denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y = f(x)*.			

	F.IF.A.2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context F.IF.A.3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1.*			
Functions: Interpreting Functions	Interpret functions that arise in applications in terms of the context: F.IF.B.4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*★ F.IF.B.5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*★ F.IF.B.6. Calculate and interpret the average rate of change of a function (presented symbolically or as a			

	table) over a specified interval. Estimate the rate of change from a graph.★			
Functions: Interpreting Functions	Analyze functions using different representations: F.IF.C.7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★ a) F.IF.C.7a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b) F.IF.C.7b. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. F.IF.C. 9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*			