# Campbell County Schools
## Algebra IB
## 3rd 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:**

Conceptual Category    Cluster    Standard #

## A.SSE.A.1

**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 Textbook Lessons |
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| **Algebra: Seeing Structure in Expressions** | **Write expressions in equivalent forms to solve problems.** <br> A.SSE.B.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★ <br>     c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15t can be rewritten as (1.151/12)12t ≈ 1.01212t to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.* | | | |

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| **Number and Quantity: The Real Number System** | **Extend the properties of exponents to rational exponents** **N.RN.A2** Rewrite expressions involving radicals and rational exponents using the properties of exponents. | | | |
| **Algebra: Seeing Structure in Expressions** | **Interpret the structure of expressions.** A.SSE.A.1. Interpret expressions that represent a quantity in terms of its context.★     b. 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.* | | | |
| **Functions: Linear, Quadratic, and Exponential Models** | Construct, compare, and interpret linear expressions to exponential models to solve problems: F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.     a) F.LE.A.1a. Prove that linear functions grow by equal differences over equal intervals; and that exponential functions grow by equal factors over equal intervals.     b) F.LE.A.1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.     c) F.LE.A.1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. F.LE.A.2 Construct linear and exponential functions, including arithmetic ~~and geometric~~ sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). F.LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, ~~quadratically, or (more generally) as a polynomial function~~ F.LE.B.5 Interpret the parameters in a linear or exponential function in terms of a context | | | |
| **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.** | | | |

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| **Algebra: Seeing Structure in Expressions** | **Interpret the structure of expressions.**<br>A.SSE.A.1. Interpret expressions that represent a quantity in terms of its context.★<br>    a) A.SSE.A.1a. Interpret parts of an expression, such as terms, factors, and coefficients.<br>    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.*<br>A.SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2) (x2 + y2).* | | | |
| **Algebra: Arithmetic with Polynomials and Rational Expressions** | **Perform arithmetic operations on polynomials.**<br>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.<br>Understanding the relationship between zeros and factors of polynomials<br>A.APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. | | | |

| Functions: Linear, Quadratic, and Exponential Models | F.LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly; quadratically, or (more generally) as a polynomial function | | | |
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