Unwrapping the Standards

**Content Area:** Algebra 1 **Completed By:**  Stephanie Whitehair

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-SSE.A.1 Interpret expressions that represent a quantity in terms of its context. | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| a. Interpret parts of an expression, such as terms, factors, and coefficients.  b. Interpret expressions by viewing one or more of their parts as a single entity. | Write algebraic expressions  Use the order of operations to evaluate expressions  Factor Trinomials in the form ax²+bx+c  Factor perfect square trinomials  Factor by grouping | DOK 1  DOK 2 |
| Vocabulary:  Variable, algebraic expression, numerical expression, power, exponent, base, simplify, acronym PEMDAS, factor, trinomial | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-SSE.B Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| a. Factor a quadratic expression to reveal the zeros of the function it defines.  b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. | Solve quadratic equations by factoring  Solve quadratic equations by completing the square | DOK 1  DOK 1 |
| Vocabulary:  Zero Product Property, completing the square | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-APR.A.1 Perform arithmetic operations on polynomials. | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| 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. | To classify, add, and subtract polynomials  To multiply by a polynomial  To factor a monomial from a polynomial  To multiply two binomials or a binomial by a trinomial  To find the square of a binomial and to find the product of a sum and difference | DOK 1 |
| Vocabulary:  Polynomial, degrees of a monomial. Standard form of a polynomial, Distributive Property, binomial, trinomial, product | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-APR.B.3 Understand the relationship between zeros and factors of polynomials. | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| 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. Focus on quadratic and cubic polynomials in which linear and quadratic factors are available. | To solve quadratic equations by graphing, using square roots, and factoring  Use zeros to construct a rough graph (supplemental materials needed, this is not in the book) | DOK 1  DOK 2  When applying to real world applications |
| Vocabulary:  Roots of the equation, zero of the function | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-CED.A.1 Create equations that describe numbers or relationships. | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| Create equations and inequalities in one variable and use them to solve problems. Include problem-solving opportunities utilizing real-world context. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step). | To solve equations using tables and mental math  To solve one-step equations in one variable  To solve two-step equations in one variable  To solve multi-step equations in one variable  To solve equations with variables on both sides  To use multiplication or division to solve an inequality  To solve multi-step inequalities  To solve equations and inequalities involving absolute value  To find union and intersection of sets  To solve a quadratic equation by factoring, graphing, using square roots, completing the square  To solve rational equations and proportions | DOK 1  DOK 2  When applying to real world applications |
| Vocabulary:  Equation, open sentence, equivalent equations, addition property of equality, subtraction property of equality, isolate, inverse operations, multiplication property of equality, division property of equality, inequality, solution of an inequality, absolute value, union, intersection, null set | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-CED.A.2 | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. | To use tables, equations, and graphs to describe relationships  To write equations in the form of direct variation y=kx  To write and graph equations in slope intercept form, point slope form and standard form | DOK 1 |
| Vocabulary:  Linear equation, point slope, y-axis, x-axis, x and y intercepts | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-CED.A.4 | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| 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. | To rewrite and use literal equations and formulas | DOK 2 |
| Vocabulary: | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-REI.B.3 | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. | To solve two step equations, multistep equations, equations with variables on both sides, literal equations  To solve and apply proportions  To use addition, subtraction, multiplication, and division to solve inequalities  To solve multistep inequalities  To work with sets  To solve compound inequalities |  |
| Vocabulary:  Proportion, inequality, inverse operations, compound inequality | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:**  A1.A-REI.B.4 | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
| Solve quadratic equations in one variable.  a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x – k) 2 = q that has the same solutions. Derive the quadratic formula from this form.  b. Solve quadratic equations by inspection (e.g., x2 = 49), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Focus on solutions for quadratic equations that have real roots. Include cases that recognize when a quadratic equation has no real solutions. | a.  To solve equations by completing the square  To solve quadratic equations using the quadratic formula  To find the number of solutions of a quadratic equation  b. |  |
| Vocabulary:  Completing the square, | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |

|  |  |  |
| --- | --- | --- |
| **Essential Standard:** | | |
| **Skills and Concepts** | | |
| 1. Students will know…(the concepts that support the standard) | 2. And be able to….(the skills students are able to demonstrate after instruction) | 3. Level of thinking (from one of the 3 frameworks listed on below) |
|  |  |  |
| Vocabulary: | | |

|  |  |  |
| --- | --- | --- |
| **Bloom’s Taxonomy** | **Marzano’s Taxonomy** | **Webb’s Depth of Knowledge** |
| * Remembering * Understanding * Applying * Analyzing * Evaluating * Creating |  Level 1: Retrieval   Level 2: Comprehension   Level 3: Analysis   Level 4: Knowledge utilization   Level 5: Metacognition   Level 6: Self-System thinking | * Recall and reproduction (DOK 1) * Skills and Concepts (DOK 2) * Strategic thinking/complex reasoning (DOK 3) * Extended thinking/reasoning (DOK 4) |