

## Unit A - Rebuilding Algebra Skills

### Overview

This brief unit is a review of Pre-Algebra and Algebra 1 topics that are integral for succeeding in Algebra 2. Care should be given to teach each topic in a way that illuminates the reasons behind the methodology. For example, students should understand why, when terms are on the same side of an equations, they are combined, but when on opposite sides of the equation, we need to add the opposite to eliminate a term from one side, or why absolute value equations may have two solutions, one, or no solutions at all.

**21<sup>st</sup> Century Capacities:** Analyzing

### Stage 1 - Desired Results

<p><b>ESTABLISHED GOALS/ STANDARDS</b></p> <p><b>MP 1</b> Make sense sense of problems and persevere in solving them  <b>MP2</b> Reason abstractly and quantitatively  <b>MP7</b> Look for and make use of structure</p> <p>CCSS.MATH.CONTENT.HSN.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.</p> <p>CCSS.MATH.CONTENT.HSN.Q.A.2                  Define appropriate quantities for the purpose of descriptive modeling.  <b>Interpret the structure of expressions.</b></p> <p>CCSS.MATH.CONTENT.HSA.SSE.A.1                  Interpret expressions that represent a quantity in terms of its context.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center; background-color: #D3D3D3;"><b>Transfer:</b></td> </tr> <tr> <td colspan="2" style="padding: 5px;"><i>Students will be able to independently use their learning in new situations to...</i></td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <ol style="list-style-type: none"> <li>1. Manipulate equations/expressions or objects to create order and establish relationships.</li> <li>2. Represent and interpret patterns in numbers, data and objects.</li> <li>3. Make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution. (Analyzing)</li> </ol> </td> </tr> <tr> <td colspan="2" style="text-align: center; background-color: #D3D3D3;"><b>Meaning:</b></td> </tr> <tr> <td style="width: 50%; padding: 5px; vertical-align: top;"> <p><b>UNDERSTANDINGS:</b> <i>Students will understand that:</i></p> <ol style="list-style-type: none"> <li>1. Mathematicians understand that placing a problem in a category gives one a familiar approach to solving it.</li> <li>2. Mathematicians examine the impact of operations and how they relate to one another.</li> <li>3. Mathematicians flexibly use different tools, strategies, and operations to build conceptual knowledge or solve problems.</li> </ol> </td> <td style="width: 50%; padding: 5px; vertical-align: top;"> <p><b>ESSENTIAL QUESTIONS:</b> <i>Students will explore &amp; address these recurring questions:</i></p> <ol style="list-style-type: none"> <li>A. What have I seen in the past that might help me now?</li> <li>B. How do operations relate to one another?</li> <li>C. What does the solution tell me?</li> <li>D. How else might I solve this problem?</li> <li>E. What is another to represent this number?</li> </ol> </td> </tr> </table>	<b>Transfer:</b>		<i>Students will be able to independently use their learning in new situations to...</i>		<ol style="list-style-type: none"> <li>1. Manipulate equations/expressions or objects to create order and establish relationships.</li> <li>2. Represent and interpret patterns in numbers, data and objects.</li> <li>3. Make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution. (Analyzing)</li> </ol>		<b>Meaning:</b>		<p><b>UNDERSTANDINGS:</b> <i>Students will understand that:</i></p> <ol style="list-style-type: none"> <li>1. Mathematicians understand that placing a problem in a category gives one a familiar approach to solving it.</li> <li>2. Mathematicians examine the impact of operations and how they relate to one another.</li> <li>3. Mathematicians flexibly use different tools, strategies, and operations to build conceptual knowledge or solve problems.</li> </ol>	<p><b>ESSENTIAL QUESTIONS:</b> <i>Students will explore &amp; address these recurring questions:</i></p> <ol style="list-style-type: none"> <li>A. What have I seen in the past that might help me now?</li> <li>B. How do operations relate to one another?</li> <li>C. What does the solution tell me?</li> <li>D. How else might I solve this problem?</li> <li>E. What is another to represent this number?</li> </ol>
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## Algebra II Level 3 Curriculum

	<b>Acquisition:</b>	
	<i>Students will know...</i>	<i>Students will be skilled at...</i>
<p>CCSS.MATH.CONTENT.HSA.SSE.A.1.A Interpret parts of an expression, such as terms, factors, and coefficients.</p> <p>CCSS.MATH.CONTENT.HSA.SSE.A.1.B Interpret complicated expressions by viewing one or more of their parts as a single entity.</p> <p>CCSS.MATH.CONTENT.HSA.SSE.A.2 Use the structure of an expression to identify ways to rewrite it.</p> <p>CCSS.MATH.CONTENT.HSA.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.</p> <p>CCSS.MATH.CONTENT.HSA.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.</p> <p>CCSS.MATH.CONTENT.HSA.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</p> <p>CCSS.MATH.CONTENT.HSA.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p>CCSS.MATH.CONTENT.HSF.BF.A.1 Write a function that describes a relationship between two quantities.*</p>	<ol style="list-style-type: none"> <li>1. Unless told otherwise, answers should be given as an exact answer, so a repeating decimal should be indicated or left as a decimal.</li> <li>2. Why there are two solutions to an absolute equation</li> <li>3. The meaning of the word solution, and how to tell if an equation has one, multiple, infinite, or no solutions.</li> <li>4. Vocabulary: rational, irrational, terms, variables, base, exponents, equation, expression, cube, squared, product, inequality, absolute value</li> </ol>	<ol style="list-style-type: none"> <li>1. Simplifying expressions using the order of operations</li> <li>2. Identifying properties of commutative, inverse and distributive</li> <li>3. Rewrite an expression using exponents</li> <li>4. Evaluating an expression using substitution</li> <li>5. Write algebraic expressions from words</li> <li>6. Solving equations - including literal</li> <li>7. Checking solutions to equations</li> <li>8. Modeling with equations and inequalities</li> <li>9. Solving inequalities</li> <li>10. Solving absolute value equations</li> </ol>