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| **Learning Target(s):**   1. Understand solving equations as a process, and solve equations and inequalities in one variable.  * I can explain how each step taken, when solving an equation or inequality in one variable, creates an equivalent equation or inequality that has the same solution(s) as the original. | | | **Pacing:**   * 2 Days | |
| **In previous grades, students have:**   * In 7th Grade students develop an understanding of rational numbers and work with expressions and linear equations. * In 6th Grade students write interpret and use expressions and equations. * In 4th Grade students develop an understanding of fluency with multi-digit multiplication and dividing to find quotients with multi-digit dividends. * In 2nd Grade students build fluency with addition and subtraction. | | | | |
| **Success Criteria** (to be able to do this, students must learn and understand…):   * Understand how to solve equations where the unknown appears once or more than once * Understand how to solve equations in more than one way. * Understand how to recognizing equivalent expressions. | | **Performance Task** (students will show they can do this by):   * Solving equations where the unknown appears once or more than once. * Solving equations in more than one way. | | |
| **Suggested Activity:**  This lesson is structured in the following way:   * Before the lesson, students work individually on the task. You then review their work and create questions for students to answer in order to improve their solutions. * During the lesson, students work alone on a new task involving interpreting and solving equations. They discuss their solutions in small groups before producing a joint solution. In the same small groups students evaluate some sample solutions to the task. * In a whole-class discussion, students explain and compare the alternative solution strategies they have seen and used. * Finally, in a follow-up lesson, students use what they have learned to revise their work on artifact/solutions.   Activity Link: <https://www.map.mathshell.org/lessons.php?unit=9215&collection=8>  **Re-teaching:**  Student Focus Questions and Thinking Guide:   * Have you explained how you arrived at your answer? * Are both sides of your equation equal? How do you know? * Is the equation linear or quadratic? * What do you know about these types of equations? * How can you check that your answer is correct? * Substitute your final answer into each side of the equation… What do you get?   *Try not to make suggestions that move students towards a particular approach to this task. Instead, ask questions that help students to clarify their thinking and encourage checking:*  **Extension:**   * If the unknown is on both sides of the equation, how can you eliminate it from one side? * Explain how you know which operation to undo first. * For the first solution, are the operations you used in the exact reverse order to that used to build it? * If the above question is not true, why not? * What was your strategy for solving this problem? * What do you know now that you did not know before? * Would you continue to use this strategy on similar problem types? * Are there any other approaches you could try?   Peer Reflection/Assessment:   * If you are visiting another group, read through their work. If their work makes sense, explain it in your own words. If the work does not make sense to you, ask for clarification. * If you are staying at your desk, either carefully listen to the explanation and check it matches your own thinking or answer the visiting students’ questions. * You may then want to consider improving your idea/position. | | | | |
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| **EL Accommodations:**   * Peer support. * Discourse strategies. * Reading and writing prompts * Students explain their reasoning to other students and listen carefully to the explanations of others. * Additionally, they must attend to any similarities or differences between methods. * Students must interpret sentences and relate them to equivalent symbolic expressions. * Provide written instructions. * Provide a vocabulary list. | | | | |
| **Vocabulary:**   * Real Number * Rational Expression * Linear * Expression * Equation * Domain * Range * Functional Notation * Like Terms | **Aligned Resources:**   * **Lesson PDF:** <https://www.map.mathshell.org/download.php?fileid=1722> * **Lesson Slide Set:**   <https://www.map.mathshell.org/download.php?fileid=1723> | | | **Blooms:** Analyze  **DOK:** 2  **21st Century Skills:**  Learning and Innovation Skills:   * Creativity and Innovation * Critical Thinking and Problem Solving * Communication * Collaboration   Information, Media and Technology Skills:   * Information Literacy * Media Literacy * Technology Skills |
| **Test Item Exemplars:**  Students will perform the “Building and Solving Complex Equations” activity on (pg. T-2 and S-1 of linked MAP Mathshell lesson)… Then, after individual and peer reflections, they shall create their own rationale statements for each exemplar with corrected procedures and conclusions. | | | | |