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| **Learning Target(s):**   1. Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.  * I can solve equations using orders of operations. * I can interpret the structure of algebraic expressions. * I can solve systems of equations. | | | **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 a problem using the order of operations. * Understand how to solve a problem using two linear equations with two variables. * Understand how to recognizing equivalent expressions. | | **Performance Task** (students will show they can do this by):   * Solving a problem using two linear equations with two variables. * Interpreting the meaning of algebraic expressions. | | |
| **Suggested Activity:**  In this lesson students solve a real-world problem, use multiple methods for systems of equations and present solutions on a poster. Students make a graph and write a system of equations to model the problem situation. Have students complete the tasks on the activity sheet independently and then work in small groups to present their solution(s) to the class. Students solve systems of 2-by-2 linear equations using tables, graphs and substitution. The lesson builds on previous experiences with problem situations represented and solved using a system of equations. Students practice more formal strategies for representing and solving systems of equations.  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 two equations in two variables. 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/solution.   Activity Link: <https://www.yumpu.com/en/document/view/34505443/i-can-do-this-systems-of-equations-a-grade-eight-ode-ohio-/20>  **Re-teaching:**  Student Focus Questions and Thinking Guide:   * Can you organize your work in a table? * Would someone unfamiliar with your work easily understand your solution? * Have you explained how you arrived at your answer? * How can you check that your answer is correct?   *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:**   * 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 must interpret sentences and relate them to equivalent symbolic expressions. * 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. | | | | |
| **Vocabulary:**   * Linear * Expression * Equation * Domain * Range * Functional Notation * Solution Point * Intersection * Parallel * Collinear * Dependent * Independent * Inconsistent | **Aligned Resources:**   * **Lesson Website:** <https://www.yumpu.com/en/document/view/34505443/i-can-do-this-systems-of-equations-a-grade-eight-ode-ohio-/20> * **Embedded lesson PDF:**   [Analyze and Solve Systems of Linear Equations](Alg%208th%20U4A6%20(8th%20Supplemntals).pdf)   * **Alternate Resources:**   <https://mste.illinois.edu/courses/ci302sp02/students/pschroer/UnitPlan/unitplan.html>  <https://tapintoteenminds.com/3act-math/counting-candy-sequel/> | | | **Blooms:** Apply  **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:**  Open Exploration Activity (Ongoing Formative Assessment). | | | | |