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| Date: | | | Duration of Lesson: 30 minutes | |
| Title of Unit: Equations | | | Title of Lesson: Discovering Combing like terms | |
| Lesson Objectives: Identify like terms and combine like terms | | | | |
| Groupings (e.g., whole class, small groups, co-teaching): Whole group | | | | |
| Skills & Standards:  [CCSS.MATH.CONTENT.6.EE.A.1](http://www.corestandards.org/Math/Content/6/EE/A/1/)   Write and evaluate numerical expressions involving whole-number exponents.  [CCSS.MATH.CONTENT.6.EE.A.2](http://www.corestandards.org/Math/Content/6/EE/A/2/)   Write, read, and evaluate expressions in which letters stand for numbers.  [CCSS.MATH.CONTENT.6.EE.B.6](http://www.corestandards.org/Math/Content/6/EE/B/6/)   Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.  [CCSS.MATH.CONTENT.7.NS.A.1](http://www.corestandards.org/Math/Content/7/NS/A/1/)  Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. | | | | |
| **Progression of Learning & Teaching** | | | | |
| Opener: | * Today we are going to learn how would you solve 3x+4 –2x +12= 24. How can I represent this equation using skittles to represent each term? * Have student volunteer read objective out loud to class and discuss with students what do they know and wonder about this objective and the language? * We will have just finished two step equations and will start the discussion using the word term * Review definitions of term, coefficient, exponents variables which was covered during two step equation lessons. Review should be students turn and talk and come up with an agreed definition, then ask for volunteers to share out their definitions. | | | ***Points to Remember*** |
| Activities & Tasks: | **Instructional Lesson: (include as much detail as needed for others to understand the lesson)**   * Student: Ask students to write out what they have of each starburst & skittles. * I Do: Establish how we can group. We can group into two groups, or each color, or each color and candy. Give each skittle a label by their color, for example yellow is the variable y, and for each starburst make it the letter raised to the power of 2. For example, Yellow starburst is the variable y2. Ask students why we might use the color’s first letter rather than spelling out yellow? (Efficient, and the color is a variable representing a value) * We Do: Have the students check their neighbors for accuracy as far as quantity of each labeled candy for the variable. Then combine their counts with a neighbor. How many do they have combined. Have them share with the class.   + Verify how each student group wrote out their ‘combined’ results. Ideally use a white board for students to write their combined ‘candy’ and show that they used coefficients to combine their results.   + If time allows, have the pair add one more group and show using variable.   + Go back to the initial problem and solve with the students. Showing them that they combine like terms to solve. * You Do**:**Have an exit ticket for the students to answer with two questions. One with exponents and one without.   + Exit ticket combine like terms when possible     - 4X2 + 3X2     - 5Y - 2Y | | | Resources:  Vocabulary:   * Term: piece of an algebraic expression or equation; a number in a sequence or series; a product of real numbers and/or variables. * Combine: adding/subtracting like terms using their coefficients (for variables) or constants to simplify an expression or equation * Like term: Terms with the same variable and same exponent/powers * Coefficient: A letter or number representing a numerical quantity attached to a term (usually at the beginning) * Variable: A letter used to represent a numerical value in equations and expressions * Exponent: The number that denotes repeated multiplication of a term shown as a superscript above that term.       Scaffolding/Differentiation:   * Scaffold during I Do labeling candies: Have students take another skittle color and starburst color and write the variable that would represent that candy- check each students’ response to determine if this step is clear * Scaffold during We Do grouping: Have students hold up their white boards for review. |
| Level of Cognitive Complexity: | ☐ Creating  ☐ Evaluating  ☐ Analyzing | ☐ Applying  ☐ Understanding  ☐ Remembering | |
| Key questions: | * What is the difference between solving and simplifying? * What is a coefficient? * What is a variable? * How can combining like terms help solve equations? * How do you identify like terms? * How many P's are there in 4r+p? | | |
| Closure: | * When we start combining like terms and variables, I need you to remember that each variable represents a unique value and therefore only variables that are the same letter and exponent are ‘like’ and can be combined | | |
| Next Steps: | * The next day we will put formal notes in their notebook * They will also have more examples to work on in class and as homework. * Problems, like the exit ticket, should first confirm students accurately combine like terms then provide problems where students solve the problems. | | | ***Formative Assessment Criteria for Success:***   * I will walk around the room and check understanding and then use an exit ticket for formative understanding. |