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| Date: | | | Duration of Lesson: 25 minutes | |
| Title of Unit: Expressions & Equations | | | Title of Lesson: Introduction to Inequalities | |
| Lesson Objectives: Students will understand that a variable represents an unknown number. Students will understand that solving an inequality, like equations, is the process of answering which value makes the inequality true. However, students will learn that inequalities have multiple solutions. | | | | |
| Groupings (e.g., whole class, small groups, co-teaching): Whole class with teacher and co-teacher. Whole Class Practice followed by independent practice (I do, we do, you do) | | | | |
| Skills & Standards: [CCSS.MATH.CONTENT.6.EE.B.5](http://www.corestandards.org/Math/Content/6/EE/B/5/) and [CCSS.MATH.CONTENT.6.EE.B.6](http://www.corestandards.org/Math/Content/6/EE/B/6/) | | | | |
| **Progression of Learning & Teaching** | | | | |
| Opener: | Warm- Up   1. Define variables in your own words. 2. At a local restaurant a sign states that kids “12 years and under” may order from the kid’s menu. How old can you be to order from the kid’s menu?   3) Fill in the blank with(=, < , > , ≤, or ≥)  2.9 \_\_\_\_ 3.0 0.6 \_\_\_\_ 6 | | | **Points to Remember**  Circulating and checking the warm-up will allow me to identify misconceptions.   1. By asking for a student definition will allow the teacher to identify misconceptions easily. 2. Students will evaluate a “real world” example of inequalities before realizing they are inequalities. When students share answers, they may have different, but correct answers to that problem. Discuss that when reviewing the problem in whole group. 3. This is a quick refresh of the inequalities symbols 6th graders have seen in the past. While reviewing, remind/discuss what the symbols mean. |
| Activities & Tasks: | 1. Warm-Up 2. Number Talk (formative assessment)   Visual Representation using signs commonly seen by students: speed limit sign, theme park height requirement, children’s menu. Discuss what these signs mean as a whole group showing only one sign at a time and giving some thinking time before discussion.  Pose questions after discussions such as ,“If I am 50” tall... is that okay? Can I still ride? Well, what about 60” tall?, etc.” (Later explain that when you are asking those questions you are substituting to see if a solution works)  Again, discuss what this means.  Remind students that the sign isn’t saying that ONLY 48” tall people can ride. That would be one solution, like an equation.  After a few examples, ask if an inequality sentence could be used to represent the solution set.  Show an example where height is represented by a variable and plug in heights to see if they make the inequality is true. h ≥ 48   1. Students will practice writing possible solutions for different inequality examples they are given. The teacher will discuss the different “words” used with each symbol.   Example: Speed limit sign, theme park signs (height limit, height requirement, weight limit), age requirement for movies/trips/groups, etc.   1. The teacher will substitute to find if inequalities are true. 2. Practice problems: The class will work on some problems together. They will be given an inequality and asked what solutions make the inequality true. The teacher will circulate and check (formative assessment) as students are solving a given practice problem. The whole group will review the problem and a few more whole group practice problems will be given. 3. The students who struggled with the practice problems will work with the teacher or co-teacher while the other students begin independent work. 4. IXL practice will be assigned because it is self-checking 5. Closure: Vocabulary Review, Review of EQ and lesson objective 6. Ticket Out the Door (formative assessment)   Which solutions make the inequality m< 24 true?  m= 2 m=24 m=34  Then, explain why that solution works. | | | Resources:  [GeorgiaStandards.org](https://www.georgiastandards.org/georgia-standards/pages/math-6-8.aspx)  [IXL: Solutions to Inequalities](https://www.ixl.com/math/grade-6/solutions-to-inequalities)  Vocabulary:   * Variable- a symbol for a value we don’t know yet. * Inequality- compares two values, showing if one is less than, greater than, or simply not equal to another value. * Solution- a value or values which, when substituted for a variable in an equation, make the equation true. * Equation- a statement that the values of two mathematical expressions are equal (indicated by the sign =). * Less than- when one quantity is smaller than the other quantity. For example, 8 < 10. * Greater than- when one quantity is larger than the other quantity. For example, 10 > 8. * Less than or equal to- the variable or quantity has to be equal to or less than the given limit. * Greater than or equal to- given value is greater than or equal to a particular value * Substitution- putting values where the letters are     Monitoring/Scaffolding:  Monitoring: Circulate and Check Throughout lesson  Scaffolding: Begin at a lower level with warm-up, number talk, then buildup complexity by group practice and independent practice |
| Level of Cognitive Complexity: | ☐ Creating  ☐ Evaluating  ☐ Analyzing | ☐ Applying  ☐ Understanding  ☐ Remembering | |
| Key questions: | * What is an inequality? * How can you determine if solutions make inequalities true? | | |
| Closure: | * Review Essential Question/Objective * Compare and Contrast Equations vs Inequalities * Give small slip of paper with “ticket out the door”   Which solutions make the inequality m< 24 true?  m= 2 m=24 m=34  Then, explain why that solution works. | | |
| Next Steps: | * Evaluate Ticket out the Door Responses to determine next steps * Create groupings if necessary. Revisit/reteach for struggling students. * Advance to graphing inequalities and showing students that numbers included in the graph are solutions to that inequality | | | **Formative Assessment Criteria for Success:**   * Monitoring students by circulating/checking * Reviewing completion of IXL problems (in “analytics” on IXL you can see what types of problems a particular student was getting incorrect) * Check ticket out the door results to reflect and decide next steps |