Friday, June 9, 2017

**Content:** Inequalities (morning) and Geometric Representations of Radicals (afternoon)

**Instructor:** Christy Miller

**Materials**: notecards, black party hats, white party hats, candies, pepper, counters/chips, squares with area of 2, 3, 12, 18 (Christy will provide all)

**Objective(s):** Inequalities: Participants will discuss the importance of inequalities and work on writing grade level appropriate scenarios

Radicals: Participants will make the connection between symbolic and geometric representations of radials and the simplification of radicals

**CCSS Content:**

**Reason about and solve one-variable equations and inequalities.**

[CCSS.MATH.CONTENT.6.EE.B.5](http://www.corestandards.org/Math/Content/6/EE/B/5/)  
Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

[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.6.EE.B.8](http://www.corestandards.org/Math/Content/6/EE/B/8/)  
Write an inequality of the form *x* > *c* or *x* < *c* to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form *x* > *c* or*x* < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

**Expressions and Equations Work with radicals and integer exponents.**

[CCSS.MATH.CONTENT.8.EE.A.2](http://www.corestandards.org/Math/Content/8/EE/A/2/)  
Use square root and cube root symbols to represent solutions to equations of the form *x*2 = *p* and *x*3 = p, where *p* is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.

**The eight Standards for Mathematical Practice are:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**CCSS Practice:**

Inequalities: 2, 3, 6, 7

Radicals: 1, 5, 6

**Warm-Up:** Black hats and white hats (see Warm-ups)

**Lesson Body:**

1. Discussion on the role inequalities have in the classroom.
   1. Do students struggle with them?
   2. Do teachers struggle with them?
   3. What about them make them difficult?
   4. Do the feel irrelevant to our students?
   5. How can we make them more relatable?

1. Read *Creating Inequalities from Real World Experiences*
2. In groups of 2-3, create three inequalities (one on each notecard) from real world experiences using the following instructions.
   1. Two of the scenarios should be answered correctly and one should be answer incorrectly
   2. Side one should have the scenario ONLY.
3. Side two should have the solution as an inequality and also as a graph. (Remember, two of the notecards should be correct, and one should be incorrect.)
4. Discussion of written inequalities and solutions – both correct and incorrect.
5. Discussion on link to both content and practice standards

**Launch After Lunch:** Either continue with Black hats and White hats or Red Hot Chili Peppers (see warmups)

**Lesson Body:** It’s Radical! Activity (adapted from *Radical Thoughts Simplifying Square Roots -* see attached activity)

**Closing (for CAMP):** Discussion on this lesson including 1) how it could be improved via UDL 2)how it could be improved for teachers’ student make-up 3) how SMPs were addressed.

**Assessment:** Exit Ticket

1. I can use the lesson on inequalities in my classroom, but I might change….
2. I can use the lesson on simplifying radicals in my classroom, but I might change…
3. I don’t totally understand…. (list one thing)