

Date: 4/20

Standards:

5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.

Standard for Mathematical Practice:

SMP4: Model with Mathematics

SMP5: Use appropriate tools strategically.

SMP8: Look for and express regularity in repeated reasoning (pattern in adding multiples of 10).

K: Vocabulary: area, base, edge, face, lateral face, parallel, perimeter, polyhedron (polyhedra), prism, unit cube, vertex, volume

U: Students will understand that the type of units used describe what is being measured, and what is being measured has a specific type of unit.

Students will understand that volume is found from measurements of area similarly to how areas are found from measurements of lengths.

D: The students will be able to explain the role of units in geometric measurement.

The students will be able to apply geometric measurement to real-world problems.

Whole Class:

1. Launch discussion using square watermelon: <http://news.bbc.co.uk/2/hi/asia-pacific/1390088.stm>



2. Why do this? Should we get rid of circles and spheres?

3. I can't fill up the watermelon with cubes. How could I determine how much watermelon is in there?

Menu Planner (Work alone or with one partner)

Main Course: Please complete:

- Practice sheet with volume by counting cubes progressing to seeing cube outlines of a prism and predicting volume. Differentiate by providing cubes for those who still want to build.
- Choose a "Fill-It" card to solve.

Side Dish: Math Game. Choose one to play:

- Fill-A-Box
- Volume Memory
- Online Volume game or Illuminations activity
<http://illuminations.nctm.org/Activity.aspx?id=4095>

Dessert: If time, you may:

- Complete the Exploring Volume activity – fill boxes, compare volumes, hypothesize how to find volume if I don't have cubes
- Play another game

Closure: The watermelons were grown in hard plastic boxes (polyurethane) that were 8" by 8" by 8". How much watermelon is in a square watermelon? By the way, they sell in Japan for about \$83 a watermelon so most people don't buy them.

Formative Assessment/ Check for Understanding: Practice sheets and record sheet from game that is chosen.