Professor: Dr. Teresa Lampe
Grade/Subject: 6th Grade Math

MSCCR Science Standard:

6.G.2 - Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

6.EE.2 - Write, read, and evaluate expressions in which letters stand for numbers.
   a. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.

Objective: Students explore volumes in an online CAD environment with real world applications.

ENGAGE (5 minutes):
Show pictures of real life examples where volume is needed.
Look at the pictures below. Why would it be important to know volume in each situation.

EXPLORE (5 minutes):
Have students Join Tinkercad Class
   1. https://www.tinkercad.com/joinclass
   2. Class Code: UNW6H9MNG
   3. Enter Nickname assigned by your teacher.

This is the main page of Tinkercad
   1. Click on "Classes" on the left-hand panel.
   2. Click on "Math with Tinkercad".
   3. Click on "Volume of Rectangular Prism".
   4. Click "Copy and Tinker".

The teacher will give students a basic overview of the Tinkercad workshpace.
   1. Workspace
   2. Shapes
   3. Undo and Redo buttons
   4. Fun stuff

EXPLAIN
1. Each cube is 1 in cubed.
2. Use the cubes to fill in each of the figures with inch cubes to find out the volume of each figure.
3. Use text to write in the value you find.

DIMENSIONS

LENGTH

WIDTH

HEIGHT

VOLUME FORMULA

12 ft.

24 ft.   10 ft.

The volume of a right rectangular prism can be determined using the formula *length x width x height.*

ELABORATE
1. Open the "Make a 20 cm cubed shape."
2. Use the cubes create a figure in Tinkercad that has a volume of 20 cm cubed.

EVALUATE
Use the dimensions of the two tanks below to determine which tank has the largest volume.

Tank 1
L – 30 cm.
W – 20 cm.
H – 15 cm.

Tank 2
L – 50 cm.
W – 10 cm.
H – 10 cm.