Ms. Campbell's Conceptual Understanding Lesson on the Volume of a Rectangular Prism

ESTABLISHING PURPOSE

1 **What are the key content standards I will focus on in this lesson?**

Content Standards:

5.MD.C. Understand concepts of volume and relate volume to multiplication and to addition.

3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

   a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume and can be used to measure volume.

   b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

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

Standards for Mathematical Practice:

- Use appropriate tools strategically.
- Attend to precision.

2 **What are the learning intentions (the goal and *why* of learning stated in student-friendly language) I will focus on in this lesson?**

- Content: I am learning that volume is the amount of space inside a solid figure.
- Language: I am learning to use the mathematics language to describe volume (i.e., capacity, cubic units, packing, gaps, overlaps).
- Social: I am learning how to record and explain my work clearly for my classmates.

3 **When will I introduce and reinforce the learning intention(s) so that students understand it, see the relevance, connect it to previous learning, and can clearly communicate it themselves?**

- Look at boxes and define a right rectangular prism, then share learning intentions before beginning the activity.

SUCCESS CRITERIA

4 **What evidence shows that students have mastered the learning intention(s)? What criteria will I use?**

I can statements:

- I can explain what volume is.
- I can still identify and describe a right rectangular prism.

- I can count or measure the amount of space inside a right rectangular prism.
- I can use volume to describe and compare the capacity of a solid shape.

5 **How will I check students' understanding (assess learning) during instruction and make accommodations?**

Formative Assessment Strategies:

- Observe student collaboration and discussion.
- Review student self-assessments.

Differentiation Strategies:

- Differentiate the process by interest: choice of shapes to fill and fill materials.

INSTRUCTION

6 **What activities and tasks will move students forward in their learning?**

- Observing the boxes to build vocabulary
- Measuring volume station rotations
- Closing self-assessment and task

7 **What resources (materials and sentence frames) are needed?**

Boxes to measure

Measuring materials: centimeter cubes, inch cubes, marbles, rice, two-color counters (sufficient amounts for the boxes)

Recording sheet for box measurements

Success criteria lists for journals

8 **How will I organize and facilitate the learning? What questions will I ask? How will I initiate closure?**

Instructional Strategies:

- Anticipate, monitor, select, sequence, and connect student responses observing the boxes
- Facilitate group measurement task rotation

Scaffolding Questions:

- What measurement tool are you using at this station?
- How will you know you have filled the box as much as you can?

Extending Questions:

- What pattern do you notice?
- How are the quantities changing?

Connecting Questions:

- How does this measuring tool compare to another one you have used?
- How do your measurements for this box compare to the measurements others have made?

Self-Reflection and Self-Evaluation for Closure:

- Color-coded assessment of success criteria