**Lesson Title:** Introduction to Volume in Rectangles

**Subject Area and Grade Level:** 4th Grade Math

**Approximate time/length of lesson:** 1 hour

**Part 1**

**State Content Standards**

There aren't any state standards specifically for this lesson, but it is in the district mandated curriculum and my teacher has asked me to teach the lesson. This lesson will aid in meeting 4.MD.2 for liquid volumes.

**Assessments:** Investigation 11 Partial Assignment and Problem Solving Question

**Instructional Strategy/ies:** Lecture; Visuals; Hands-On Practice

**Modification/Adaptations:** If present, allow Bryant, Oggie, Daniel, and Jordan to find a group they will be successful in with other students who will support them in their learning. Manipulative use and real-life application problems within the lesson are helpful for all students.

**Part 2**

1. **Housekeeping**:

Students need a piece of paper, a pencil, and their math books. Each pair or small group will need 48 Snap Together Cube manipulatives. When it is time, each student will need a copy of the Problem Solving Question. Teacher will need paper rectangle prisms and beans for demonstration, Saxon Teacher's Manual, Unit Cube manipulatives, and Figure 9.25 on page 285 from Van de Walle's "Teaching Student-Centered Mathematics: Grades 3-5" text book.

1. **Purpose:** The purpose of this lesson is to introduce students to the concept of volume using rectangular prisms and allow them to practice their problem solving skills.
2. **Objective 1:** Students will be able to explain how to calculate the volume of a rectangular prism.

**Objective 2:** Students will be able to accurately measure volumes of rectangular prisms and convert calculations when necessary.

1. **Procedure**:

**Open: ~10 minutes 10:45-10:55**

Show students the two rectangular prisms I created from cardstock and ask them which they think has a greater volume/capacity. Place the tall prism inside the shorter one and fill the tall one with beans. Pull the tall one up and out of the shorter one so that the beans fill up the short one to show them visually.

Explain what volume/capacity is. Have the measurements of the rectangular prisms and put them on the board. Show how you solve this in two ways: Length x Width x Height or Area of Base x Height. Using Unit Cube Manipulatives and the method from Pg. 285 in my text, explain how if you take the Area of a Base and add layers equal to the base, you multiply the number of layers by the Area of the Base to find the Volume/Capacity.

**Body: ~45 minutes 10:55-11:40**

Have them open their books to page 699, Investigation 11. Using the Snap Together Cubes have students in pairs or small groups (depending on how many cubes we have) create the four cubes on the page and find their volumes using the equation of LxWxH and counting the cubes used. Compare answers. **10 Minutes**

Explain the conversions of 1yd=3ft, 1ft=12in, and 1m=100cm and have them solve problems 5, 6, and 7 on page 700. Compare answers. **10 Minutes**

Apply this to real life by giving them the problem solving question about Room 4 as storage space. Remind them of the Problem Solving guidelines (work the problem, explain their work, verify). **25 Minutes**

**Close:**  **5 minutes**

Ask 2 students to share their methods on the SMART Board.

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ROOM 4 HAS BEEN TURNED INTO STORAGE SPACE!**

Mrs. Chirinian wants to buy new desks for the school this summer, but needs them to be stored somewhere until next year. Kalmiopsis is running very low on storage space, so she is taking over Room 4 and making it extra storage. She wants to know how many of the desks still in their shipping boxes can be stored in Room 4.

The boxes are 24 inches long, 18 inches wide, and 22 inches high.

Room 4 is \_\_\_\_\_ feet long, \_\_\_\_\_ feet wide, and \_\_\_\_\_ feet high.