

Objective

By the end of this lesson, the student will understand the concept of capacity and volume, learn how to measure different containers, and explore how different shapes affect how much they can hold. The student will engage in creative activities that combine art, math, and science to reinforce these concepts.

Materials and Prep

- Various containers (e.g., cups, jars, bottles) of different shapes and sizes
- Water or sand for measuring
- A measuring cup
- A notebook and pencil for recording observations
- Access to a timer or stopwatch (optional)

Before the lesson, ensure that the student understands basic measurement concepts and is familiar with the terms "capacity" and "volume." Discuss the difference between the two terms briefly.

Activities

- **Container Comparison:** The student will gather different containers and predict which one holds the most and which holds the least. They will then fill each container with water or sand using the measuring cup and record the actual measurements in their notebook.
- **Shape Exploration:** The student will create their own container using a piece of paper or cardboard. They will design it in a way that they think will hold the most volume, then test it by filling it with water or sand to see if their prediction was correct.
- **Volume Art:** Using the measured amounts of water or sand, the student will create a colorful art piece by layering different colors in clear containers. They can label each layer with the volume it represents.

Talking Points

- "What do you think capacity means? Can you guess which container holds more?"
- "Let's measure how much each container holds. Why do you think some shapes hold more than others?"
- "Did you notice any surprises when you filled the containers? What was the most surprising part?"
- "When you made your container, what shape did you choose? Why did you think that shape would hold a lot?"
- "How does the height of a container affect its volume? Can a tall, skinny container hold more than a short, wide one?"
- "What colors did you choose for your art? How does it feel to create something that also teaches us about volume?"
- "Can you think of other things in real life that have different capacities? Like a swimming pool or a bottle?"
- "Why is it important to know how much something can hold? How does this help us in everyday life?"
- "What did you learn today that you didn't know before? Can you teach someone else about capacity?"
- "How can we use what we learned about capacity and volume in our next project or experiment?"