

Volume Lessons

These lessons on volume are constructed for a third grade class in Spanish, although they could be modified for use in an English classroom. They are designed to be taught over four days and build upon each other in order to create a relation in a student's understanding of volume and space taken up.

The central focus of the learning segment is on three-dimensional figures and their aspects. The first step of that is to show the different kinds of three-dimensional geometric figures there are, then how they are present in our daily lives. Once they have seen examples of these and how they all have the three dimensions of length, width, and height, they can move on to how this construes volume. The textbook simply demonstrates volume as being made up of unit cubes, but I believe that it is important to put in the aspect of length, width, and height with volume. The unit cubes are helpful, but a formula of $L \times W \times H$ is also not beyond their capabilities to understand and should be a part of the instruction. The California State Standards taught are:

Measurement and Geometry

- 2.5 Identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder)
- 2.6 Identify common solid objects that are the components needed to make a more complex solid object.
- 1.2 ~~Estimate or~~ determine the ~~area and~~ volume of solid figures by ~~covering them with squares or by~~ counting the number of cubes that would fill them.

It is meaningful to teach students these concepts because the concept of volume is very important to have. Students need to see how anything with shape has volume and what volume even means. If they can see how there is a relation with filling the shape or object up with water is the same as showing how it takes up space and has volume, they can look at the world with an understanding of taking up space and volume. This focus has a lot of real-world application, but they need to understand the concept of three-dimensional objects having length, width, and height before moving on to volume, which is where the teaching of three-dimensional geometric figures comes in.

Lesson Day 1

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| California Mathematics Standards Measurement and Geometry 2.5 Identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder) |
| Objectives <ul style="list-style-type: none">• Students will name diagrams of common three-dimensional geometric shapes.• Students will name common three-dimensional geometric models.• Students will name common three-dimensional geometric figures within real-world objects and illustrations.• Students will discuss characteristics of common three-dimensional geometric shapes. |