Lesson Plan

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Volume of a Penny

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Science
Grades 6–8

Introduction

Volume is math, isn't it? Well, math and science come together in this lab where students will figure out the volume of pennies with a hands-on activity.

Learning Objectives

(MS-PS3-1) Construct and interpret graphical displays of data to identify linear and nonlinear relationships.

Materials Needed

- Chromebook/tablet/device
- 100-mL graduated cylinder
- Water
- Pennies
- Plastic spoon
- Tub
- Food coloring (optional)
- Graph paper
- Volume & Pennies Lab

Procedure

1. Before you begin the lab, have bins prepared with the necessary materials. This will save you a lot of time during the lesson. If students are completing this activity at home, students will need to collect all the necessary materials to complete. You may have to send a graduated cylinder home with the students; everything else they should have.
2. Review all safety procedures before beginning the lab. Reference any anchor charts you have in the room.
3. Review volume. Make sure to preview all videos before sharing with the students.
   - Irregular Objects Volume
   - Determining Volume by Displacement

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4. Pose the question to the class: How can you use water displacement to calculate the volume of one penny? Of more than one penny? (Discuss this as a class.)
5. Students will work to complete the Volume & Pennies Lab. First, students will define volume and displacement. Write these directions on the board or share them with the students through Google Classroom. You could also edit the lab sheet.
   - Step 1: Fill the graduated cylinder with 40 mL of water and record it in the chart on the lab (column #3).
   - Place one penny in the water. In the fourth column, write down the new volume of the water with the penny in it.
   - Solve for the volume of the penny by subtracting the original volume of the water alone from the volume of the water with the penny in it.
   - Repeat this for all the trials. You must also do this for 2 pennies and 5 pennies and the rest of the trials are your choice.
6. Students will then complete the rest of the extension questions on the lab (#4-6).

Extension Activity: Have students graph their data to determine whether the relationship is linear or nonlinear.

Evaluation

The point values of each activity are located next to the question on the lab sheet. This will count as a lab grade.