**Volume vs Weight**

**Grade: 5 Kit: Floating & Sinking Investigation: #2**

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**Guiding Question:**

How do objects of different materials but same size affect volume and weight?

**Objective:** Students will understand the difference between volume and weight. They will also investigate why some larger objects weigh less than smaller items.

**Standards**

**Science**

5.1.1: Describe and measure the volume and weight of a sample of a given material.

**Math**

5.5.4: Find the surface area and volume of rectangular solids using appropriate units.

5.5.5 Understand and use the smaller and larger units for measuring weight (ounce, gram, and ton) and their relationship to pounds and kilograms.

**Summary:**

Students will use same sized objects made of different materials and a graduated cylinder to find the volume of each. Then, they will find the weight of each object using the Vernier LabQuest and Force Plate.

**Equipment Needed**

Graduated cylinder,

Lab Quest & Force Plate,

objects of different materials,

objects of different sizes,

notebook and pencil.

**Description of Procedure:**

1. Hook up the Force Plate to the LabQuest and turn it on. Select the appropriate range using the switch on the Force Plate found at the front. Tap the red portion of the screen, tap zero and change the units to pounds.
2. Complete a Prediction Chart:

**Volume**

Highest Lowest

**Weight**

Highest Lowest

1. Weigh each of the objects and record the results.
2. Set up the graduated cylinder with water.
3. Indicate the beginning measurement of the water. Place the object in the cylinder and record the new measurement. Record the displacement of the object.
4. Repeat step 4 for each object being measured.

**Data Table**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Volume** | **Weight** | **Observation** |
| **Object 1** |  |  |  |
| **Object 2** |  |  |  |
| **Object 3** |  |  |  |

**Wrapping Up:**

1. Give students chart paper or white boards to present their data.

2. Discuss their predictions compared with the data from charts.

3. What conclusions can you make based on these results?

4. What is volume?

5. What is weight?

6. Have students go back to their notebooks to make quantitative/qualitative observations over the class data.

7. Have students write their conclusions over this activity in their notebooks.

**Extension;**

Can you find a large object that weighs less than a small object? How would this investigation look like?