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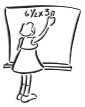
Unit 4 – Lesson 4.9



Show Activity Work Here

Materials Needed:

* Clear plastic film canisters for each group of 304 students.
* Measuring cups or graduated cylinders
* Masking tape
* 10 liter plastic tub (2 ½ gallons)
* Balance
* Test items
* Student Data Sheet, 1 per student per item
* student data sheet 2, 1 per student
* Table salt

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Test Items:

* dish detergent
* sand
* cooking oil
* rubbing alcohol
* water
* salt water
* aquarium gravel
* fishing weights

Directions:

1. Each group carefully fills each small container ½ full with one of the test items. On group member labels the containers with the test item names written on masking tape.
2. Each group member predicts the order of the filled containers by mass from the smallest to the largest. Record predictions on the Data Sheet 1.
3. When each group member is finished, the members discuss their predictions and record them on each of their data sheets. The group reporter will share the group's predictions with the class. Record predictions on Data Sheet 1.
4. Determine the masses of the containers. Your teacher will check to ensure that the containers are uniformly full for each group. Record the masses on Data Sheet 2.
5. Why do things with same volume have different masses? _____

_____

_____

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6. Each student sorts filled containers into two groups: things you think will float and things you think will sink. Record predictions on Data Sheet 1.
7. When each group member is finished the members discuss their predictions and record them on each of their data sheets. Choose a reporter who will discuss the group's predictions with the class. Record predictions on Data Sheet 1.
8. Fill the plastic tub ¾ full of water. Test the items by gently placing them in the water to see which will float and sink. Record results on Data Sheet 1.
9. Why do things with the same volume float or sink? _____

_____

Write the formula for density: _____

_____

10. Groups measure the volume of each of the small containers using the measuring cups or graduated cylinders. Record volumes on Data Sheet 2. The volumes should be equal. Calculate densities using the above formula and record them on Data Sheet 2.
11. Arrange the test items in order from smallest to largest and compare this order to the order by mass. Explain the result. _____

_____

_____

_____

HINT: The order should be the same since the volume should be constant and the masses should vary.

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Student Data Sheet 1

Test Item Name: _____

Mass:_____

My Prediction: _____

_____

My Reason: _____

_____

Small Group Discussion: _____

_____

Class Decision: _____

_____

Actual Results: _____

_____

Sink – Float

My Prediction: _____

_____

My Reason: _____

_____

Small Group Discussion: _____

_____

Class Decision: _____

_____

Actual Results: _____

_____

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Student Data Sheet 2

Item	Mass	Volume	Density