

DENSITY & SPECIFIC HEAT TAKE HOME MESSAGE

STATION 1: ROCK THE BOAT

1. Define Archimedes Principle →

You worked through a series of trials in this activity. Some trials involved the addition of weights or the lack there of. A couple points of interest surrounded the focal point of displaced water.

2. Discuss how the mass of the boat and the mass of the displaced water were related. How does this support/refute the theory in questions.
3. Discuss how the volume of the boat that was under the water line relates to the volume of the water displaced.

STATION 2: DENSITY CUBES STATION

Density is a property of matter and can be used to identify and distinguish between samples and numerous other material science applications.

4. The density of water is 1.00 g/mL (aka 1.00 g/cm³) Analyze your data. Compare the density of the cubes that float/sink to that of the density of water. What can you conclude?

STATION 3: DENSITY OF IRREGULARLY SHAPED OBJECTS.

During this station, you were dealing with objects in which you could not find the volume with a simple mathematical calculation or formula. You used the water displacement method. You may have used a graduated cylinder or captured the overflow from the overflow can.

5. Explain the process you used to determine the volume of an irregularly shaped object.

STATION 4: SPECIFIC HEAT

Define specific heat:

Sooo.... You used the specific heat of a known to determine the specific heat of an unknown. Of course, we know what the specific heat of Aluminum is, but if we didn't this could be a way to figure it out. You calculated Q based on the impact of ΔT in water and used that to determine the specific heat of the metal.

6. Which metal had the higher specific heat?
7. Discuss how the specific heat value of the metal impacted its ability to be heated.
8. Which metal was able to transfer more kinetic energy to the water, how is this reflected by the specific heat value?

STATION 5: CARTESIAN DIVER

9. Define Pascal's Law →
10. Are you applying the same amount of pressure to the diver as you are to the outside of the bottle? Explain....
11. Why does the diver sink when you apply pressure to the bottle?