

Why Do Boats Float?

Name: _____

Ever wonder why some objects float and others sink? Density is a contributing factor. Density is the amount of material within a certain amount of space. Since the density of an object is based on weight and the amount of space it takes up, it shouldn't matter how big the object is. Try this experiment to see how heavy objects like aircraft carriers stay above the water's surface.



Materials: Two sheets of aluminum foil, scale, pencil

Directions:

Step 1 Fill a bowl with water. Crumple a sheet of aluminum foil into a ball. Weigh the ball of foil and place it gently in the water.

- Weight of ball of aluminum foil: _____
- What happened when it was placed in the water?

Step 2 Shape the second sheet of aluminum foil into a shallow boat. Weigh the boat and place it on the surface of the water.

- Weight of boat: _____
- What happened when it was placed on the water?

Step 3 Answer these questions:

a. Compare the weight of the ball to that of the boat. What is the result?

b. Does the ball displace (push against) a large amount of water? _____

c. Does the boat displace a large amount of water? _____

On the Surface

Archimedes

Archimedes, a physicist and mathematician, is considered one of the greatest scientists/thinkers of all time. We still use many of his principles about how things work, despite the fact that he lived more than 2,000 years ago. His Principle of Displacement explains the way in which an object's density causes it to either float or sink.



Visit www.mcs.drexel.edu/~crorres/Archimedes/contents.html for more fascinating facts about this great early scientist.