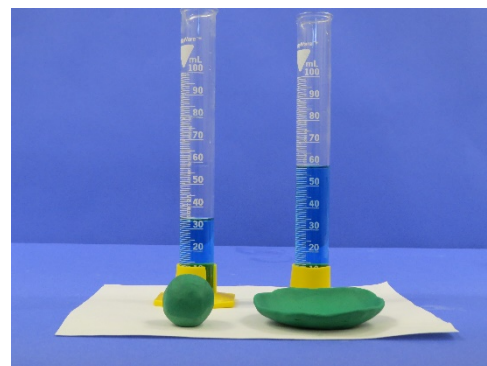


Shaped to Displace

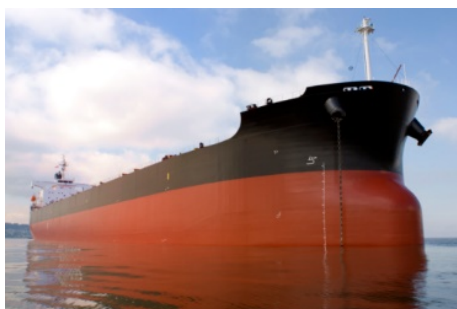
To understand how this works, you have to look at sinking and floating in a related but different way. This explanation is based on the principle that: *an object floats when the mass of water the object displaces is equal to the mass of the object*. So the more water an object can displace, while the object's mass stays the same, the better its chances are of floating.

For example, two solid balls of clay that are the same volume would displace the same volume and mass of water, but if one ball is flattened and shaped into a large enough bowl shape and placed in water, the clay bowl displaces a larger volume of water. The clay's mass hasn't changed, but the displaced water's volume (and mass) has increased.



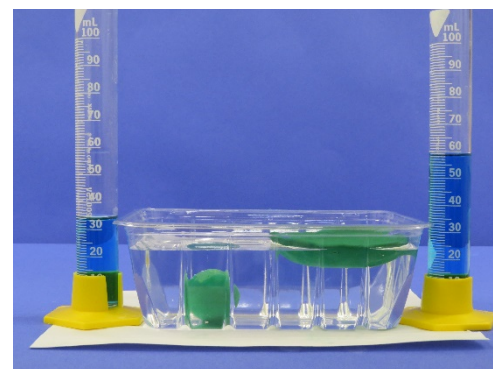
Volume of water displaced by the clay sphere and clay bowl

When the weight of water displaced by the clay bowl equals the weight of the bowl, the clay bowl floats.



Boats displace a mass of water equal to the mass of the boat

Boats take advantage of these same principles and are built large enough to displace a mass of water equal to the mass of the boat.



Bowl shape displaces more water and floats