

MSET – BUOYANCY FORCES

Purpose

Evaluate the effects of submerging an object in a body of liquid that imparts a force on the body helping the body afloat.

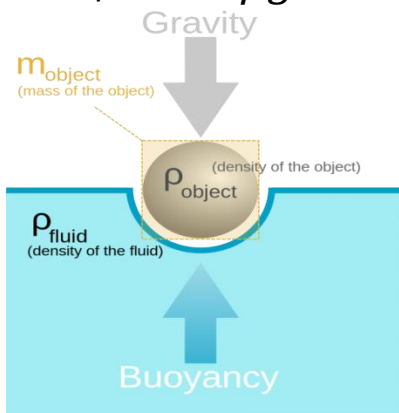
Buoyancy

Buoyancy forces are useful in keeping an object from sinking in water. An example of this type of force can be seen when a boat is launched into water. Without the buoyancy force the vessel would sink.

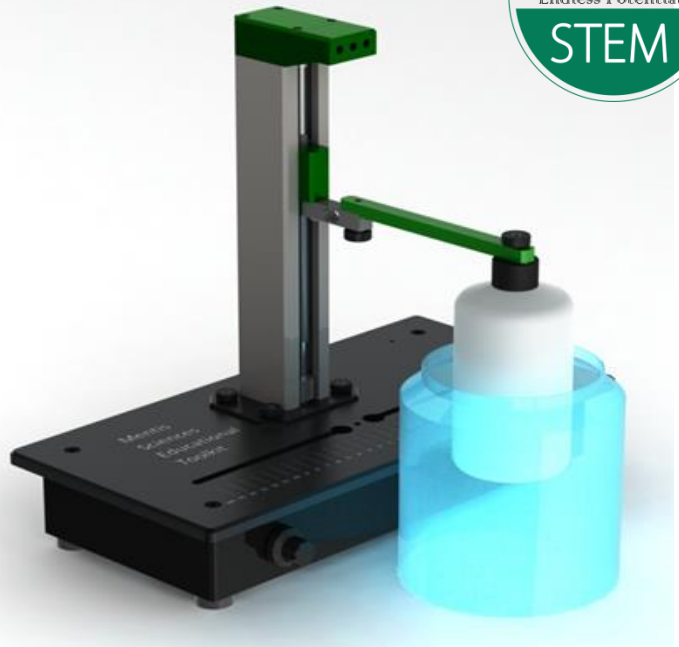


Theory

Buoyancy is a force "F" that works in the opposite direction of gravity "g" and is proportional to the volume "V" of water displaced by a body. The upward buoyancy force can be calculated using the relationship $F = \rho g V$



Setup



Results

The linear relationship between the buoyancy force and volume of water displaced will be plotted and compared to theory for a vessel of constant cross-sectional area. This relationship may also be studied for geometries that vary as a function of depth.

