Sinking or Floating

Objective: To compare the volume of displaced water to the force of buoyancy.

Research

- An object placed in water displaces an equal volume of water.

- The weight of the displaced water equals the buoyant force.

- The mass equals the volume displaced, times the density of water, which equals 1 g/cm^3 (volume displaced equals mass of water).

Research

- <u>Buoyant Force:</u> upward force of a liquid on an immersed object.

- Divide the mass of water by 9.8 (force of gravity) to change grams to Newtons.

- <u>Floating:</u> mass equal to or less than buoyant force.

- <u>Sinking:</u> mass greater than buoyant force.

Procedure

- Measure the length, width, and height of water in container. Record in data table.
- Calculate the initial volume and record in data table.
- Add the plastic container with 14 washers to the container and measure the new height of water. Record in data table.
- Add 6 more washers *__carefully__* to avoid cup tipping over, measure new height of water. Record in data table.

Data Table

Measurement	14 washers	20 washers
Length (cm)	30 cm	
Width (cm)	30 cm	
Initial height (cm)		
Initial volume (cm^3)		
New height (cm)		
New volume (cm^3)		
Displaced volume (cm^3)		
Mass of displaced H$_2$O (g)		
Weight of displaced H$_2$O (N)		
Buoyant Force (N)		