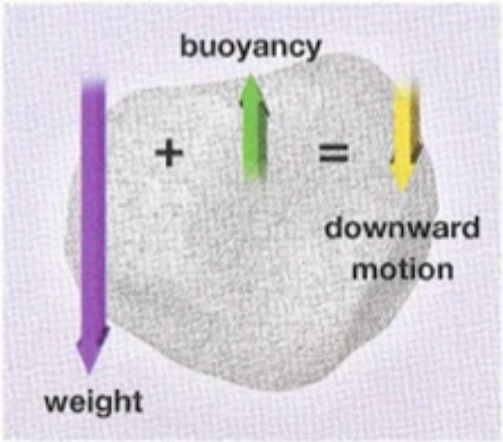
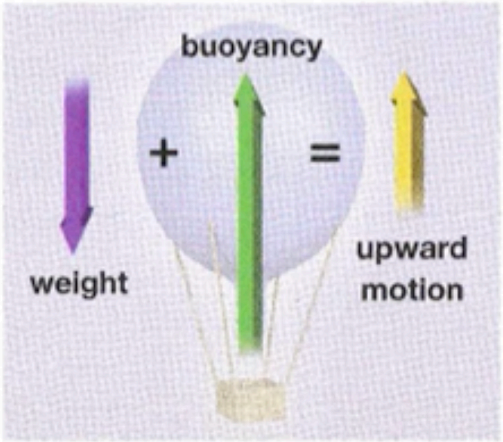
Buoyancy

OBJECTIVE 1: To be able to calculate buoyancy.

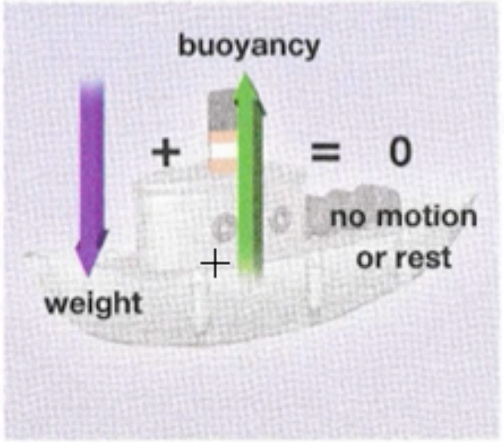
Buoyancy: an upward force exerted by a fluid (liquid or gas)



A Sinking, e.g., a rock

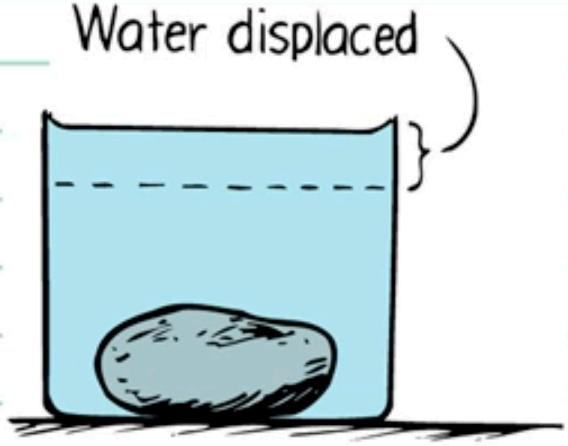


B Rising, e.g., a helium balloon



C Floating, e.g., a boat

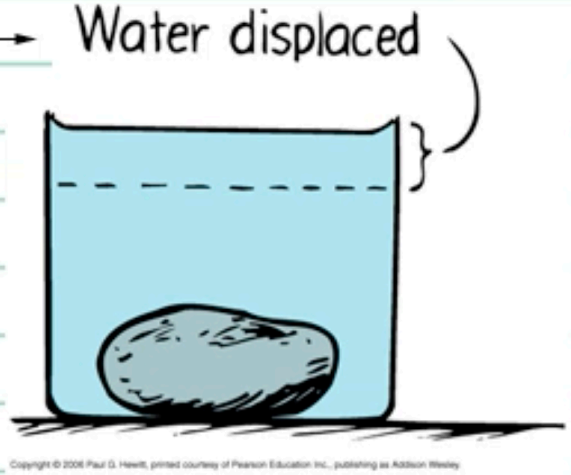
Buoyancy = weight of fluid displaced



Buoyancy = weight of fluid displaced

F_g or W = density x volume x acceleration due to gravity

kg/cm^3 cm^3 (or mL) $9.8\ m/s^2$



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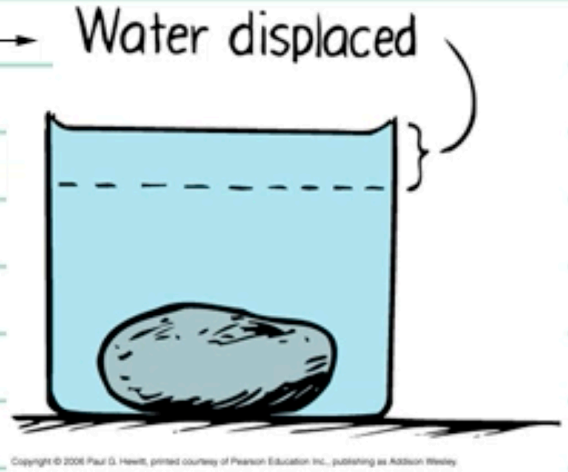

$F_{Buoyant} = dVg$

The density of water is 1 g/cm³ or 0.001 kg/cm³

1L of water has a mass of 1 kg.

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Ex: The rock displaced 100 mL of water. What is the buoyant force on the rock?

1. You put a piece of wood in water. It displaces 2L of water. What is the buoyant force? What is the weight of the wood piece?

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