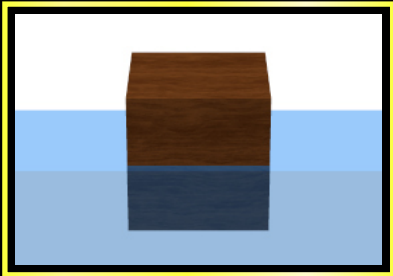


15.4.2: Buoyancy

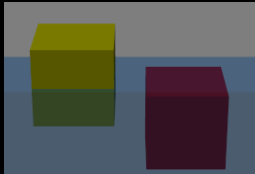
Following Olivia's thoughts, we assume that an object will displace an amount of water V_W such that the weight of water displaced is equal to the weight of the object. Let's test her first statement that an object with density equal to water, $\rho_O/\rho_W = 1$, will displace a volume equal to the object. $V_W/V_O = 1$. To do this

1. Select the "Intro" simulation and choose a custom object.
2. Set the object's mass and volume to equal values so that $\rho_O = m_O/V_O = 1\text{ kg/L}$. Note this is the same density as water.
3. Does your observation agree with Olivia?


Density







Intro



Compare



Mystery

Test her other hypotheses.

1. $\rho_O/\rho_W = 0.5 \rightarrow V_W/V_O = 0.5$
2. $\rho_O/\rho_W = 1.5 \rightarrow V_W/V_O = 1.5$

Do you draw the same conclusions as Olivia?

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