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**Neutral Buoyancy   
Balloon Challenge**

**Neutral buoyancy** is a condition in which an object’s [density](http://en.wikipedia.org/wiki/Density) is equal to the density of the fluid in which it is immersed. The buoyancy force balances the force of gravity that would otherwise cause the object to [sink](http://en.wiktionary.org/wiki/sink). An object that has neutral buoyancy will neither sink nor rise.

**1. Design a basket:**

* Follow directions for making a paper basket on one of the following websites, or find your own style and directions.
  + <http://craftyjournal.com/easy-paper-basket/>
  + <http://www.homemade-gifts-made-easy.com/paper-easter-basket.html>
  + (more difficult) <http://www.mathematische-basteleien.de/basket.htm>
* Name your balloon and add this to your basket.
* Decorate or color your final basket.

**2. Design your characters:**

* Use Photobooth to take headshots of each of your team members.
* Put images onto one document, each should be about the size of a quarter.
* Get approval, and print in color.
* By hand, draw and color a paper body for your headshot.

**3. Weigh your basket and occupants:**

* Using the electronic scale, measure the weight, in grams, of your paper basket and team characters.
* Record your weight.

**4. Achieve neutral buoyancy:**

* Attach your basket to your balloon.
* Using paperclips as ballast, add weight to your basket until your balloon’s weight is perfectly balanced (not rising or falling)… neutral buoyancy!
* Record the weight added. Calculate the total weight (lifting force).

**5. Compete in Neutral Buoyancy Challenge:**

* Line up with the other competitors.
* Hold your balloons roughly 4 feet off the floor.
* On the count of three, release your balloons.
* The **last** balloon to touch the floor or ceiling wins!

**GOOD LUCK!!**