



## Challenger's Morning Science Segment:

February 1, 2016

**Topic:** Buoyancy

**Build:** Tin Foil Boat

### Credit:

[http://www.sciencebuddies.org/science-fair-projects/project\\_ideas/Aero\\_p020.shtml#summary](http://www.sciencebuddies.org/science-fair-projects/project_ideas/Aero_p020.shtml#summary)

### Materials Needed:

Tin Foil / Bowl with Water / Scissors / Pennies

**Build a Tin Foil Boat** – Begin by cutting a square piece of tin foil. Fold the foil to your own design, but in such a way that there are sides to contain a pile of pennies. Next, place the empty boat in the bowl of water to confirm that your tin boat floats. Then, start adding pennies one at a time and count as you go. How many pennies does your tin foil boat hold? Build a second boat design and try adding even more pennies [dry]. Which boat design holds the most cargo?

### The science [credit:

[http://www.sciencebuddies.org/science-fair-projects/project\\_ideas/Aero\\_p020.shtml#background](http://www.sciencebuddies.org/science-fair-projects/project_ideas/Aero_p020.shtml#background)]

The empty tin foil boat floats because its density is less than the density of the water. The tin boat will sink once the density of the boat & pennies is greater than the density of the water. The tin boat also displaces a certain volume of water. It will remain floating if the amount of water displaced is at least equal to the weight of the boat. There also is the downward force of gravity and then an upward force on the boat, called buoyancy. The upward force of buoyancy is equal to the weight of the water displaced.

**This activity ties into the Challenger Learning Center of Maine:** Challenger's February Vacation Camp is right around the corner for grades K-5. We do fun experiments like this one during five fantastic camp days filled with science and innovation. Sign up for a single day or the entire week! Topics include Rockets, Minion Engineering, LEGOs and More! FMI- [www.astronaut.org](http://www.astronaut.org)