



Buoyancy Lab

Goal: Build a boat out of tinfoil that can support the weight of as many pennies as possible without sinking.

What is buoyancy?

Have you ever dropped your swimming goggles in the deepest part of the pool and tried to swim down to get them? It can be frustrating because the water tries to push you back up to the surface as you're swimming downward. This force pushing you upwards is called **buoyancy**.

How does it work?

When you throw a stone into a stream, it sinks immediately. So how do large ships made of solid steel stay afloat if even a tiny pebble can't? For an object to float, the buoyant force (pushing upwards) needs to be greater than the weight of the object pulling it to the bottom. The buoyant force comes from the amount of water that the object is touching.



**Materials:**

- 1 foot by 1 foot square of aluminum foil

Instructions:

1. Get into groups of 2-3.
2. Build a boat from your square of aluminum foil.
3. Predict how many pennies you think your boat will hold.
4. Once everyone is finished, it is time to test them! Carefully place your boat in the tub of water.
5. Slowly add pennies to your boat, and count them as you add them. Wait at least three seconds before adding another penny, if it doesn't sink.
6. The boat is considered sunk once water enters the boat, or when any part of the boat touches the bottom of the container.
7. Record how many pennies the boat held before it sank. The last penny that made the boat sink does not count.

Prediction: The boat will hold _____ pennies before it sinks.

Data: The boat held _____ pennies before it sank.

Questions:

1. Was your prediction close to your data? How much was it off by?
2. How was buoyancy involved in this lab?