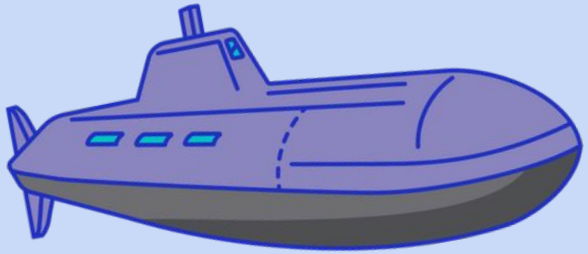
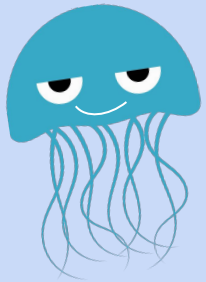


Navy STEM Crew



Aluminum Foil Penny Boat Challenge

Who Are We?

The Navy STEM Crew!

Ambassadors for educational outreach to students like you!

We work to increase interest and engagement for Naval STEM areas to support the next generation of the Naval STEM workforce.

What Are We Doing Today?

Let's build boats and learn about how they float!

Think about things that Float and things that Sink ...

How do ships made out of steel float?
How can it carry a heavy load without sinking?

Archimedes Principle

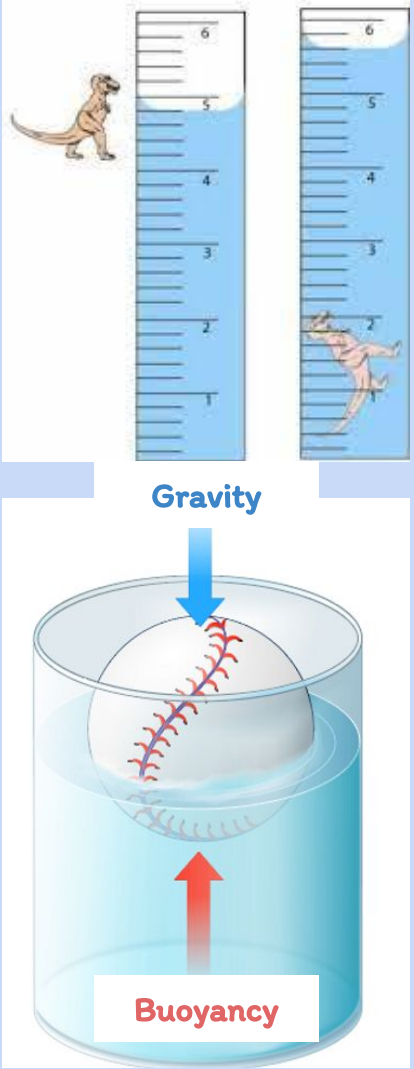
The science behind floating!

When a object is placed in water it pushes water out of the way to make room for itself. This is called **Displacement.**

Two forces act on an object when an object is placed in water.

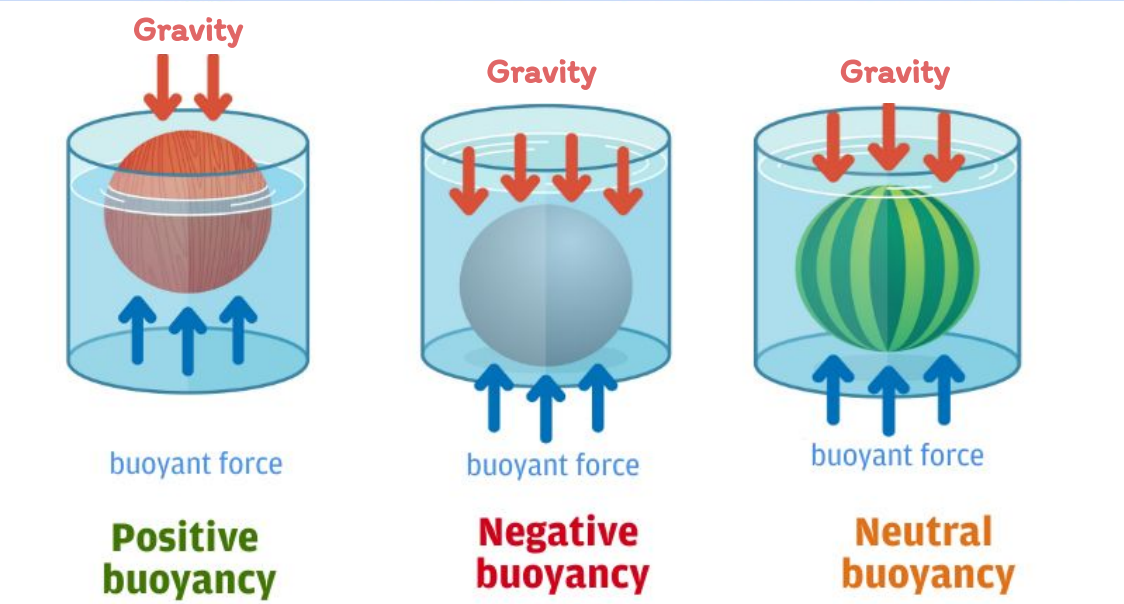
1. A push down , what pushes down on Earth? -> **Gravity**
2. A push up -> **Buoyancy**

What's Buoyancy? An upward force determined by weight of water displaced by the object.



Archimedes Principle

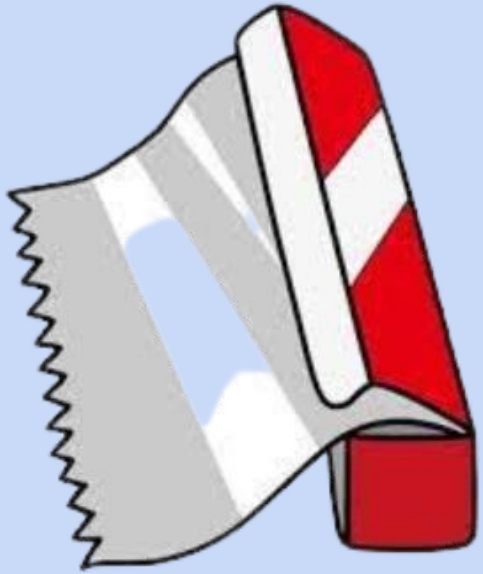
How to determine if an object will float, sink or somewhere inbetween?



- **Float :** object weighs less than the water it displaces.
- **Sink :** object weighs more than the water it displaces.
- **Neither :** object and water displaced weigh the same.

The Challenge!

Using only 1 sheet of aluminum foil, design a boat that is capable of holding the most pennies possible without sinking.



Plan!

Think about how you want your boat to look and sketch it out!

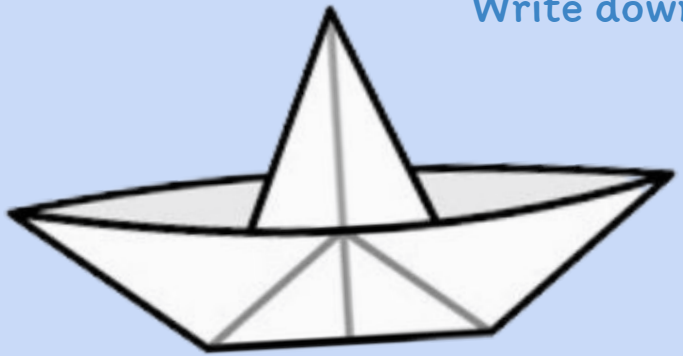
Build & Test!

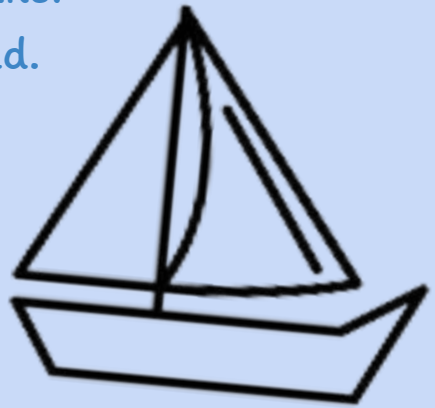
Build your boat!

When you are finished find a Crew Member (that's us!) and test your boat.

Add 1 penny at a time to your boat until it sinks!

Write down how many pennies your boat held.



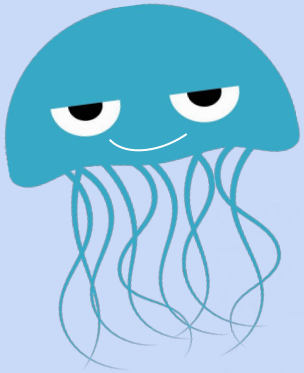


Think!

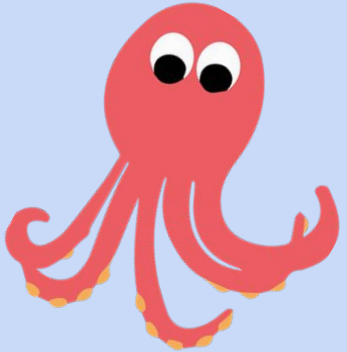
How did you place the pennies on your boat?

Did you pile the pennies all together in the center of the boat?
Or at one end of the boat? Did you spread your pennies out?

How do you think that affected how long it took your boat to sink?



Thank You!



NAVY STEM CREW

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