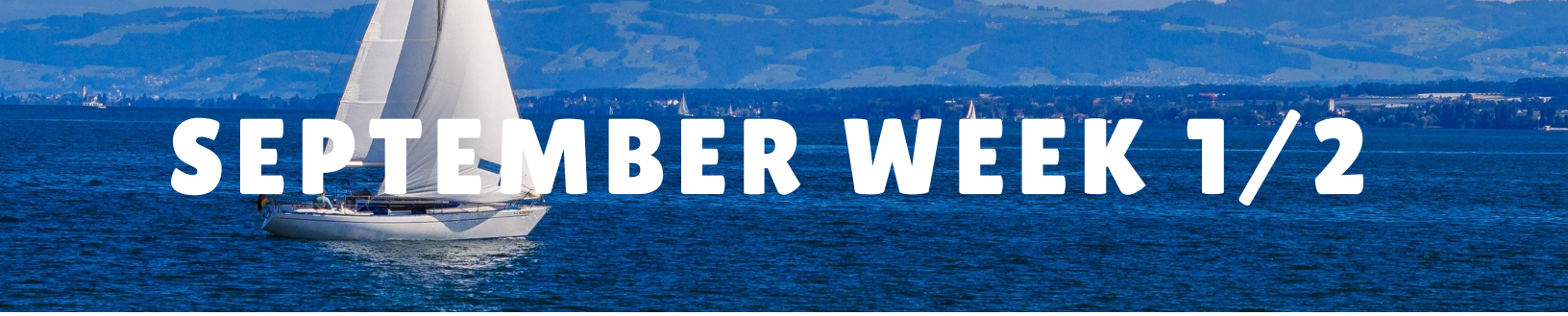


SEPTEMBER WEEK 1/2

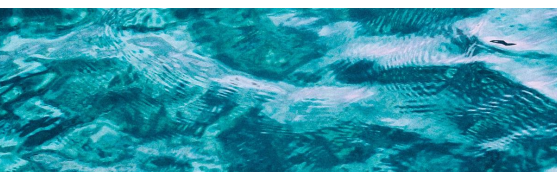
Learn What Makes Boats Float!

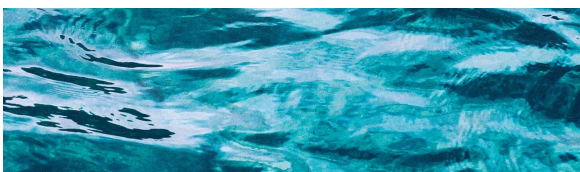
by STEM Powering

The summer is a great time to have fun, especially going to the beach. But have you ever noticed that boats, ships and even surfboards float on top of water, while we all just sink if we don't swim. It is because the density of the materials that make boats and surfboards are smaller than water itself. However, the overall process of this motion that boats have is known as Buoyancy.

Materials List:

Regular 8.5x11in Printing PaperDouble Stick Tape (Regular Tape is fine as well)16x16cm Styrofoam
(2) 4x4cm Styrofoam
(4) Popsicle Sticks
Rubber Band
Glue Gun (Few Glue Sticks)
A Small Rock
Scissors





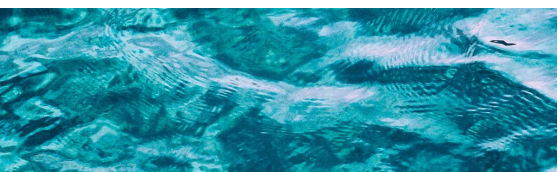
SEPTEMBER WEEK 1

Learn What Makes Boats Float!

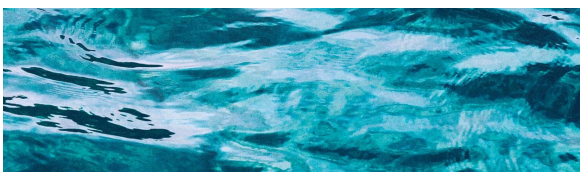
by STEM Powering

Procedure

1. Attach one of the popsicle sticks to any of the 16x16cm styrofoam corners on the bigger and flat side using a glue gun so that ¼ of the stick is attached to the styrofoam while the rest is hanging out.
2. Take another popsicle stick and do the same thing but on another corner so it is parallel to the other popsicle stick.
3. With the rubber band, put it around the end of the two popsicle sticks that are attached to the 16x16cm styrofoam.
4. Using a glue gun, attach each of the 2 4x4cm styrofoam pieces to the end of each of the two popsicles sticks that are attached to the 16x16cm styrofoam.
5. Carefully cut one of the popsicle sticks in half and then attach those half popsicle sticks to another full popsicle stick to make a plus sign using a glue gun.
6. Take the plus sign made of popsicle sticks and put it in between the rubber band.
7. Go near a pool or area with water so you can test out your boat.
8. Once the boat is in water, crank/wind up the plus sign made of popsicle sticks and then let go to see it in motion.



STEM POWERING



Learn What Makes Boats Float

by STEM Powering

The Science Behind this Experiment:

There you go, you made your very own fully functional boat, but what made it float. You may know that styrofoam floats, as it was your primary material used to make the boat, but why does it float? It's all because of buoyancy.

Buoyancy is a force that pushes upwards against an object, as gravity pulls down on the object with a downward force determined by the object's density. So if the downward force is less than the buoyant force, it keeps the object afloat. You may wonder, if gravity is set by the object's force, what determines the buoyant force. The buoyant force is set by the object's density, for example, a penny, paperclip, or a button will sink because it has more density than water (density of water is 1). While corks, pieces of wood or even the styrofoam you used in your experiment, will float as they all have less density than water.

So that's why you can't just float on water, cause we are too dense for water to hold up!