Techbridge Girls@Home
Float a Boat Design Challenge

techbridge girls 20 YEARS

Techbridge Girls is committed to supporting our community by providing access to high-quality at-home STEM activities for our girls and curating resources for families and educators. The below activity was designed to empower girls to lead fearlessly by learning and teaching others while sheltering in place.

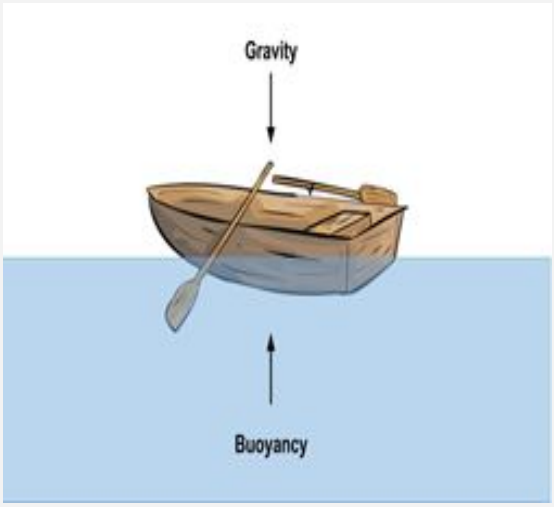
Design a boat that can float and carry as much weight as possible. Once you accomplish this, add a sail to the boat to test how far the boat can travel.

1 Get your materials.

Source materials around the house, such as aluminum foil, wax paper, string or rope, tape, straws, and paper cups!

2 Build your design.

When building your boat, you need to think about two forces: ***gravity*** and ***buoyancy***. A ***force*** is a push or a pull that one body (such as a person, an object, or even a planet!) exerts on another body. A boat will float if the force of ***gravity*** (pulling it down) is less than the ***buoyancy*** force (pushing it up).



Using these scientific concepts, it's your turn to make a boat! First, brainstorm the shape and size of your boat by drawing your design. Then, design you boat and test! Does your boat float? Try adding weights (such as coins, buttons, or keys) and see how many it can hold. Can you redesign your boat so that it holds more weight? Remember, the gravity of your boat needs to be less than the buoyancy...or it will sink!

ASK: How does the shape of the boat affect the amount of weight it can hold? What kinds of materials make the best boat? What step of the Engineering Design Process (Identify-Brainstorm-Choose-Design-Test-Show-Redesign) is your favorite?

3 Share!

With permission from your parents or guardians, please post a photo of your completed project on Facebook, Twitter, or Instagram, and tag @techbridgegirls so we can see your great work!

CAREER CONNECTION: Marine engineers design and build ships, aircraft carriers, submarines, and sailboats. Marine engineers earn about $74,000 after getting a 4-year college degree, and can earn about $100,000 after working in the field.

We are proud to support our girls' STEM journeys by providing resources to overcome barriers and to thrive and lead in STEM.