Tin Foil Boat STEM

You will need:
Tin foil
Scissors
A bowl of water
Coins
Boat Design Analysis Sheet

Instructions
1. Use scissors to carefully cut the tin foil into 2 rectangle shapes.

2. With the first piece of foil, form a boat that can hold the coins but not sink.

3. Predict how many coins your boat will hold.

4. Place the foil boat in the bowl of water.

5. Place one coin at a time in the boat. Keep adding coins until the boat sinks. Make sure you count them as you go.

6. Use the second piece of foil to make a new boat, based on what you observed from your previous design.

7. Estimate how many coins the new design will hold.

8. Place the new boat in the water and carefully place one coin at a time in the boat until it sinks.

9. Complete the Boat Design Analysis Sheet.
Science Behind the Experiment
There are two forces acting on the boat design:

1. Gravity – Gravity is pulling the tin foil and coins downward.
2. Buoyancy – Buoyancy is pushing the boat toward the surface.

As long as the force of buoyancy is greater than the force of gravity, the boat will continue to float. The force of buoyancy will be greater than the force of gravity when the weight of the foil and coins is spread across more surface area of the water, creating more buoyancy, or force, pushing upward.