

Archimedes Experiment

How does a Galway Hooker stay afloat in water while small things, such as pebbles or stones, sink? When a Galway Hooker is in the water, **gravity** is a constant downward force on the boat. At the same time the water that the Galway Hooker is in has a constant upwards force on the boat called **buoyancy**.

Have you ever noticed that the water level changes when you get into the bath? In Ancient Greece, a mathematician and inventor named Archimedes noticed the same thing and developed the *Archimedes' Principle*, which explains why some objects sink and some objects float. According to this principle, a boat will float as long as it weighs less than the amount of water the hull can displace.



Try this Experiment

Explore how the size and shape of a boat can affect its ability to float on water.

Materials

- Basin or bowl of water
- Clay (playclay / marla / plasticine / modelling clay)
- 5c/10c Coins

Instructions

- Take a palm-sized amount of clay, roll it into a ball and drop it into the water. Observe what happens to the clay.
- Remove the clay and mould it into different boat-like shapes until it floats. Place the coins into the boat until it sinks. Make note of how many coins it held.
- Try a few successful shapes to see which design holds the most coins before sinking.

Questions

1. Which boat design works best? How much weight your boat can hold?
2. Why did the ball of clay sink while the same amount of clay shaped into a boat floated?
3. Which boat shape held more weight? Why did some boats hold more than others?

Curriculum Links

Age:

3rd to 6th Classes

Social, Environmental and Scientific Education:

Strand (Unit): Energy and Forces (Forces)