

Clay Boats: How Do Boats Float on Water?

Materials

- Large bowl of water
- Clay

Optional items to make sails for boat:

- Wax paper
- Toothpicks

Procedure



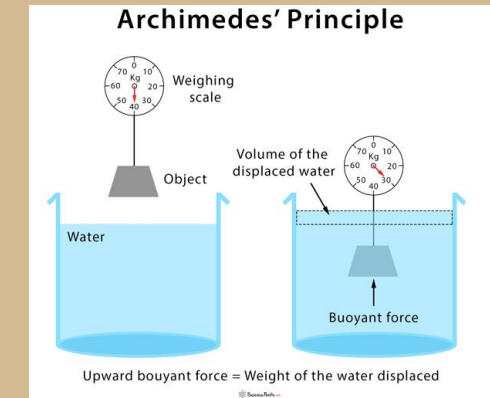
Note: We will be playing with density and shapes for this experiment.

1. Fill bowl or container with water.
2. First take ball of clay and guess if it will float or sink. Place ball in water. Note what happens. Did it sink?

Now play around with shapes to make the clay float:

1. Take same ball of clay and flatten it out (no curves on edges). Will it float or sink?
2. Now, pinch ends to make into a boat. Will it float or sink?
3. Play around with different shapes and sizes to see what will float and sink.

How Does it Work?



Why did the clay ball sink?

- In the shape of a ball, the clay displaced a small amount of water. The weight of the volume of water was less than the weight of the clay.
- Buoyant force was less than gravitational force.

How does the clay float?

- Changing shape and filling with air.
- When you change the shape of the clay, you change how much the clay can displace water. Buoyant force is greater than gravitational force, so it floats.
- When filling the boat with air, you also decrease the density of the boat.