

In the zone with the USS Drum

Would you want to dive down into the deep, dark depths of the ocean? That's exactly what men did while living on the USS Drum. In this post visit activity, students will complete an experiment to see how a submarine is able to dive down into the different ocean zones. Listed below are two different experiments to try!

1.Soda can submarine experiment:

Materials:

1. Tall, clear water container (such as a vase or a pitcher)
2. Empty soda can
3. Plastic tubing (can buy one cheaply at a home goods store)
4. Old towel

Steps:

1. Fill the water container (leave some room)
2. Insert tube into soda can
3. Fill soda can with water
4. Allow can to sink to the bottom
5. Gently blow air through the tube
6. Air will displace the water, causing the can to rise!

To add an extra step, have students hypothesize about what would happen if they used a regular drinking straw instead of the tube. Have students use the straw and record any differences they see.

The Science behind the Soda Can Experiment:

By adding air to the can, the water becomes displaced. This creates an upward force called a **buoyant force**.

The air in the can causes it to become less dense than the water. That's why the can rises!

Submarines have large 'cans', or **ballasts**, and work using this same idea to allow them to sink or rise in the water.

2. Plastic bottle submarine

Materials:

1. Scissors
2. 3 straws that bend
3. Plasticine, play doh, or modeling clay
4. Bowl of water
5. Plastic bottle (1.25 or 2 liter bottle will work best)

Steps:

1. Cut straws in half. Using the end that bends make them into a "U" shape.
2. Add plasticine to the ends, trapping the air inside the straw. Make sure each straw has a different amount of plasticine so they'll be weighted differently.
3. Place the straws in the bowl of water. (Students can see that the straws will float at different levels.)
4. Use the straw that floats the closest to the surface to put in the plastic bottle that is filled with water. *Do not fill the bottle up completely.
5. Make sure the cap is on the bottle and gently squeeze the bottle and have students record what happens.
(Students should note that the straw will begin to sink to the bottom. By squeezing the bottle, pressure is applied to the water and also to the air in the straw. As students let go of the bottle they should notice that the straw will begin to float because the pressure has decreased.)

Attached is a video of the experiment:

[Make Your Own Submarine - Bing video](#)