

CONNECTIONS TO SCIENCE GUIDES

GEORGIA YOUTH SCIENCE & TECHNOLOGY CENTERS, INC.

ASTRONAUT-AQUANAUT: HOW SPACE SCIENCE AND SEA SCIENCE INTERACT

BY: JENNIFER SWANSON



ASK

- Have you ever gone underwater in a pool? What did you feel? Why?
- What forces are acting on you underwater?
- What forces are acting on you in outer space?
- Have you ever thought about being an aquanaut?

EXPLORE

CARTESIAN DIVER

Materials:

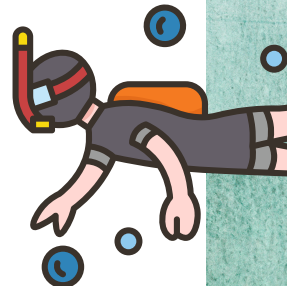
- Plastic water bottle with lid
- Water
- Condiment packet

Directions:

- Begin by placing your condiment packet into the water bottle.
- Fill the bottle with water. The condiment packet should be floating somewhere in the middle (if it sinks, you may need to try another packet).
- Put the lid on the bottle.
- Squeeze the bottle. Observe what happens.
- Relax your grip on the bottle. Observe what happens.
- As you work, think about:
 - What is the relationship between pressure and volume?
 - What should be done with the plastic pollution that is collected from the ocean?

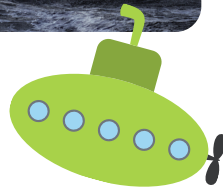
Fun Facts:

- The average pressure on the ocean floor is 380 times greater than the surface.
- Humans can only withstand 3-4 atmospheres of pressure.



EXPLAIN FORCES

As you squeeze the plastic bottle, you are increasing the pressure on the contents inside - including the air bubble inside of the condiment packet. As the air bubble shrinks, the volume of the gas decreases changing the density of the diver. Once the density is greater than its surroundings, the diver will sink. When you release the plastic bottle, the air bubble will expand causing the diver to rise. This same concept is what fish and submarines use to sink or float.



BACKGROUND

The Georgia Youth Science and Technology Centers, Inc. provides quality programs for teachers of STEM subjects that improve the teaching and learning process at the kindergarten through eighth grade levels. We present programs that change students' perceptions and inspire an appreciation for science, technology, engineering, and mathematics subjects.

ABOUT US

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EXTEND

KRAKEN SPRINGS WATERSPORTS PARK



The Kraken Springs Watersports Park located in White, Georgia is the only recreational dive park in Georgia. In partnership with Dive Georgia, sign up for training classes to learn how to dive in this former quarry. Appointments are needed as this facility is closed to the public.

STEM CAREER

AQUANAUT

An aquanaut is a scientist that lives under the water for 24 hours or longer while exposed to the pressure of the ocean depths. At work, aquanauts conduct research or carry out programs for NASA. Aquanauts usually work for the government or NASA. If you are interested in working under the sea, being an aquanaut might be for you!



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