

Under Pressure

Before 17th century mathematician Blaise Pascal described the mechanics, people thought a "magician" could "command" the bottle to sink. Your child will love learning the science of a simple "trick" that has been astonishing onlookers since Medieval times.

What You Need:

- Small glass bottle (vanilla bottle, medicine bottle, eye-dropper bottle, nail polish bottle)
- Styrofoam craft ball (not packing Styrofoam)
- Knife
- Deep glass vase
- Plastic lid
- Water
- Towel



What You Do:

1. Help your child gather supplies and set up a work area by placing a towel on the kitchen counter. You'll need a deep, wide-mouth vase or jar, a plastic lid to cover it, and a small glass bottle that fits inside of it.
2. Have your child cut a Styrofoam "cork" for the inner bottle. It doesn't have to be round. The cork should show 1/4" above bottle rim.
3. Invite your child to add a little water to the inner bottle and cork it.
4. Your child should fill the vase with water, place inner bottle in it and observe. If bottle sinks, he can shake a few drops of water out of it. If it "wallows," he can add a few drops of water to coax it upright.
5. When the bottle floats just so, your child can re-fill the vase, if needed, to the very top. Then, have your child place a plastic lid over the vase mouth to seal it.

Invite your child to press on the lid. Pressing increases air pressure. When air trapped in the bottle compresses, it no longer provides enough buoyancy to float. The bottle sinks. When pressure is released, a few drops of water are forced into the bottle to replace air, undoing the equilibrium. (To make it float again, shake out the few drops.)