What's the Matter With This Bottle?

Here it is a bottle of water with an open top, but you can't empty it.

**What to do:** Place the funnel in the mouth of the bottle. Carefully and tightly seal the funnel onto the bottle as seen here:

Use it very sticky black cloth or plastic tape or electricians tape. Take your time and work with strips of tape 8 or 10 inches (10 or 12.5 cm) long. Make certain you tape the funnel onto the bottle so the seal is airtight. Pull the tape tight and press it down firmly.

Put the bottle and funnel in the kitchen sink. Fill the pitcher with water and start filling the bottle. Be sure you pour water into the funnel fast enough so the water level rises in the funnel. This extremely important! Keep pouring so the water level is near the top of the funnel.

Now, place your hand tightly over the top of the funnel (which is full of water) and quickly turn the bottle over so it looks like this:

Keep your hand over the mouth of the funnel until the air inside the bottle rises to what is actually the bottom of the bottle. Don't let even a tiny bubble of air get past.

**What happens:** The water stays in the bottle.

**Why:** With the space between the funnel and bottle taped airtight and the funnel full of water, air is trapped inside the bottle with no way to escape. As water fills the bottle the air molecules are so compressed that the air pressure inside the bottle is equal to the pressure of the water pushing against it.

As long as not even a bubble of extra air works its way into the bottle, the air pressure on the outside will hold the water in the bottle.

### YOU NEED

- large, empty plastic soft drink bottle
- funnel
- sticky cloth or plastic tape
- large pitcher
- water