

AIR PRESSURE BALLOON

In this experiment, we'll explore how air pressure can push water through a straw by using a balloon to create pressure inside a bottle.

INSTRUCTIONS:

STEP 1: Make a hole in the plastic bottle about 3/4 of the way up from the bottom. (**ADULT SUPERVISION with knife**)

STEP 2: Insert a straw into the hole, then seal around it with modeling clay to prevent any leaks.

STEP 3: Fill the bottle with water until it's about 3/4 full. You can add a few drops of food coloring if you'd like.

STEP 4: Inflate a balloon and twist its neck to keep the air from escaping. Carefully stretch the mouth of the balloon over the bottle's top opening.

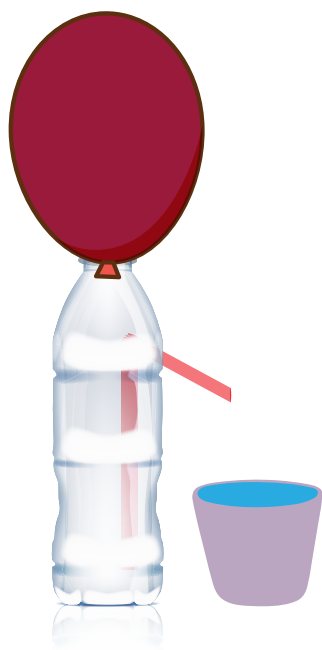
STEP 5: Untwist the balloon to release the air into the bottle, and observe as the water is pushed out through the straw!

Materials

Latex balloon
Knife
Water bottle
Bendy straw
Small cup
Colored water
(color optional)
Clay

THE SCIENCE

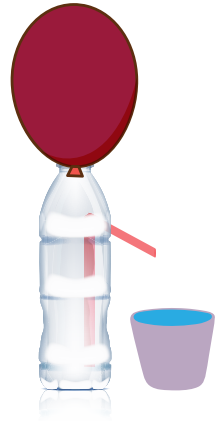
This experiment demonstrates air pressure and how gases can exert force. When the balloon is inflated, it's filled with air at a higher pressure than the surrounding environment. When you untwist the balloon's neck, this high-pressure air rushes into the bottle, compressing the space above the water. Since liquids are incompressible, the water is forced to move in the only direction it can: through the straw and out of the bottle. This movement illustrates the principle that fluids (liquids and gases) flow from areas of high pressure to low pressure until the pressure equalizes.





Air Pressure Balloon Observations

Use this worksheet to process and evaluate your work.



What happens to the water when you released the air from the balloon?

What do you notice about the speed/force of the water through the straw?

How might the experiment change if the bottle were only half full of water instead of three-quarters full?

What effect do you think the size of the balloon or the amount of air in it would have on the experiment?

What did you learn about air pressure?
