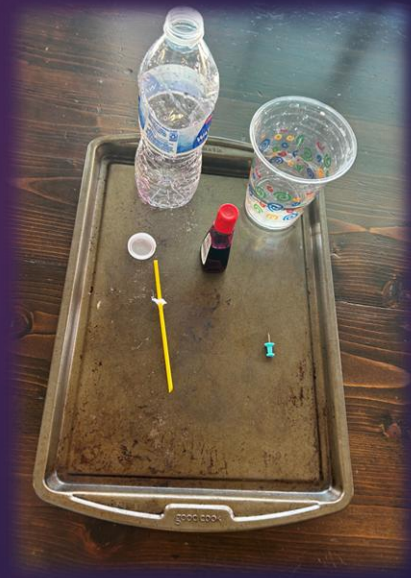


The Effect of Air Pressure on the Flow of Water

PHYSICAL SCIENCES

GRADE 1



Research Question

What happens if you poke a hole in a water bottle filled with water, then cap the top?
Will the water flow out or not?

Hypothesis

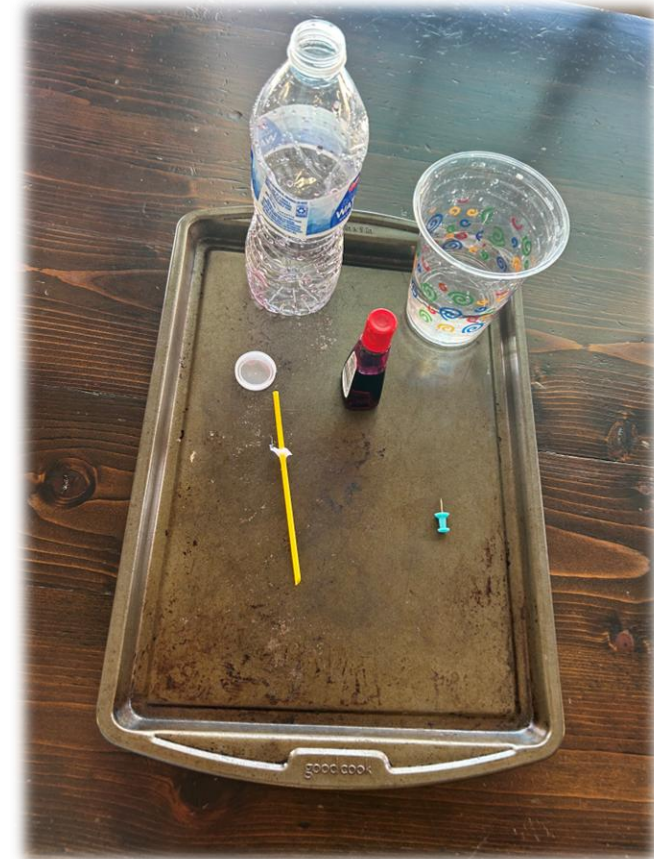
- ▶ I think the water will not flow, when I cap the top.
- ▶ I think the water will flow, when I take off the cap.

Background

- ▶ Air is all around us
- ▶ Even if we cant see air, it still is there
- ▶ Air moves from one place to another
- ▶ ZUBAIR DRAWING TO ADD

Materials

- ▶ Empty 250ml plastic water bottle
- ▶ Water
- ▶ Straw
- ▶ Thumbtack
- ▶ Red food coloring
- ▶ Tray
- ▶ Cup



Experimental Set-up

- ▶ Take off the cap and see if the water will come out.
- ▶ Place the cap back on and see if the water will still come out.

Procedure

- ▶ Using a needle, poke a small hole of the empty water bottle, towards the bottom
- ▶ Fill the bottle with water, while placing your finger on top of the hole, so the water doesn't flow out
- ▶ Add 3 drops of food coloring
- ▶ Push the straw into the hole
- ▶ Place the bottle on a tray

Data

Trial	Cap Off	Cap On
Trial 1	Water flows	Water does not flow
Trial 2	Water flows	Water does not flow
Trial 3	Water flows	Water does not flow

Cap off, water
flows out



Cap on, no
water flows



Results

- ▶ When I removed the cap, the water came out of the hole through the straw.
- ▶ When I capped the bottle, the water did not come out from the hole through the straw.
- ▶ When I capped the bottle while the water was flowing, the water stopped coming out of the hole.

Conclusion

- ▶ My guess was right!
- ▶ When the cap was off, the air from outside went into the bottle, pushing the water out through the hole.
- ▶ When the cap was on, the air couldn't go inside the water bottle so the water stayed there and wouldn't flow out.
- ▶ Air pressure pushes the water out of the hole in the water bottle.

Conclusion

- ▶ Limitations:
 - ▶ The water bottle did leak a bit when I was putting the cap on.
 - ▶ Next time, I would use a stronger bottle.
 - ▶ We hot glued the straw to the bottle so the water doesn't leak.

Journal

Question

what happens if I poke a hole in a bottle and cap it, will the water flow?

Hypothesis

I think that the water will come out of the hole when the cap is off

what I did

1. I poked a hole in a water bottle

2. then I put a straw

in the hole.

3. then I put water in the bottle.

then I put food colour in the bottle.

observations

When I cap the bottle the water does not come out when I take off the cap the water does come out

conclusion

I learned that when I take off the cap, the air pressure pushes the water out.

