

ACTIVITY 3

Bubble Bottle



MATERIALS

Clear Plastic Bottles

**Soapy Water in
Shallow Dish**

Bowl of Warm Water

Bowl of Cold Water

DIRECTIONS

1. Gently place the mouth of the plastic bottle into the soap solution creating a thin layer of soap film.

2. Place the bottom of the bottle in the bowl with cold water.

Ask: What did you observe?

Answer: *The soap bubble/film will suck into the bottle.*

3. Place the bottom of the bottle in the bowl with warm water.

Ask: What did you observe?

Answer: *The soap bubble/film will push out of the bottle forming a bubble at the mouth.*

4. Repeat steps 2-3 multiple times for children to watch the change. If the film breaks, just replace the mouth of the bottle into the soapy solution.

5. Explain the water in the different bowls cools or warms the air inside the bottle. The cold air is more dense just like cold water. Encourage the children to discuss why the cold water wanted to go up or down when we mixed the colored water. The cold air particles are pressed close together which means it has high pressure.

6. Have the children dance under “high pressure” by pressing their arms and legs against the body.

Ask: How much space were you able to take up? What was your movement like when you had high pressure?

Answer: *They will not be able to take much space because everything will be pressed closely together. Their movements will be slow and small because their arms and legs are restricted.*



7. The cold air particles are under high pressure just like their bodies were when dancing. Cold air particles move around slower and are pressed closely together taking up less space. The bubble sinks into the bottle because the air particles press together when they get cold.

8. Explain warm air has less dense just like warm water. That means there the air particles are not pressed close together which means it has low pressure.

9. Have the children dance under “low pressure” by not pressing their arms and legs against the body.

Ask: How much space were you able to take up? What was your movement like when you had low pressure?

Answer: *They will be able to take a lot of space because everything will be freely moving. Their movements will be fast and big because their arms and legs are not restricted.*

10. The warm air particles are under low pressure just like their bodies were when dancing. Warm air particles move around faster and are spread out taking up more space. The bubble pushes out of the bottle because the air particles take up more space when they get warm.