

Air Bubble Experiments

Week 9 — Wednesday | Proving Air Takes Up Space

Reading Time

Today we become air scientists! We will do two experiments that show air is real matter. In the first one, we will blow up a balloon without touching it. In the second, we will trap air under water using a cup.

When baking soda and vinegar mix, they make a gas called carbon dioxide. The gas needs space, so it pushes up into the balloon. The balloon grows without any breath from you!

In the cup experiment, we push a cup straight down into water. A paper towel inside stays dry. Why? Air is trapped in the cup. The air takes up space, so the water cannot get in!

Quick Questions

1. What gas is made when baking soda mixes with vinegar?

2. Why does the paper towel in the cup stay dry?

Safety First

Adult supervision needed! A grown-up must help with the baking soda and vinegar. Do not taste or drink the mixture. Keep it away from your eyes. Wipe up spills right away.

Experiment 1: Balloon Blow-Up

You need: Empty bottle, balloon, 3 spoons of baking soda, half a cup of vinegar, a funnel.

Steps:

1. Pour the vinegar into the bottle.
2. Use the funnel to put baking soda inside the balloon.
3. Stretch the balloon over the bottle top. Do not spill the soda yet!
4. Lift the balloon so the baking soda falls into the vinegar.
5. Watch what happens to the balloon!

My prediction before the experiment:

Experiment 1 Observations

Question	What I Saw
What happened when the powders mixed?	
What did the balloon do?	
Did anyone blow into the balloon?	
What filled the balloon?	

Experiment 2: Dry Paper Under Water

You need: A clear cup, a paper towel, a big bowl of water.

Steps:

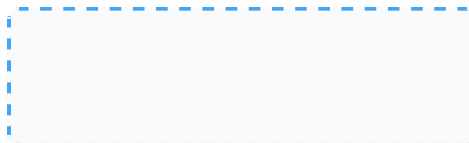
1. Crumple the paper towel and push it into the bottom of the cup.
2. Turn the cup upside down. The towel must not fall out.
3. Push the cup straight down into the water. Keep it very straight!
4. Pull the cup straight back up and check the towel.

Experiment 2 Observations

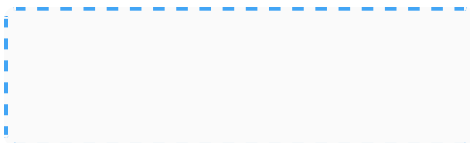
Question	What I Saw
Was the paper towel wet or dry?	
What kept the water out of the cup?	
What happened if you tipped the cup?	

Drawing

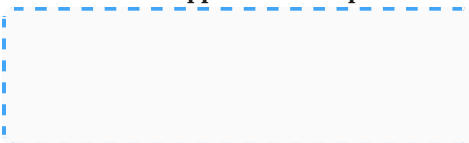
Balloon before



Balloon after



Air trapped in the cup



Extended Writing

Both experiments proved that air and gases take up space. Explain how each experiment showed this. Use full sentences.

Design Challenge

Challenge: Design a boat that uses trapped air to float. Draw your boat and label where the air is trapped.



Why will your boat float?

Science Journal

1. What surprised you most today?

2. What question do you still have about air or gases?

3. Rate today's experiments: circle one.

☐ Awesome ☐ Good ☐ Okay