



Exploding Jellyfish

5-12 yrs | 5 min setup | Stage 2-3



Mission Question

How much gas can a bag hold before it pops?

? Wonder & Predict

I PREDICT THAT.....

- ☐ The bag will stay flat
- ☐ The bag will inflate a little
- ☐ The bag will inflate slowly
- ☐ The bag will inflate fast

There are no wrong predictions.

WHY DO YOU THINK THAT?

What you will need

-
- Zip-lock bags
-
- Vinegar
-
- Spoon
-
- Measuring cup
-
- Bicarb of Soda
-
- Safety Glasses

Investigate

Follow the steps carefully while observing.

- 1

Prepare Your Ingredients
 - Place 1 cup of vinegar in the bag and create your bicarb packet.
 - Wrap 2 spoons of bicarb in a sheet of tissue paper and fold into a square
- 2

Start The Reaction
 - Drop the packet into the vinegar and quickly seal the bag.
- 3

Gather Evidence

Observe the bag for 30 seconds. What clues can you see?

☐ Bubbles forming

☐ Bag expanding

☐ Something unexpected
- 4

Shake and Release

Quickly shake the bag and move back...how did that change things?
- 5

Compare Your Prediction

Look at your jellyfish now. Was your prediction correct?

☐ Yes

☐ No

☐ Partly
- 6

Solve The Mystery

Observe what happens at the end. What happened?

☐ The bag burst

☐ The bag inflated but did not burst

☐ The reaction stopped

Observe & Record

What clues did you discover?

- ☐ The bag expanded quickly
- ☐ The bag felt firmer when touched
- ☐ The reaction slowed down
- ☐ The bicarb packet began to break apart
- ☐ A sediment appeared at the bottom.
- ☐ Bubbles formed in the vinegar
- ☐ Something surprised me



What did you observe?

Draw or write what your jellyfish looked like after the reaction finished.



What happened?

Fill in the sentences using words from the box.

bubbles | vinegar | gas | reaction | packet | bag

1. The bicarb _____ was dropped into the vinegar.
2. Tiny _____ formed in the liquid.
3. The _____ and bicarb mixed together.
4. The bag began to swell as a chemical _____ started.
5. The bubbles were made of a _____.
6. The _____ expanded as more gas was produced.



The science behind it

Why did the bag inflate?

When vinegar mixes with bicarb, a chemical reaction begins. One of the first clues is the bubbles you saw forming in the liquid. These bubbles are a gas being made during the reaction.

As more gas forms, it pushes on the inside of the sealed bag. Because the gas cannot escape, the bag expands and becomes firmer. If enough gas is made, the pressure can even make the bag pop.

What does this have to do with real life?

Gas-producing reactions happen all around us. Bakers use a similar reaction to make cakes and muffins rise. Scientists study gas and pressure to understand how engines work, how rockets lift off, and how chemical reactions behave in closed spaces.

The Exploding Jellyfish experiment is a safe way to see how gas, pressure, and chemical change work together.



Take it further - Investigation Extension

Gas Challenge

Scientists often change one variable and observe what happens.

Which of these do you think will make the bag inflate the fastest?

- ☐ Cold vinegar from the fridge
- ☐ Room temperature vinegar
- ☐ Warm vinegar (adult help required)

My prediction

Professor
Picklebottom
Explorer of
Everything



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