

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# The Leak-Proof Ziplock Bag Experiment

## Objective:

Today, you will investigate why a ziplock bag full of water doesn't leak when you poke pencils through it.

## Materials:

- 1 ziplock bag
- Water
- 2-3 sharpened pencils
- Towels or tray (for any spills)

## Hypothesis:

What do you think will happen when you push a pencil through the water-filled bag?

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## Procedure:

1. Fill your ziplock bag about  $\frac{3}{4}$  **full of water** and **seal it tightly**.
2. Hold the bag up and carefully **push a sharp pencil through one side of the bag and out the other**.
3. Observe what happens. Does water leak out?
4. Try inserting more pencils—how many can fit before it leaks?

## Observations:

Describe what happens when the pencil goes through the bag.

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## Why Does This Happen?

The plastic bag is made of **polymers**—long, flexible chains of molecules. When the pencil pushes through, the polymers stretch and create a tight seal around it, preventing leaks.

## Follow-Up Questions:

1. What surprised you the most about this experiment?  
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2. What do you think will happen if you remove the pencils?  
\_\_\_\_\_
3. Can you think of other objects that might work the same way?  
\_\_\_\_\_

## Take-Home Challenge:

Try this experiment at home and show a family member! See how many pencils you can fit before the bag starts leaking.

**Bonus Question:** Polymers are used in many everyday objects. Can you name three things made of flexible plastic or rubber?

1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
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- \_\_\_\_\_

## Fun Fact:

Polymers are found in nature too! Spider silk, tree sap, and even DNA are made of polymers!