**Leak Proof Bag Experiment**

**Objective:**

To demonstrate that a bag filled with liquid can be made leak-proof by using a sharp point object, illustrating the properties of pressure and how it affects liquids.

**Materials Needed:**

- Ziplock bag or any resealable plastic bag

- Water

- A sharp point object (such as a pencil, a skewer, or a sharp wooden stick)

- Towels or a waterproof surface (to catch any spills)

- Optional: food coloring (to color the water)

**Procedure:**

1. Preparation:

- Gather all materials on a flat, waterproof surface or place towels beneath your workspace to catch any spills.

2. Fill the Bag:

- Pour water into the Ziplock bag until it’s about halfway to 3/4 full. If desired, add a few drops of food coloring to make the water more visible.

- Seal the bag tightly to prevent any leaks.

3. Check for Leaks:

- Gently squeeze the bag to check for leaks. Make sure it’s securely sealed.

4. Insert the Sharp Point Object:

- Take the sharp point object (e.g., a pencil) and carefully poke it through the water filled bag.

- Make sure to insert it at a slight angle

- Do not remove the sharp point object from the bag

- Observe what happens as you do this. The water should not leak out around the sharp object.

5. Observation:

- Note how the bag maintains its integrity despite the sharp object being inserted. Discuss the phenomenon that occurs—how the water pressure inside the bag and the material of the bag creates a seal around the object.

6. Remove the Sharp Object:

- After observing the effect, carefully pull the sharp point object out of the bag. Watch for any leaks that occur once the object is removed.

7. Discussion:

- Discuss the concepts of pressure, surface tension, and the properties of the bag material. Why did the water not leak when the object was inserted?

- Consider how this experiment relates to real-life applications, such as the design of liquid storage containers.

**Conclusion:**

Summarize what was learned from the experiment. The bag can contain liquids without leaking even when punctured, demonstrating the fascinating properties of pressure and liquid behavior.

**Safety Precautions:**

- Handle sharp objects carefully to avoid injury.

- Clean up any spills promptly to prevent slipping.

**Variations:**

- Try using different types of bags to see if there are differences in results.

This experiment is a great way to engage with concepts of science in a fun and hands-on manner!