

## Section 2

### Understanding Structures and Mechanisms

#### EXPLORATION 1

## Does air have weight?

Weigh air and learn that air has weight.

Air cannot be seen or touched, but we can prove its existence by blowing bubbles, riding a hot-air balloon, or flying a kite. Air is made up of different gases, like oxygen, carbon dioxide, and nitrogen. We can actually feel air when it moves as wind, but does it weigh anything like all matter does? If it does, how can we prove it?



*We can fly kites  
because of air.*

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## Does air have weight?

In this experiment, you will explore one of the properties of air – air has weight.

**Level of Difficulty:**

**easy**

**Time Needed:**

**30 minutes**

### Hypothesis:

**Circle the correct word(s) to show your hypothesis.**

Air **has / does not have** weight.

### Materials:



**2 balloons**



**thread**

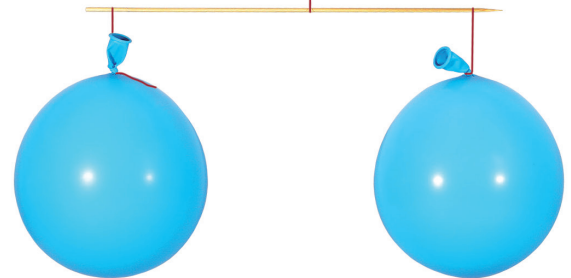


**a long skewer**



**a pin**

*The balloons are balanced now. What will happen if one balloon has less air?*



### Steps:

1. Inflate both balloons to the same size.
2. Tie one balloon on each end of the skewer.
3. Tie a piece of thread to the middle of the skewer. Hang the skewer from the edge of a table and balance it by moving the thread in the middle.
4. Gently pierce a hole close to the neck of one of the balloons without popping it.
5. Observe the balance of the skewer as the air rushes out of the pierced balloon.

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### Conclusion:

Circle the correct words after conducting the experiment.

The skewer **did not tilt / tilted** once the air started rushing out of the pierced balloon.

My hypothesis was **correct / incorrect** .

### Explanation:

Before the balloon was pierced, the balloons were about the same weight and therefore they balanced the skewer.

When one of the balloons was pierced, the air rushed out from it and the skewer started to tilt toward the air-filled balloon.

The air-filled balloon was heavier due to the weight of the air inside it. This experiment shows that air has weight.

