

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

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

# Falling Pop Bottles

## Overview:

You will perform an experiment to determine if heavy objects fall faster than lighter objects of the same size and shape. You will do this by dropping two pop bottles at the same time, from the same height. Each pop bottle will have a different amount of water in it, making one heavier than the other. One person in the group will drop the bottles at the same time, from the same height. The other group members will observe to determine which pop bottle hits the floor first.

## Materials:

- 2 empty plastic pop bottles
- metre stick
- water
- marker
- safety goggles

## Procedure:

1. Label one empty pop bottle "A," and the other empty pop bottle "B."
2. Fill bottle A half full of water, and screw the cap on tightly.
3. Fill bottle B full of water, and screw the cap on tightly.
4. Fill in the Hypothesis section of this sheet.
5. One group member will put on safety goggles and hold the two pop bottles 1 metre from the floor.
6. The other group members will put on safety goggles and get down to floor level to observe which bottle hits the floor first. (Be sure that all group members maintain a safe distance from where the bottles will hit the floor.)
7. Repeat this experiment 10 times from the same height, recording your results each time.
8. Now repeat this experiment again 5 times, each time changing the height at which you drop both bottles (e.g., drop both bottles from 0.5 m, 0.75m, 1.25m, 1.5m, 2.0m), and record your results.

**Hypothesis:** (Predict what will happen when you drop both bottles from the same height at the same time.)

**Results:** For each repetition, make a checkmark to show which bottle hits the ground first.

Height	Bottle A	Bottle B	Same Time
1 m – Trial 1			
1 m – Trial 2			
1 m – Trial 3			
1 m – Trial 4			
1 m – Trial 5			
1 m – Trial 6			
1 m – Trial 7			
1 m – Trial 8			
1 m – Trial 9			
1 m – Trial 10			
Height #2 _____			
Height #3 _____			
Height #4 _____			
Height #5 _____			
Height #6 _____			

**Conclusion:** Based on your results, what statement can you make about your observations? Do heavier objects fall faster than lighter objects? Was Aristotle correct? If not, what observations might have led to Aristotle's belief that heavier objects fall faster than lighter objects?

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