

Bouncy Ball Lab

Part 1: Plan the experiment

1. Think about a research question and make sure it is testable
 - a. Think about what 2 balls you want to use and why. Do you want to use 2 balls of the same material but different sizes? Or 2 that are the same size and different material?
2. Make sure all group members are involved in some way.

Part 2: Doing the experiment

1. Each group will get two different balls
2. Drop your ball a minimum of 6 different heights between 0 and 1 m and record the data for how high the ball bounces up.
 - a. Measure from the bottom of the ball – keep your measurement consistent!
 - b. You may use your phone to video a more exact height
3. Based on your data, predict how high the ball will bounce up if you drop it from 1.5 m
4. Claim – How high the ball will bounce up if you bounce it from 1.5 m
5. Evidence – the data you collected
6. Reasoning – explain how your evidence supports your claim
7. Name any limitations – possible sources of error
8. What would you graph to explain your data?
 - a. Independent variable – x-axis
 - b. Dependent variable – y-axis
 - c. Label your axes clearly with the appropriate units
 - d. What would a position vs. time graph look like for the ball as it is on the way down?
9. What could you put in a table?

Part 3: Writing the Report

Break your report up into 5 sections:

- 1) Write a brief (2-3 sentence) **introduction**
 - a. Answer the question – “What is your research question?”
- 2) **Materials and methods** – “How did you test your research question?” “What did you do?” Write this in such a way that someone who does not know what this experiment is can repeat it.
- 3) **Results** section will have the Evidence – include any tables and graphs you use.
- 4) **Discussion** section will contain your Claim, your Reasoning, and your justification.
 - a. “Based on our evidence that _____ and _____ happened, we hypothesize that _____ and _____ will happen when we drop the balls from 1.5 m because _____.”
 - b. What were the differences between the two balls? Explain those differences.
 - c. Describe and explain the physics principles behind this experiment.
 - d. What are some sources of error?
 - e. Anything you would do differently if you did it again?
 - f. What did you learn?
 - g. Is there any way you can think of to extend the experiment?
- 5) In your **Conclusion** section you will write a 1-2 sentence summary of the paper.