

Title: The Impacts of Inertia

Purpose:

- **To demonstrate how inertia impacts the movement of objects**
- To organize and graph data
- As students complete the lab exercise, students are to complete their lab notebooks and follow the correct Lab Notebook format found at the course website.

Pre-Lab Quiz

- Questions relating to lab equipment and the scientific method will be completed on QUIA.

Research Question {Problem}

- Students are to create a problem based on under-lined section in the purpose section above.
- Remember the correct format of the problem.
 - MUST be written as an open-ended question.

Pre-Lab Questions

- There are no pre-lab questions for this lab exercise

Hypothesis:

- Students must create a hypothesis using the **if-then** format. For **EACH** of the experiments of the lab exercise
 - Hence, students should establish an independent variable and a dependent variable for **EACH** of the experiments of the lab exercise.

Thesis Statement:

- Write 1 – 2 sentences that provide a **SCIENTIFIC** reasoning for writing the hypothesis.
- There should be two thesis statements for the two experiments provided below.

Experiment #1

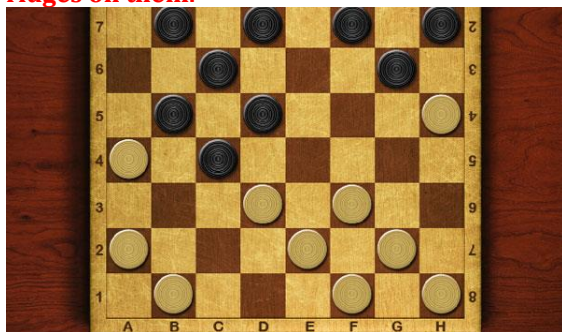
Materials

1. 9 to 11 checkers/coins {the coin should be quarters}

Procedures

1. Build a stack of eight or ten checkers/coins. (If you use coins, make sure that they are all the same size)
 2. Place another checker/coin beside the stack.
 3. Leave about an inch between this checker/coin and the stack.
 4. Flick the single checker hard with your forefinger or your middle finger. Give it a really hard snap.
 5. The bottom checker/coin should fly out from the stack and if all goes well, the rest of the pile will stay neatly in place.
 6. Students should run this experiment at least 20 times and record their data
-

Important Note: -If checkers are going to be used, the checkers should be the flat kind with no ridges on them.



Important Note: -If coins are going to be used, the coins should be quarters.

Experiment #2

Materials

- 1 coin (quarter)

Procedures

1. Place the quarter on your elbow.
2. Hold your arm parallel to the floor. (If you do not do this, the coin will fall off.)
3. You are now going to catch the coin on your elbow WITH THE HAND ON THE SAME ARM THAT YOU ARE USING TO BALANCE THE COIN.
4. In one sudden move, drop your arm, open your hand, and catch the coin.
 - a. The palm of the hand should be FACING THE FLOOR when the catch is made.
5. Students should run this experiment at least 20 times and record their data.

Results:

- Data tables for both experiments.
- Graphs (for both experiments)
- **Important Note: - Each table and graph should have a "title" and a description.**

Discussion/Conclusion Hybrid:

- Step 1: For the opening paragraph of the Discussion, explain what the findings mean in terms of the scientific concept or laboratory procedure of the lab. In other words, discuss the connection between the evidence you collected and what you were supposed to be learning about by doing the lab. If necessary, refer to graphs, drawings, tables, lists, or other visuals from the Results to support your explanation.
- Step 2: In the final part of your Discussion, write about other items as appropriate, such as (1) questions that remain unanswered; (2) sources of uncertainty in your lab methods that may have led you to unclear answers; (3) how your findings compare to the findings of other students in the lab and an explanation for any differences; (4) what further investigations you would do in order to gather more information; (5) suggestions for improving the lab.
- Step 3: There may be more that you have learned about from the lab experience that is not directly related to the main focus of the lab, the scientific concept or lab procedure. If so, describe it in a paragraph or two.
- Include information about the impacts of inertia

Post-Lab Quiz

- Students will complete post-lab quiz questions on QUIA.