

IA Lab: title

Experimental design: As a student you are to design and describe an investigation, collect and analyze authentic lab data, and make observations to identify patterns and / or explain phenomena.

Statement explaining the scenario and/or observation of a phenomena. The student (or you hypothesize) hypothesizes that _____.

(a) Design an experiment to test the hypothesis about _____.

Any equipment that would usually be found in a high school physics laboratory is available. If you have any questions about the availability of specific equipment, please ask.

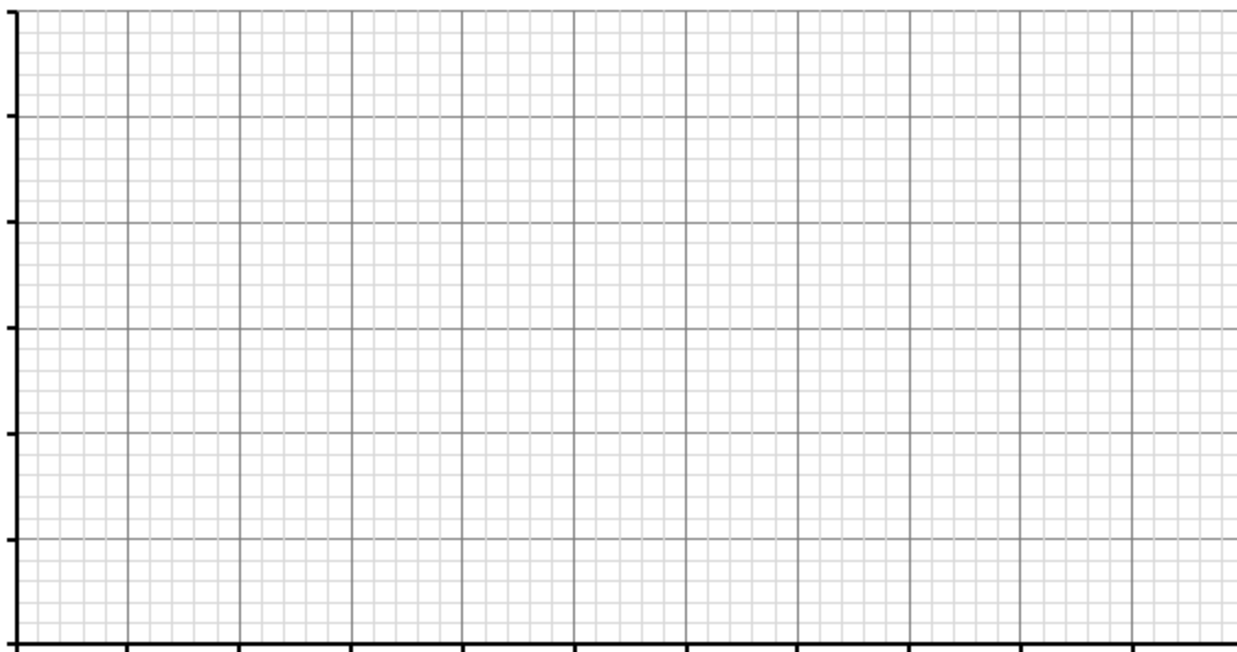
- (i) What quantities would be measured?
- (ii) What equipment would be used for the measurements, and how would that equipment be used?
- (iii) Describe the procedure to be used to test the hypothesis. Give enough detail so that another student could replicate the experiment. Include a labeled diagram of the experimental setup.

(b) Describe how you would represent the data in a graph or table. Explain how that representation would be used to determine whether the data are consistent with the hypothesis.

(c) Carry out the experiment and analysis described in parts (a) and (b).

(i) In the space below, design a data table and collect data for the variables described.

- (ii) Label and scale the axes below, then plot the collected data so that the desired variable can be determined from a best-fit line.



- (iii) Show calculations to determine the desired variable.

On a separate sheet of paper:

- (d) After completing the graph(s) and calculation(s), consider factors that might have produced uncertainties in the experimental results and describe how those factors may have affected the results.
- (e) What conclusions can you draw from the results of your experiment to either support or contradict the hypothesis.

Adapted from: [John Horwat](#), Parkside High School, Salisbury, MD