

Learning Intentions

- To pursue sustained research about a topic of personal interest to you
- To learn how to develop procedures for a well-controlled kinematics experiment

Project Introduction

For this project, you will choose a topic of personal interest to you, and perform a kinematics experiment to learn more about the topic. You will go through all parts of the scientific method:

- Part 1 (completed)
 - Background research
 - Generate 3 hypotheses
- Part 2
 - Design an experiment to test one of the hypotheses
- Part 3
 - Run the experiment
 - Analyse your results
 - Generate new hypotheses based on your results

Experimental Procedures

Read the feedback you received on your hypotheses. Choose your best hypothesis, and start to create a set of procedures to test the hypothesis. Your experiment should involve displacement, velocity, acceleration, and time. Make sure that your procedures isolate the independent variable, and that control variables do not change between trials.

Try to design an experiment that demonstrates your ability to create a well-controlled scientific experiment. Be sure to describe how you will analyze and communicate your results - will you use graphs, trendlines, charts, data tables, text, or something else?

Remember that scientific experiments yield much more accurate results when there are multiple trials that are averaged. To measure displacement, velocity, and acceleration, you will need a stable (non-moving) video of your topic that can be analyzed in Physics Tracker (<https://opensourcephysics.github.io/tracker-website/>). The video should be taken perpendicular to the motion of the object, so the motion is not distorted.

There is an online version of Physics Tracker available at <https://opensourcephysics.github.io/tracker-online/> that does not require installation of the tracker desktop application. There is also a tutorial on the use of Physics Tracker at https://www.youtube.com/watch?v=JhI-_gIsE6o.

Assessment

Curricular Competencies	Insufficient Evidence	Emerging	Developing	Proficient	Extending
Planning and conducting					
Communicating					