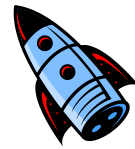




Lofty Heights Lab



- Objective:** Determine the maximum height that the air rocket obtains.
- Groups:** Students may work in groups of no more than three when determining an analysis plan and completing a write-up. The class will collect group data.
- Provided Materials:** One stopwatch. One rocket. One rocket launcher.
- Procedure:** Student groups are to design a procedure they will use to determine the maximum height obtained by the rocket when launched. Ahead of time, students should determine what data they need to collect, how they plan to collect the data and what calculations will be done with the data. Rockets will be launched in the vertical position during the next class period.
- Turn In:** A short (one page plus graphs) write-up per group. The write-up can be hand-written but must be both neat and legible. The write-up should abide by the following format:
- A description of the procedure used to determine the maximum average height the rocket attains. Include a list of the specific steps taken (and why they were taken) to increase your accuracy and minimize your error. Be specific so that someone else could do exactly what you do.
 - Your raw data (in table form, or other appropriate format).
 - Show all calculations and work.
 - Answer the following questions:
 1. How high did the rocket go?
 2. How did you determine the significant figures associated with your measured quantities (provide a justification).
 3. Explain how your answer to Question #2 impacts your uncertainty in the height of the rocket?
 4. List five sources of error in your measurements. For each source, explain the impact each would have on your final measured height. (Would the error cause our estimated height to be too high or too low and by how much?)
 5. Sketch d -vs.- t and v -vs.- t graphs for a typical rocket. Place numbers on the graph as you can (you do know some). Describe each graph, explaining in terms discussed in class, what the rocket is doing during each portion of your graph.