

ROCKET LAUNCH

Purpose:

1. To apply the laws of rocket flight and compare the results with the flight of a real rocket.
2. To provide an understanding of the factors that determine the performance of a rocket.
3. To give the experience of organizing and conducting a launch campaign.

Tasks:

1. Building a model rocket, and testing it for stability. Choosing a simple and suitable method for altitude measurement, and finding the necessary equipment.
2. Launching the rocket with various motors, and measuring the altitude reached by the rocket. The organization of the launch campaign, including safety, is part of the task.
3. Comparison between calculations and observations of the rocket trajectory. An analysis of the rocket performance in theory and practice.
4. A written report of the results. This report should include an overview of the launch campaign, theoretical estimates of the expected trajectory, a description of measurement techniques, the results of the measurements, and a discussion of the results.

Organization:

1. All tasks except the launch are carried out in groups of 3–4 students. The groups should be formed on **Thursday, September 13**. A rocket kit is given to each group. Each group is responsible for the building of a model rocket and the design of their altitude measuring instruments. Modifications and decorations of the rockets (but not the motors!) are allowed.
2. All groups join at launch time and assist each other with rocket launching, tracking, altitude measurements, cheering, *etc.*
3. The suggested launch site is the lawns at Nydala.
4. The count-down commences at **1300 on September 20, 2012**.