The Rocket: Up, Up and Away!

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This activity consists in a long experimentation process, which is spread over just about the entire semester, and is divided into three phases:

1. Building a rocket: Students must design and build their own rocket, based on fundamental principles in physics and aeronautics.

2. Measuring the rocket's trajectory: Using triangulation, students measure the height of the apogee as well as the duration of the ascent of their rocket with a given engine.

3. Simulating the flight: Using a spreadsheet, students compare two different physical models to simulate the flight of their rocket. In the first model, there is no air friction, and in the second model, the friction is proportional to the square of the velocity (Benson, 1999). Students must assess if there is a considerable difference between the results of the two models and, if required, determine which model best reproduces the results measured during the flight.