

# Longest Launch

## *Rocket Flight Duration Competition*

### Situation

It has been determined that children and hobbyists enjoy building and launching rocket kits that have a long flight duration period.

Design and construct a prototype model rocket that will achieve the longest flight duration from time of ignition to time of touchdown to the ground.



### Resources

Time	10 class periods
People	Two
Energy	The total energy from a B6-4 Estes rocket engine Electrical for ignition only
Information	Design concepts of stability, drag reduction, recovery devices, altitude estimation, actual altitude calculation
Money	None
Tools	X-acto knives, rulers, scissors, launch pad, ignition system, sandpaper
Materials	Balsa wood, stock body tubes, stock nose cones, empty paper towel rolls, glue, tape, model rocket engines, igniters, recovery wadding, paint, any other material that fits NAR safety requirements
Space	The entire space of the launch site

### Other Criteria

- All NAR safety requirements must be adhered to.
- The design must incorporate a recovery system.
- The design must be determined to be stable before launch.
- The constructed rocket must be an actual prototype and include aesthetic consideration.

### Required

### Documentation

*The following must be handed in at the end of the activity:*

1. All design sketches, notes, and drawings.
2. Calculation for actual height achieved
3. Records of all tests for flight duration