

Standards Taught

This activity teaches the following
National Education Standards:

Science:

A: Scientific inquiry

B: Motions and forces

E: Technological design

Math:

Measurement

Patterns and functions

Technology:

NT.K-12.3 Technology productivity

tools

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06.25.11

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07.27.11

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Soda-Straw Rocket Activity Soars



JPL's Jojo

Aguilar shows how to make the rocket: Cut out the template, wrap the long rectangular section around a pencil, tape the fins, insert a straw and blow!
Image credit: NASA/JPL

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by Jojo Aguilar

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The "Soda-Straw Rocket Activity" is my favorite project to share with educators and students of all ages. This experiment allows classrooms to study rocket stability as students construct and fly small "indoor" paper rockets. The goal of this exercise is for students to conduct an experiment, analyze the data and interpret the results. And who doesn't love rockets?

From start to finish, this activity takes less than 30 minutes.

Materials Needed

[Rocket template \(download here\)](#)

Pencil

Scissors

Tape

Soda straw

To create your rocket, download and print the soda-straw rocket template from:

<http://www.jpl.nasa.gov/education/images/pdf/sodastrawrocket.pdf> .

Once completed, you will have a nice little rocket that stands just over five inches tall. Now, insert a soda straw into your rocket and blow into the straw. Record your rocket's length and how far it travels using the template's data log. Next, make rockets of different lengths to see how that affects the results. (Vary the length by cutting the tube that forms the rocket.)

Classroom tips:

- When students are done recording data, see if they can use their findings to reach objects, such as a classroom globe.
- Students should work in groups of four to six and build rockets of different sizes. They can share data and discuss how rocket length affects distance.
- Let students personalize their rockets by coloring or drawing on them.
- Students can experiment and improve on their current design or design entirely new rockets for better space travel.
- Have fun!

Soda-Straw Rocket Template

Activity Time:

20 Minutes

Materials Needed:

Soda-Straw Template

Sharpened Pencil

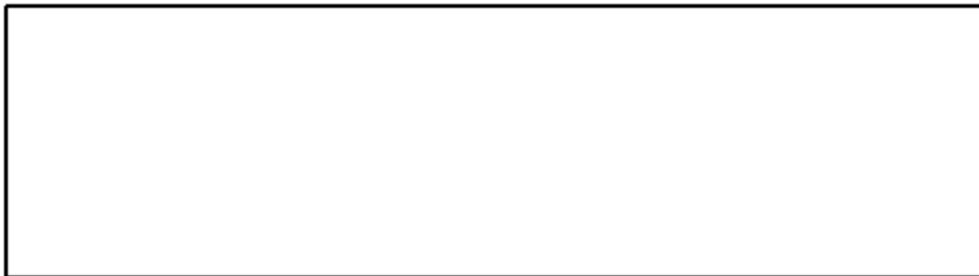
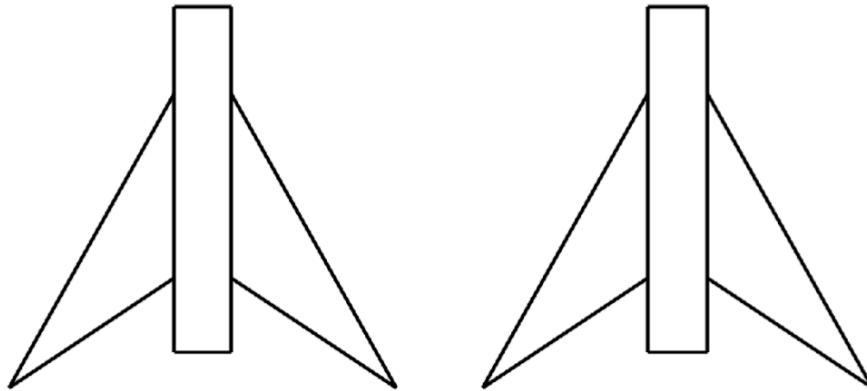
Scissors

Tape

Soda-Straw

1. Carefully cut out the rectangle. This will be the body tube of the rocket. Wrap the rectangle around a pencil length-wise and tape the rectangle so that it forms a tube.
2. Carefully cut out the two fin units. Align the rectangle that extends between the two fins with the end of your body tube and tape it to the body tube. Nothing should stick out past the body tube! Do the same thing for the other fin unit, but tape it on the other side of the pencil, so you have a “fin sandwich.”
3. Bend the one fin on each fin unit 90 degrees so that each fin is at a right angle to its neighbor. When you look along the back of the rocket, the fins should form a “+” mark.
4. Using the sharpened end of your pencil, twist the top of the body tube into a nose cone. Measure your nose cone from its base to its tip and record the length on your Data Log and on the rocket itself

(For the Data Log, create a chart on a piece of paper with columns labeled “Rocket Length” and “Distance Traveled.” For every attempt, fill in the log).
5. Remove the pencil and replace it with a soda straw. Blow into the straw to launch your rocket! Record the distance it travels on your Data Log.



Soda-Straw Rocket Data Analysis

Distance Traveled (cm)

Nose Cone Length (cm)