Bottle Blast-Off!

Making Rockets

Make a paper rocket and see how high it flies.

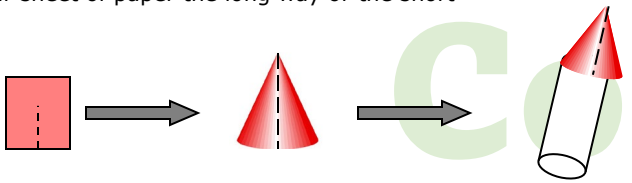
What Do I Need ?

- One and a Half sheets of 8 1/2" x 11" paper (can be printed on one side)
- 30 cm length of 1/2” PVC pipe or any tube with a 1/2" diameter
- Scissors
- Clear tape
- Playing Cards (or any stiff paper, such as used file folders or 3" x 5" cards)
- Markers

What Do I Do ?

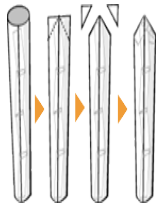
Step 1

Roll a sheet of 8 1/2" x 11" paper into a cylinder that will fit over the tube. The paper should not be tight around the PVC pipe, but should be able to slide off easily. Tape your paper tube so it stays rolled up, and slip it off the PVC pipe. Put the PVC pipe aside. You can roll your sheet of paper the long way or the short way.



Step 2

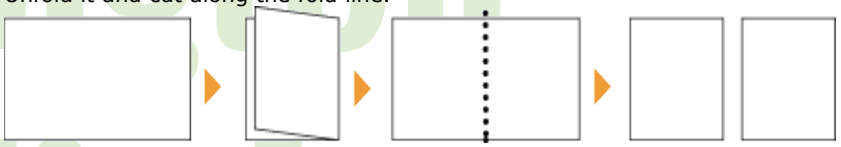
There are two different ways you can create a nose cone for your rocket. First you could take a ½ sheet of paper and cut half way up with scissors and then twist into a cone. Next you would attach the cone to the body of the rocket. Another method is to clip the end of the tube to make it pointed. Use tape to seal the point so it’s airtight.



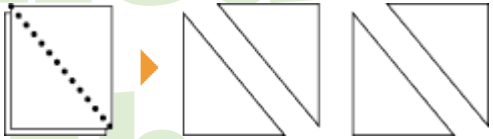
Step 3

Rocket fins will help your rocket fly straight. Fins are usually triangular shapes. Cut fins from the two playing cards by cutting them diagonally across. In your classroom, if you don’t have playing cards you may use some other stiff paper. Here’s one way to cut them from a 3" x 5" card.

If using a 3 X 5 Card: Fold the card in half to make a short rectangle. Unfold it and cut along the fold line.

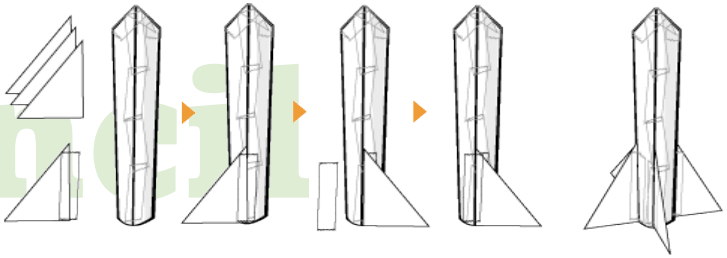


If using Playing Cards: Stack the two playing cards or two halves of the card created in the previous step. Draw a line from one corner of the folded rectangle to the other. Cut along the line you’ve drawn and you’ll have four fins.



Step 4

Tape the fins to the sides of the rocket at the base. Be sure to tape both sides of the fin to the rocket.



Step 5

Use a marker to write your name on the side of your rocket.

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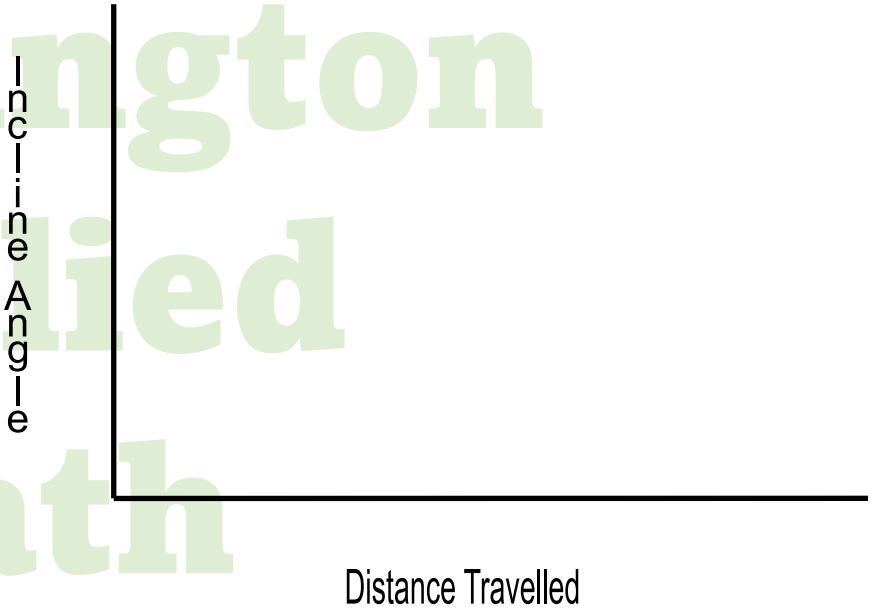
Data Collection

Launch your rockets at the following inclines and measure how far the rocket travels. Once you've collected your information, graph the data and calculate a "line of best fit" in the $y=mx + b$ format.

Angle (degrees)	Distance Travelled (m)
10°	
20°	
30°	
40°	



Questions:

1) How could you use this lab with your class?

2) In what ways could you add on to this activity to deepen your student's understanding?

3) What Units or State Standards could you align this to?