



# Build a Paper Stomp Rocket



## BUILD

Making paper stomp rockets is a fun activity to do with youth of all ages. These rockets offer all kinds of possibilities and are easy to modify and experiment with. They can be launched using a simple stomp launcher which can be made for around \$5 (see instructions for the Stomp Launcher).

### Materials

- 1 Sheet of paper or cardstock (PaperRocketTemplate.pdf)
- Clear office tape
- Binder clip (optional)
- Scissors
- Piece of 1/2 inch PVC pipe

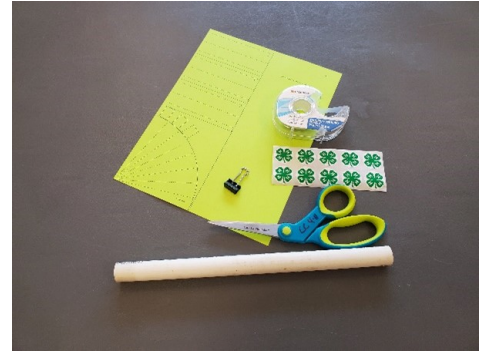


Figure 1. Materials

### Step 1 - Cutting the pieces

If you have the PaperRocketTemplate.pdf you can cut the template pieces on the solid lines. You should end up with a long piece for the body, a 1/4 round piece for the nosecone and three small pieces for the fins (figure2). If you do not have the template, you can approximate the shapes in figure 2. You need a rocket body, a nose cone and 3-4 fins.

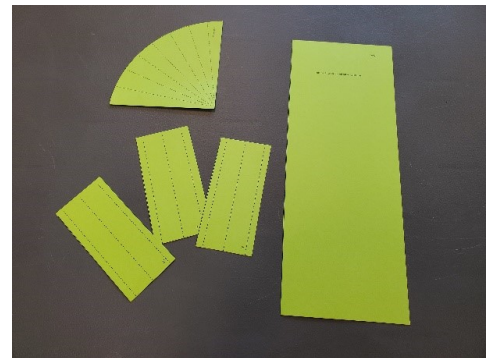


Figure 2. Cutting the template pieces

### Step 2 - Making the rocket body

Roll the large rectangular piece lengthwise around the PVC tube. Then tape the seam with clear tape. (figure 3)



Figure 3. Roll and tape seam

### Step 3 - Pinch the end of the body tube

Press and flatten one end of the body tube in opposite directions so that it makes the end square. Then press in two opposite sides to bring them together (like a milk carton). Tape this end shut, or pinch it closed with a binder clip as shown in the photo (figures 4-7).



Figures 4-7. Pinch and square the tube and tape or clip the end



## Step 4 - Fold the fins

Repeat the following for all three fins.

4a. Fold down the center lengthwise. (figure 8) 4b. Fold each flap back on the dotted line. (figure 9) 4c. Trim the corners to make streamlined. (figure 10)

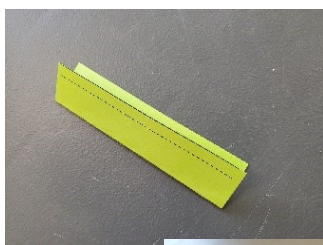


Figure 8

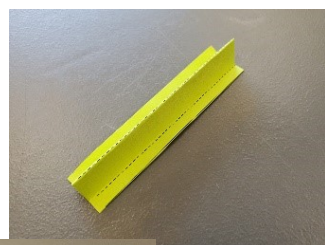


Figure 9

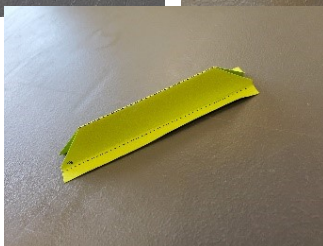
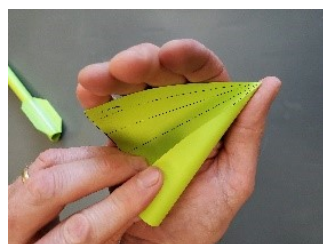


Figure 10

## Step 6 - Forming the nosecone

Curl the  $\frac{1}{4}$  round circle in your hand or around a finger to form a nosecone. Tape it along the seam. Make some  $\frac{1}{2}$  inch deep cuts to make it easier to attach to the rocket body (Figures 14-17).



Figures 14-17. Curl to form nosecone and tape seam

Claes Thelemarck, M.S. Extension Field Specialist 4-H Youth Development, Science Literacy University of New Hampshire

## Step 5 - Attach the fins

Lay the rocket on its side and, using clear tape, attach one fin to the side of the rocket. Then turn the rocket to rest it on the fin and tape the second fin, continue to attach the third fin so they are evenly spaced around the base of the rocket. (figures 11-13)



Figure 11



Figure 12



Figure 13

## Step 7 - Attaching the nosecone

Tape the nosecone to the tip of the rocket and attach with clear tape (figures 18 & 19).



Figures 18-19. Tape nosecone to tip with tape

## Step 8 - Launch it!!!

Place it over the launch tube of a soda bottle stomp launcher. When ready, give it a count down and launch!

## Step 9 - Observe and improve

Now the fun begins. Launch your rocket and observe how it goes. Does it fly straight, or does it drift and float? Does it tumble end over end? See if you can improve the design. Make changes to the materials you use, the body shape or length, the size, shape or position of the fins. Build new rockets and experiment. See what you can learn about rockets.

