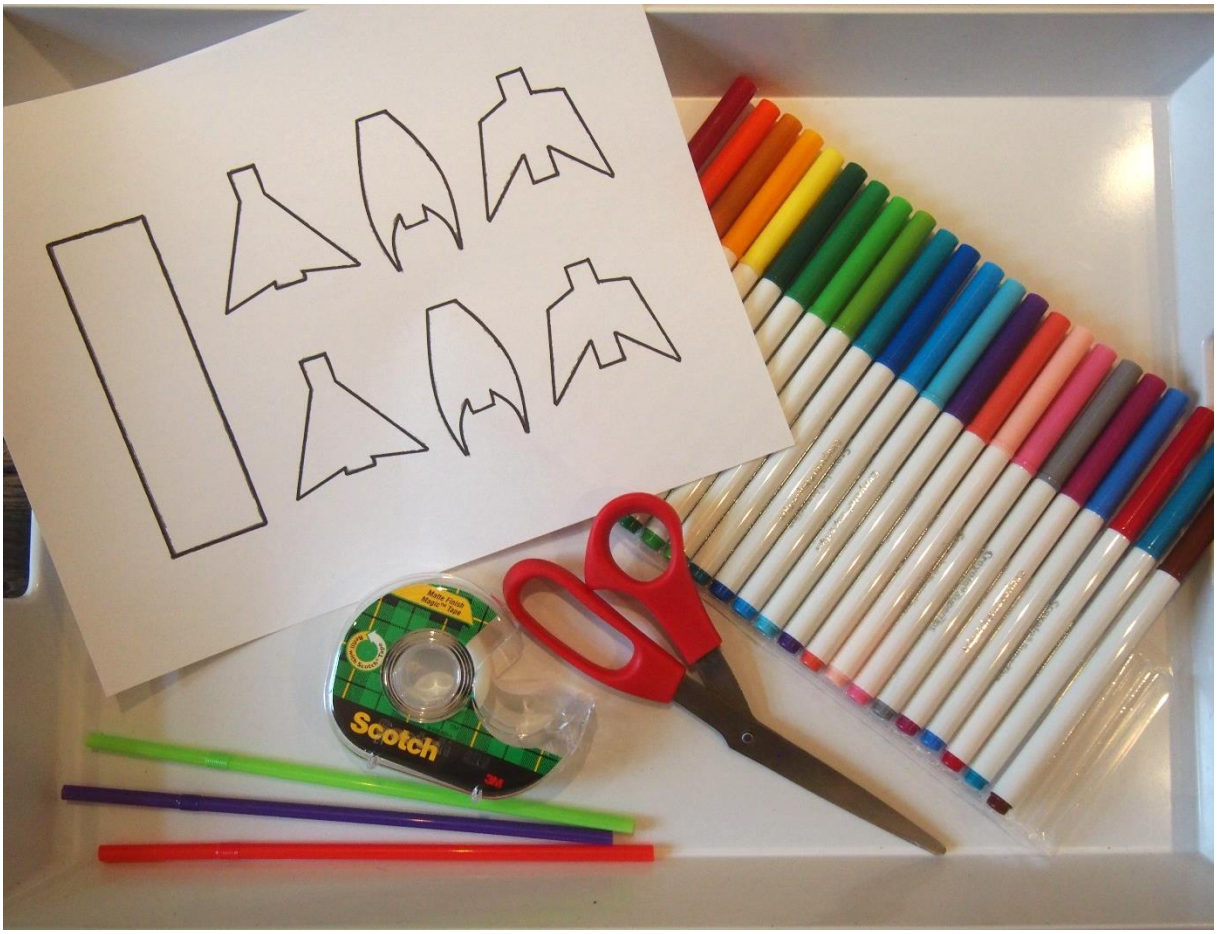
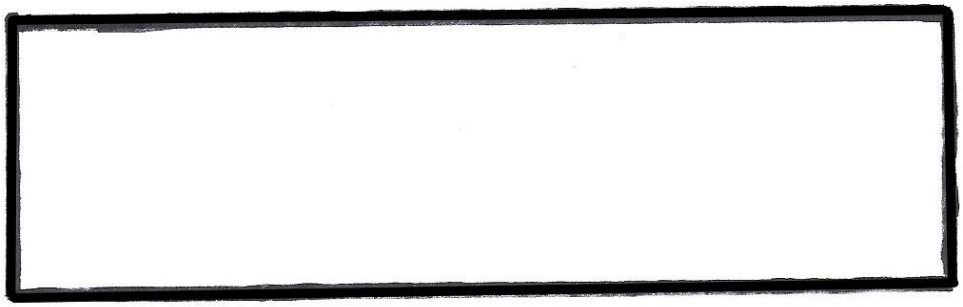
Launch a Straw Rocket!

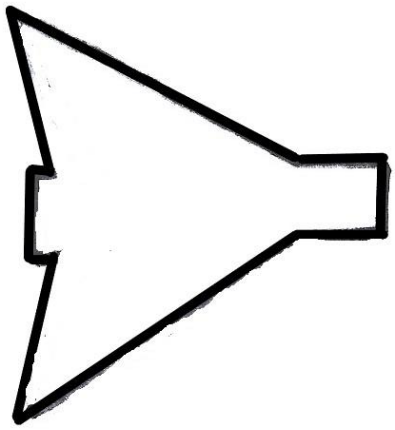
Are you ready to try your hand at rocket science? Do you want to practice your engineering skills, like Miranda in *The Countdown Conspiracy*? Design and launch your own miniature rocket using these simple instructions! All it takes is a few materials:

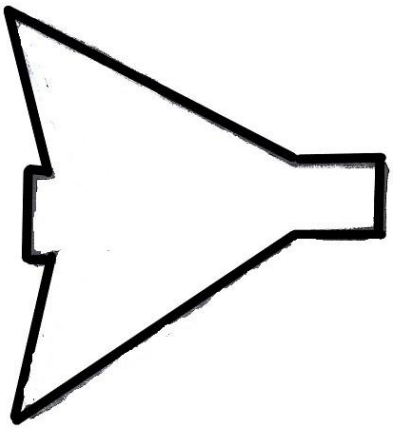
- Rocket template (print the next page or draw your own!)
- A drinking straw
- Scissors
- Tape
- Markers or colored pencils
- Bowl or bucket (optional)

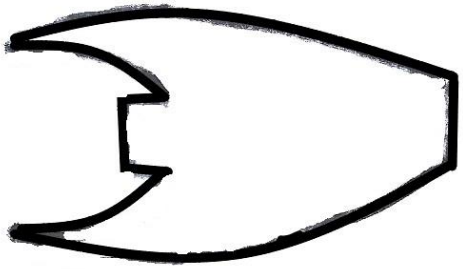


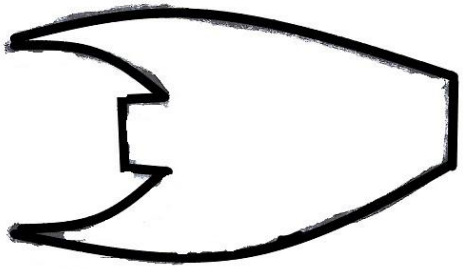
****IMPORANT** When testing your rocket, do not aim at living creatures, such as siblings or pets. While made of paper, the end of the rocket is still pointy and could hurt.**

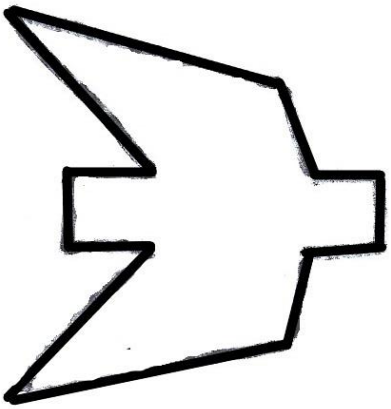


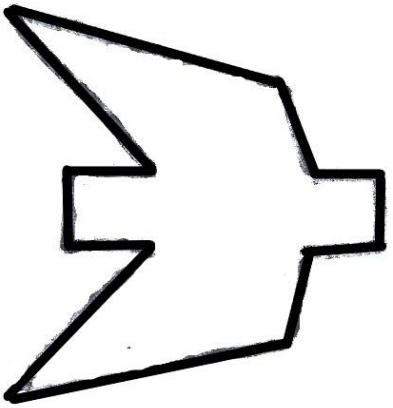








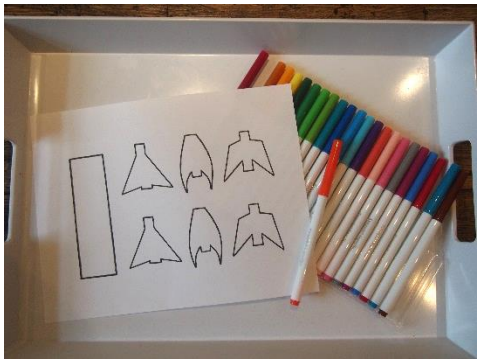


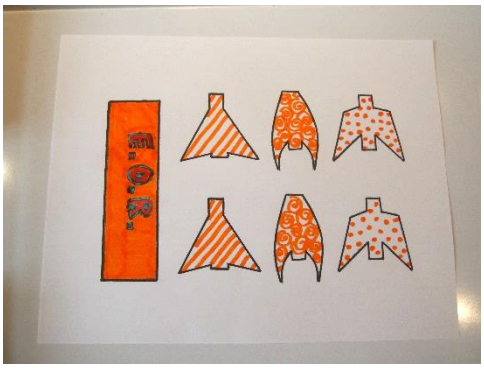


Directions

Step 1:

Print off the template and color in your rocket body and fins. You can also draw your own! (If drawing your own, it is recommended that the body is approximately 5" x 1.5" in size.)

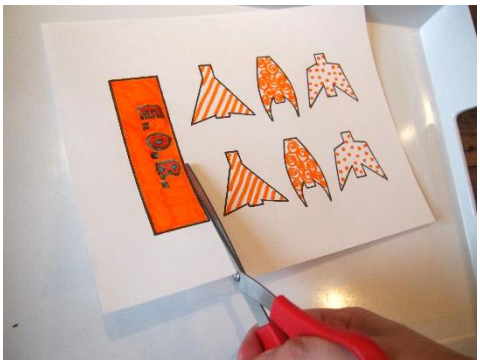




For added fun, give your rocket a name! Rockets are often given long names that are then shortened into acronyms (the first letter of each word). The example above is the Eensy Orange Rocket, or E.O.R. for short (pronounced "Eeyore"). What is your rocket's name?

Step 2:

Cut out the rocket shapes along the black lines.



Step 3:

Pull off a strip of tape, about 3-4 inches in length, and set aside. Then, take the body of your rocket and wrap it around the straw, loosely. Part of the rolled body will overlap with itself, so be sure any design you want visible is on the top layer.

Add tape along the long edge of the rocket body and tape it down carefully, so that the body forms a tube. Be sure to keep it loose enough that the rocket body can slide up and down the straw. Also, be sure to not accidentally tape it to the straw itself.

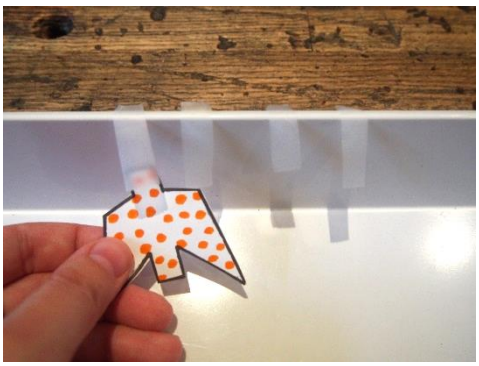
Step 4:

Pinch one end of your rocket body until it forms a tight point or “nose cone”.

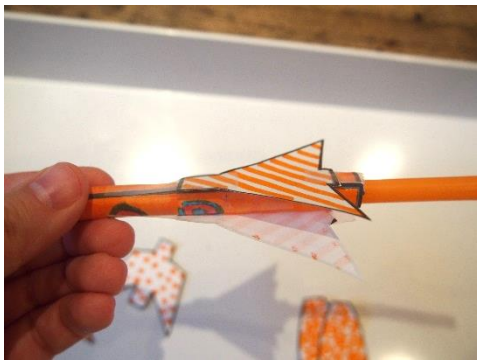
Step 5:

Now it's time to add the fins! If using the template, you have three different sets of fins. Choose one to test first. Tape a fin to the lower side of the rocket body, then its matching fin to the opposite side. Be careful not to tape the fins to the straw!

It is recommended to split a strip of tape in half to be appropriately sized for the ends of the fins—see the photos below.



Once a set of fins is attached, fold half of each fin out so that the rocket has a fin facing outward at four different 90 degree angles.



Now, it's time to test your rocket!

Step 6:

Let your rocket fly! Place the rocket on one end of your straw, pointed end facing forward. Blow into the other end of the straw to send it soaring!

This may take some practice and also may require modifying your rocket. For example, if there are large gaps of air on the side from too little tape, your wind-power may not propel the rocket forward. Or if the nose isn't pinched shut tight enough, you may run into a similar problem. On the other hand, maybe your rocket is wrapped *too* tight! If it is too tight on the straw, there will be too much friction for it to get blown off. All of these are fixable problems!

Set up a bucket or bowl or other type of target to aim your rocket at. Can you hit your target? How far away can you launch and still reach your target?

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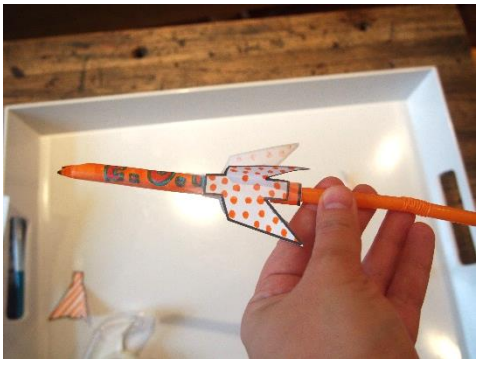
Step 7:

Test out your other fins! Carefully remove your first set of fins and set them aside. Using tape once again, attach a different type of fin. Try out your target practice again. Did anything change? Does your rocket fly more accurately, or less? Farther, or shorter?

Try the third set of fins. Which set does the best? Could you design a set of your own? What other changes could you make to your rocket?



Above all, congratulate yourself! You're doing rocket science!