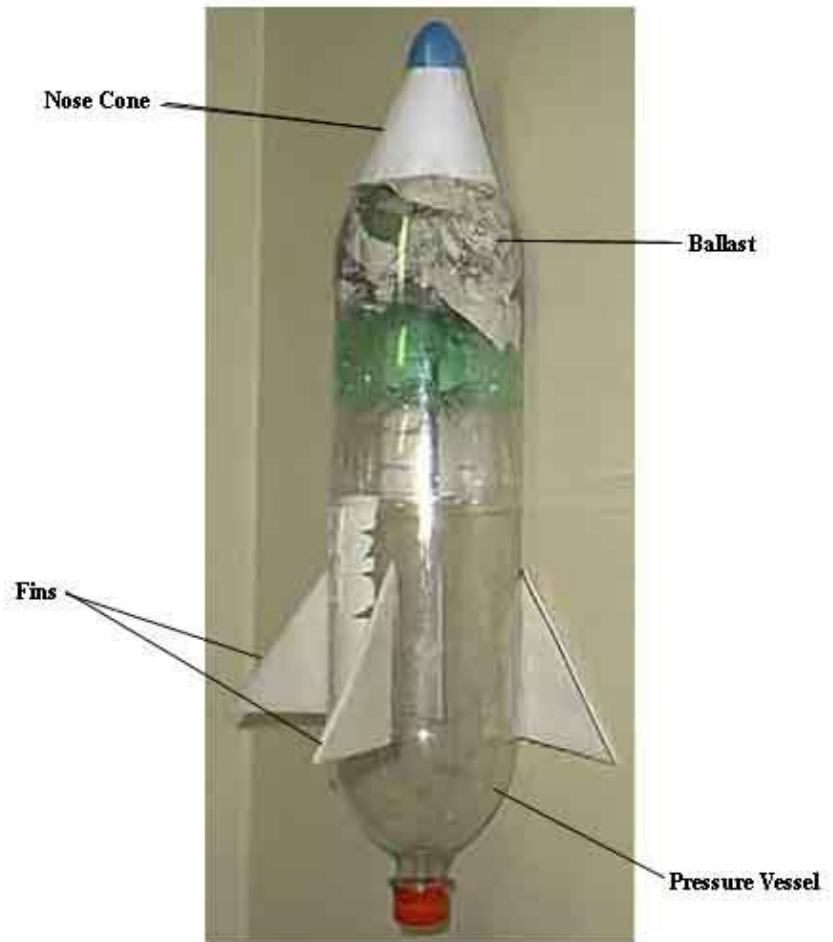


How to Build a Water Bottle Rocket

Parts of the Rocket:

1. Nose Cone- For aerodynamic effect
2. Ballast adds mass to rocket to increase stability.
3. Fins- For aerodynamic effect
4. Pressure vessel- source of rocket propulsion



Building the ROCKET BODY:

ALL Materials:

- 2 Two-Liter Bottles
- Newspaper (Ballast)
- Foam/cardboard (Fins)
- Paper (Nose Cone)
- Plastic Easter Egg or alternative (Nose Cone)
- Tape – packing tape, masking tape, duct tape
- Scissors
- Markers



Procedures:

1. Cut the bottom portion of one of the two liter bottles off.



2. Roll up newspaper in balls and place in top half of two liter bottle.

- You can use other items as ballast such as: Sand, Foam peanuts, etc.

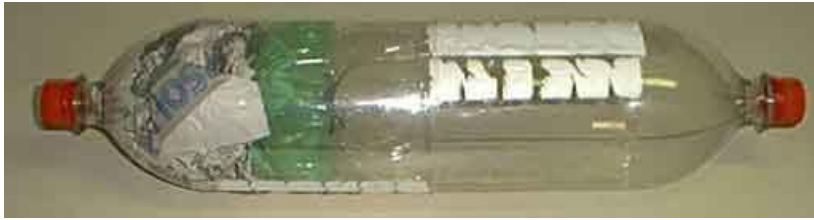


3. Push bottom half of two liter bottle upside down into top half – to keep ballast in place.

Use small pieces of tape to secure bottom piece inside bottle.



4. Place two liter bottle (pressure vessel) into top half. Try to make bottles straight. Use little pieces of tape to secure bottles.



Building the Rocket FINS:

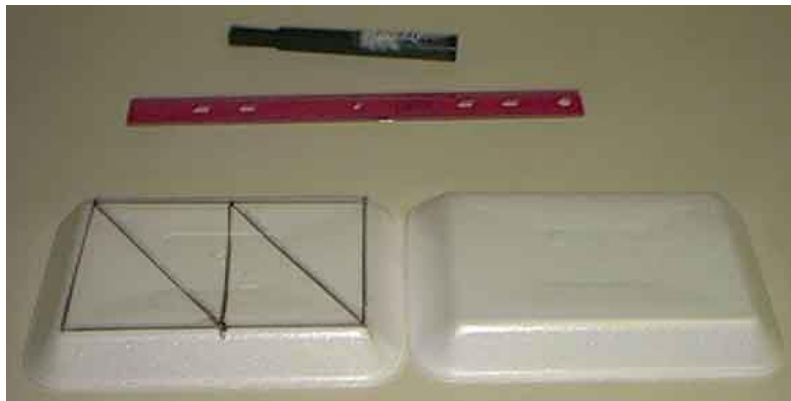
Materials:

- Juice containers/cartons
- Foam trays
- Unused election signs
- Corrugated Plastic
- Light cardboard



Procedures:

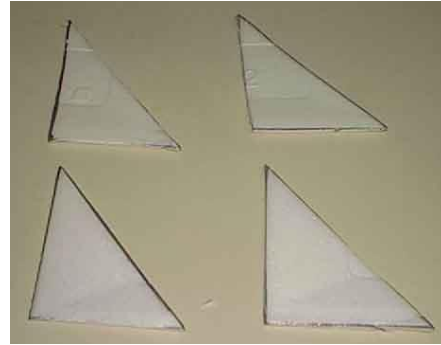
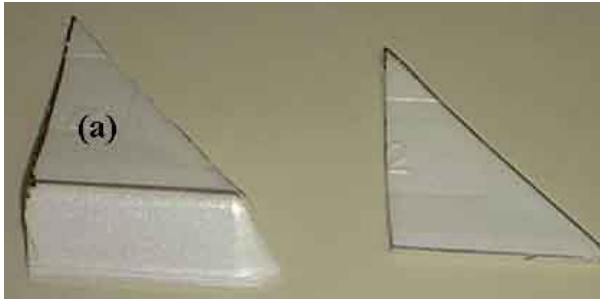
1. Use marker and draw fin patterns on foam trays.



2. Cut FINS out.

Note:

(a) If leave sides of tray attached to fins – will allow rocket to spin in flight.



3. Attach FINS to rocket using small pieces of tape.



Procedures for Nose Cone:

Materials:

- You can use many materials to make a nose cone.
- The tip should be rounded. To create a rounded tip you can use an egg carton or a plastic egg shell or alternative.



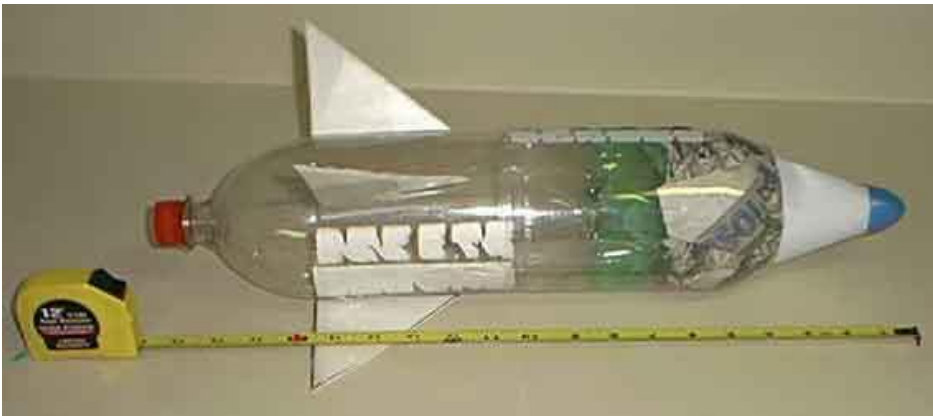
1. Roll paper into a cone. Use tape to hold paper in place. Place plastic egg shell on the cone as tip. Use tape to fasten tip to cone.



2. Fasten nose cone to body with tape.

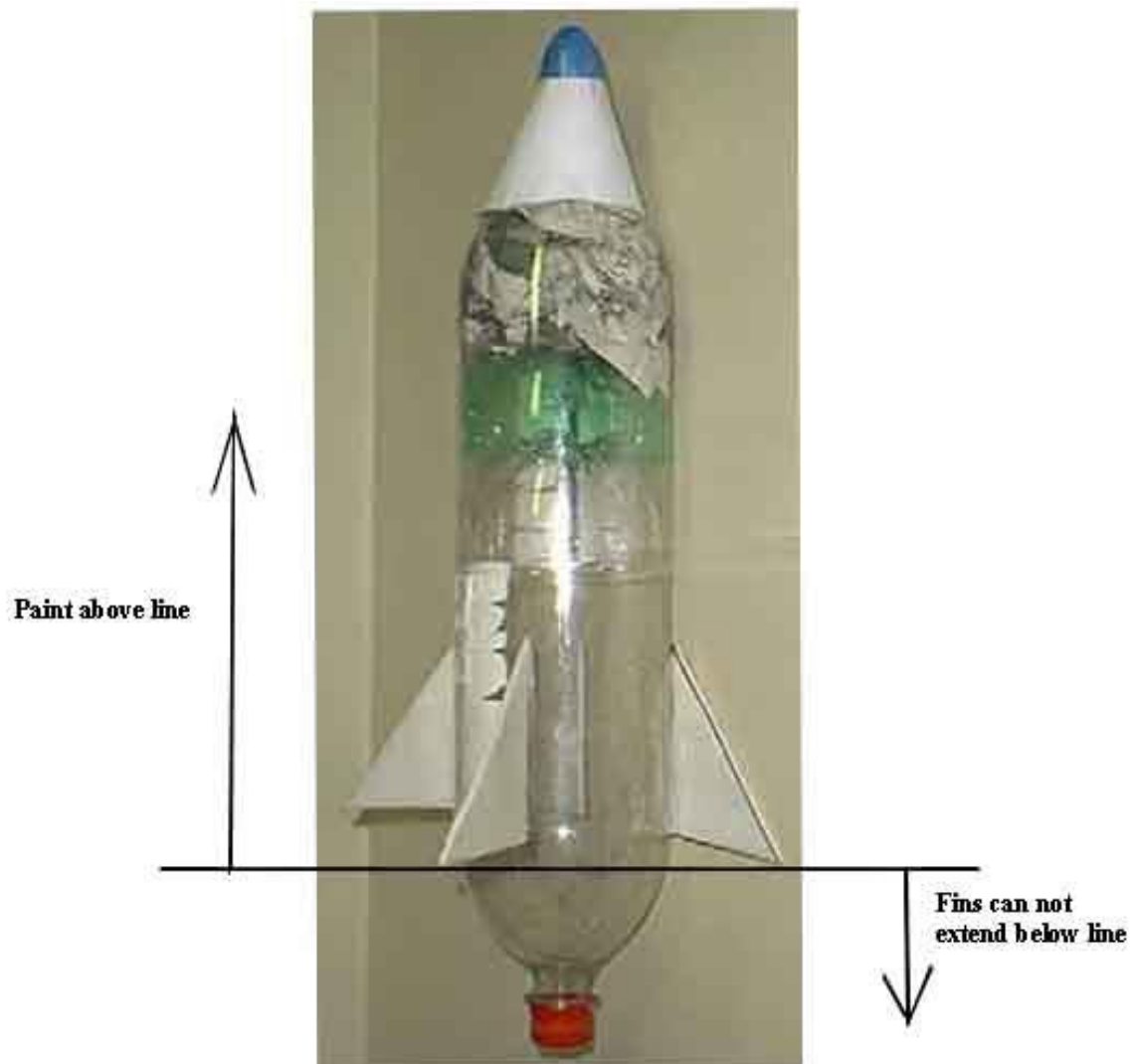


3. Measure length of your rocket.



4. Decorate your rocket

- You may decorate with stickers, etc.
- The bottom half of your rocket must remain clear of any paint or decoration.
- Fins cannot extend pass bottom half.
- **Keep decorations light - weight**



Tips...

- Lengthening the rocket adds stability
- Experiment with different fin shapes
- Try to make body smooth (no kinks with tape).
- Use small pieces of tape (in case you mess up you can easily remove it).
- Think about the weight.
- **Do not puncture the bottle – It won't work!**

Goal...

- To have the best flight.
- We will measure the “hang time” to determine the best flying rocket.
- To have the coolest looking/best designed rocket! We will vote on Thursday!
- Top 3 places will receive awards and bragging rights.

