

# SpaceTime Water Bottle Rocket Construction

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## Materials (per rocket)

- One (1) 2-liter soda bottle
- Nose cone (cut out page included below – recommend printing on heavy paper like card stock)
- Payload protection (page of legal paper)
- Parachute (cut & hole punched half of large plastic trash bag)
- Three (3) fins (cut box cardboard)
- Five (5) pieces of string
  - 1 – 36" piece for nose cone
  - 4 – 36" pieces for parachute
- Duct or masking tape

## Procedure

1. Wrap two loops of tape around the center of the soda bottle to reinforce its ability to hold pressure (Fig. 1).

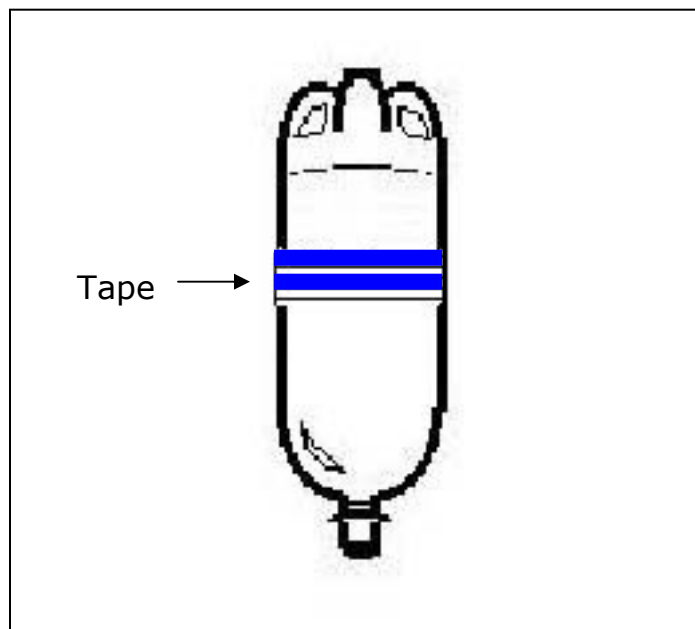
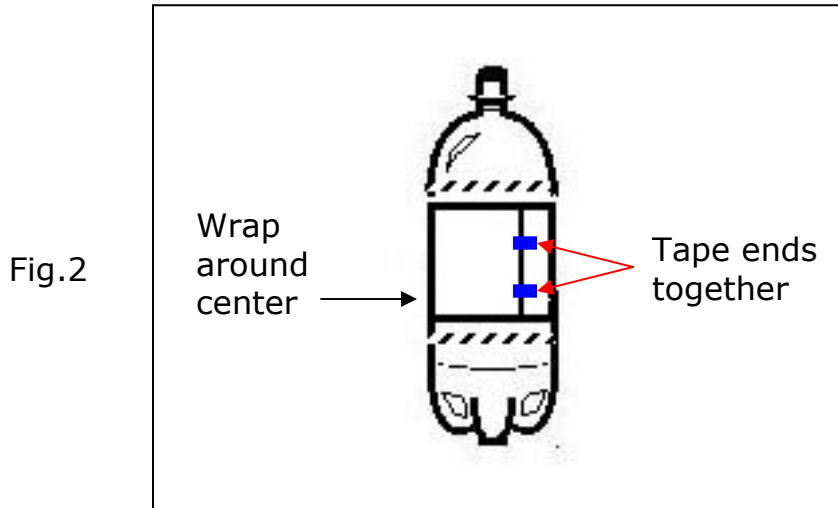
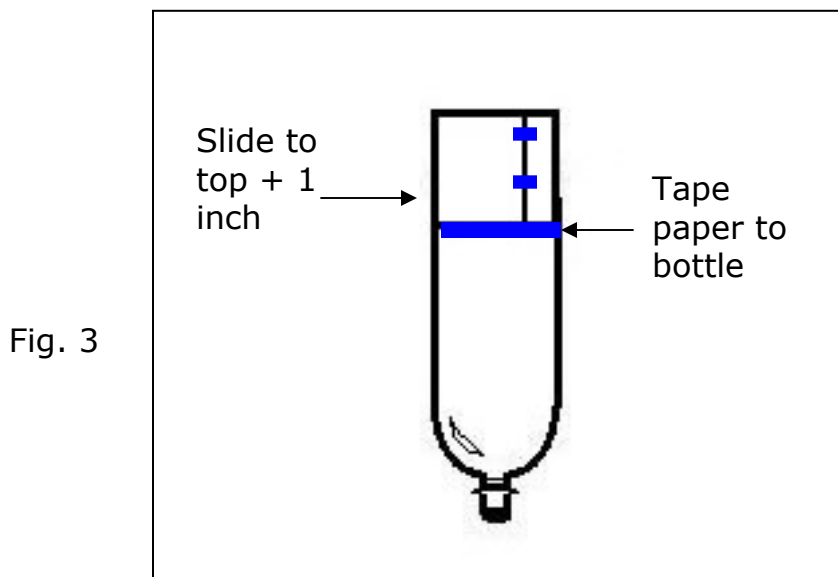


Fig. 1

2. Fold payload protection paper in half length-wise, wrap length-wise around the center of the bottle and tape one end to the other while wrapped around the bottle (Fig. 2).

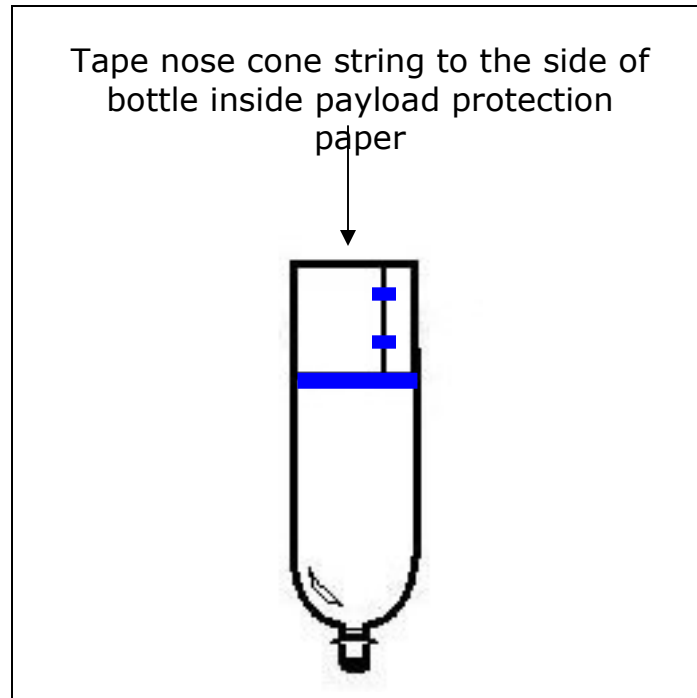


3. Slide wrapped payload protection paper up to the top of the rocket (the bottom of the bottle) so that it extends roughly 1 inch above the bottom of the bottle and tape the lower edge of the payload protection paper to the soda bottle by wrapping tape all the way around the bottle at the lower edge of the paper (Fig. 3).



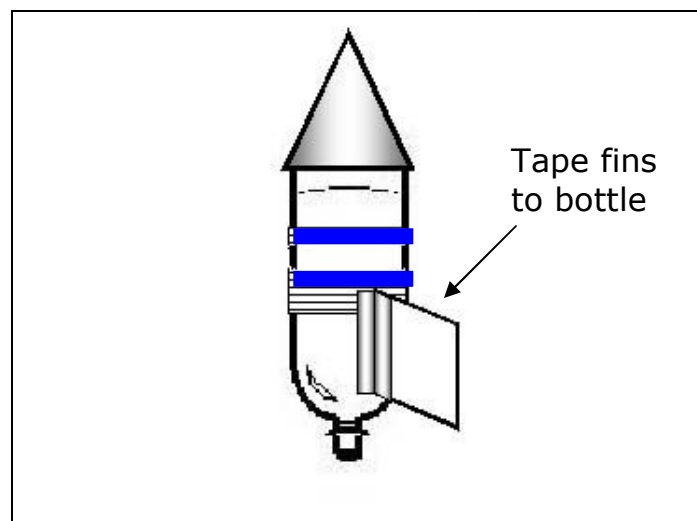
4. Cut nose cone out and wrap into proper shape (just like fizz rocket nose cones only bigger) and tape together.
5. Tape one end of single piece of string to the inside of the nose cone where the two ends of the nose cone wrap come together.
6. Tape the other end of the string to the side of the bottom of the bottle (top of the rocket) inside the payload protection paper (Fig. 4).

Fig. 4



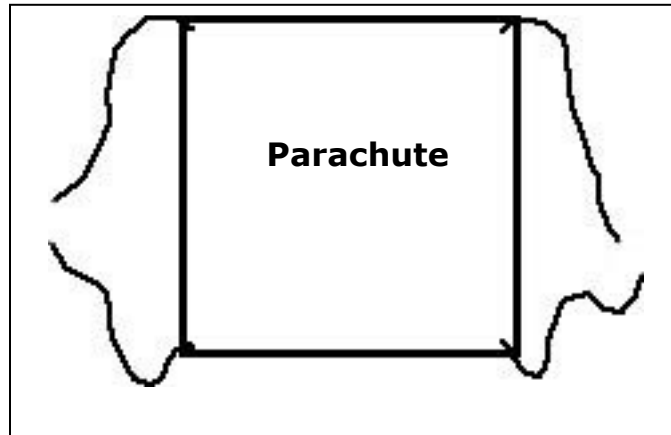
7. Tape fins to the side of the bottle. Tape solidly and try to make sure that they are evenly spaced around the bottle and lined up with the long axis of the bottle (Fig. 5)

Fig. 5



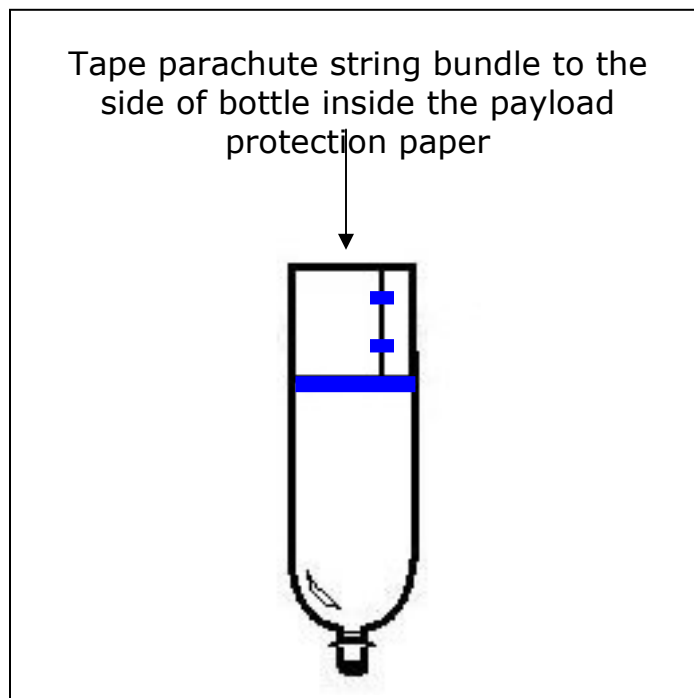
8. Fold 2" strips of masking tape over corners of one half of a large plastic trash bag and punch a small hole through each folded piece of tape. Tie ends of parachute strings to the punched holes in the four corners of the parachute, one string per punched hole (Fig. 6)

Fig. 6



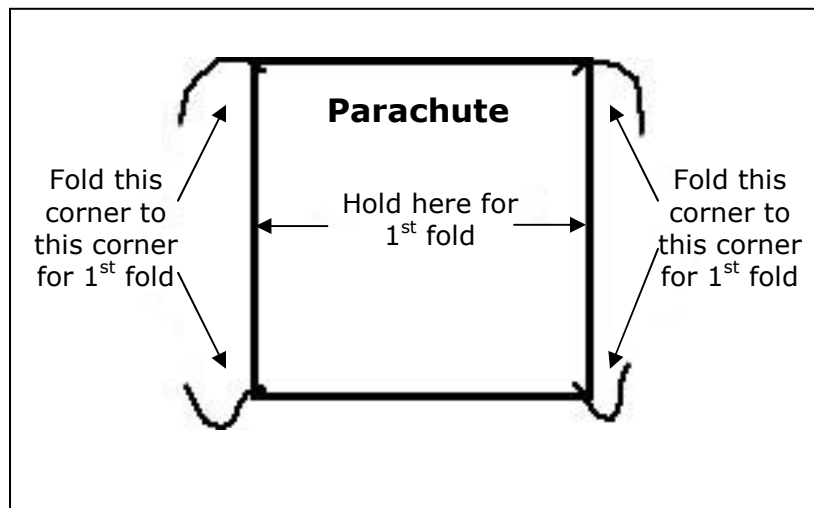
9. Bring the four other ends of the parachute strings together evenly and fold a 2-3 inch piece of tape around all four of them. Then tape that piece of tape with the four ends taped together to the bottom of the soda bottle (top of the rocket) inside the payload protection paper just like the way the nose cone string was taped to the bottle only on the opposite side (Fig. 7).

Fig. 7



10. Hold the parachute at its edges in the middle and fold it in half so that two of the four corners come together on each side. Then keep folding its longest length in half until it is small enough to fit inside the payload protection area at the top of the rocket (bottom of the bottle) (Fig. 8).

Fig. 8



11. Set the nose cone on top of the payload protection area and get ready for launch!

# Nose Cone Cut-out

