

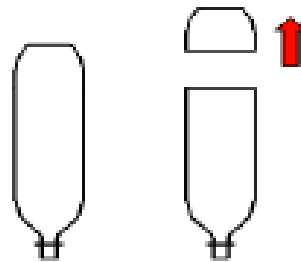
# Hands-On Activity

## *Intermediate and Advanced Levels*

Our activity today involves building a rocket with the materials provided. The only materials that are required for use are the two 2 liter bottles that have been provided. All other additional materials are up to the team. Remember, adding some materials could improve your rocket, while adding other materials or adding too much of a good material could hurt it. The competition today is to find the rocket that travels the farthest. All rockets will be launched from the same angle and with the same force. All other aspects of design will be up to the team. Below are general guidelines for construction. Feel free to do come up with your own if you think your idea is better than what you see below. The only requirement is the use of the two 2 liter bottles as described below.

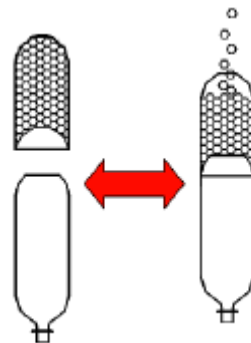
Also attached is a list of prices for all materials other than the bottles. The team that constructs the cheapest and most efficient rocket (the one that travels the furthest) will win. Please use the lessons that were learned today and any other knowledge that you have to build the best rocket.

Good luck!



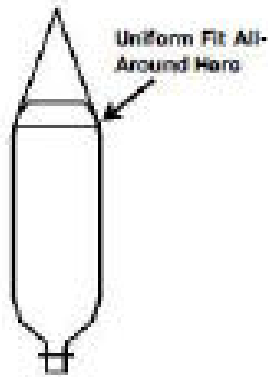
**Step 1.** Cut the bottom off of one 2 liter bottle.

**Step 2.** Fill bottom of cut bottle with water and then attach with duct tape to the bottom of the whole bottle.



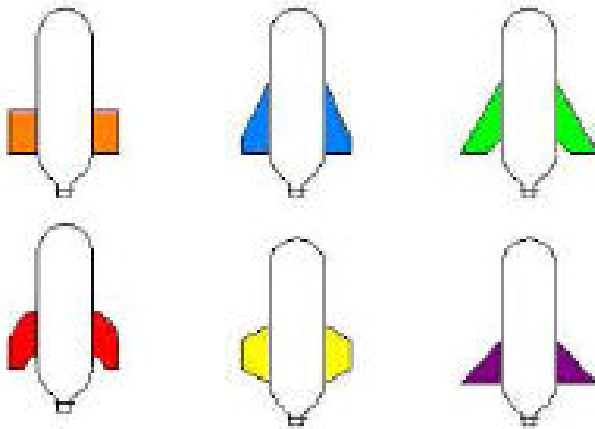
*The next two steps are optional:*

**Step 3.** Attach nose cone (party hat) to the base of rocket using glue or tape.



**Step 4.** Cut wings from the materials provided and attach them to your rocket using either glue or tape. Options for wing shapes are shown below.

\*be sure to record selected materials and prices so that you can determine how much money was spent.



**Final Step (required):** Fill bottle ½ way with water, and watch it launch!

<b>Material</b>	<b>Price</b>	<b>Amount used</b>	<b>Money spent</b>
2 Liter bottle	\$3.00/bottle		
Nose cone (party hat)	\$1.50/hat		
Construction Paper	\$.50/sheet		
Cardboard	\$1.50/piece		
Styrofoam	\$1.00/piece		
		<b>Total:</b>	<b>\$</b>

**Total Cost of Rocket:** \_\_\_\_\_

**Distance Traveled by Rocket:** \_\_\_\_\_