Name_____ Period _____ Date _____

Water Rockets

STEM Sims

Lesson 2: How Does the Volume of a Liquid Affect Rocket Flight?
Water rockets expel water out the back propelling the rocket forward. Therefore, in theory, more water should equal more propulsion; however, are there other factors that affect the rocket's flight? What is the ideal liquid volume for the maximum horizontal rocket flight distance? 3, 2, 1…Begin!

Doing the Science

1. Start the Water Rockets Simulation by clicking on the "Sim" tab.
2. Make the following selections:
   - Angle: 30°
   - Fluid Volume: 100 mL
   - Pumps: 4
   - Fluid Type: Glycerin
   - Air: Off
   - Wind: Off
3. Click on the "Launch" button.
4. Record the flight distance in meters in Table 1.
5. Click on the "RESET" button.
6. Repeat steps 2-5 increasing *only the liquid volume* by 100mL until you have completely filled out Table 1.

Table 1.

Liquid Volume (mL)	Flight Distance (m)
100	
200	
300	
400	
500	

Do You Understand?

1. What liquid volume produced the longest horizontal distance traveled by the rocket?

2. Why do you think the results came out as they did? Make a prediction for what the flight distance would have been if the liquid volume was 600 mL.

Your 600 mL liquid volume prediction = _____ m