Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**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