Lab 1: Marshmallow Catapult

Introduction:

Write 10 sentences that talk about the topics in chapter 1. You can use your notes, the textbook, vocabulary, etc. to help you.

Materials: (copy the materials into the lab notebook)

popsicle sticks

rubber bands

erasers

fork

marshmallows

Procedure: (copy the procedure into the lab notebook)

1. Use the popsicle sticks, rubber bands, fork, and eraser to make a catapult.
2. Start with the eraser at the blue line and the fork at the green line. Launch a marshmallow 3 times and record the distance in feet.
3. Keep the eraser at the blue line and move the fork to the orange line. Launch a marshmallow 3 times and record the distance in feet.
4. Move the eraser to the red line and keep the fork at the orange line. Launch a marshmallow 3 times and record the distance in feet.
5. Keep the eraser at the red line and move the fork to the green line. Launch a marshmallow 3 times and record the distance in feet.

Data: (You can tape the data chart ONLY in the lab notebook. All other sections must be hand written in BLACK INK.)

	Trial #1	Trial #2	Trial #3	Average
Eraser = blue Fork = green				
Eraser = blue				

Fork = orange				
Eraser = red Fork = orange				
Eraser = red Fork = green				

**Data hints: (You do not need to copy the hints into the lab notebook)

To calculate average, you add the three distances and divide by 3.

Questions: (Copy the questions and answer them in the lab notebook)

1. Which position of the eraser and fork gave you the largest average distance?
2. What is one way that you could improve the catapult to have a greater distance?
3. Write the following number in scientific notation: 341000000000 kg.
4. Write the following number in standard notation: 4.9×10^5 m.
5. Convert 140.7 L into hL.

Conclusion:

Write 3 sentences for the conclusion. They can be about anything that you learned, mistakes that you made during the lab, or any real life connections that you can use to relate to the lab.

Sample Lab Report (This should be written in BLACK INK in your lab group's composition notebook)

Lab 1: Marshmallow Catapult

Introduction:

In Physical Science, we do many measurements during lab. All measurements must contain the proper SI unit. For example, the SI unit for temperature is Kelvin. Sometimes a number may be very large or small and contain multiple zeros. These numbers can be written in scientific notation, which is a number multiplied by 10 to a power. If the number is greater than 1, then the exponent is positive, but if the number is less than 1, then the exponent is negative. When using SI units, it is important to select the correct prefix. For example, we would measure the distance from one town to another in kilometers, not centimeters. To convert a unit, we can use the sentence "King Henry Died Unexpectedly Drinking Chocolate Milk."

Materials:

popsicle sticks

rubber bands

erasers

fork

marshmallows

Procedure:

1. Use the popsicle sticks, rubber bands, fork, and eraser to make a catapult.
2. Start with the eraser at the blue line and the fork at the green line. Launch a marshmallow 3 times and record the distance in feet.
3. Keep the eraser at the blue line and move the fork to the orange line. Launch a marshmallow 3 times and record the distance in feet.
4. Move the eraser to the red line and keep the fork at the orange line. Launch a marshmallow 3 times and record the distance in feet.
5. Keep the eraser at the red line and move the fork to the green line. Launch a marshmallow 3 times and record the distance in feet.

Data: **2**

	Trial #1	Trial #2	Trial #3	Average
Eraser = blue Fork = green	3 ft	4 ft	2 ft	4.5 ft
Eraser = blue Fork = orange	4 ft	5 ft	4 ft	4.3 ft
Eraser = red Fork = orange	8 ft	6 ft	7 ft	7 ft
Eraser = red Fork = green	5 ft	6 ft	6 ft	5.7 ft

Questions:

1. Which position of the eraser and fork gave you the largest average distance?

   The position that gave the largest distance was the eraser at the red line with the fork at the orange line.

2. What is one way that you could improve the catapult to have a greater distance?

   The catapult could be improved by making a longer arm and increasing the height of the eraser.

3. Write the following number in scientific notation: 341000000000 kg.

   3.41×10^{11} kg

4. Write the following number in standard notation: 4.9×10^{-5} m.

   0.000049 m

5. Convert 140.7 L into hL.

   1.407 hL

Conclusion:

An improvement to this experiment would be to use SI units for the distance instead of feet. A continuation of the experiment would be to build our catapults out of different materials with no model to use. This experiment in important in determining which variables lead to the largest distance which would be important in the Punkin Chunkin contest.