

Name:  
Class:  
Date:

### Lab Investigation: Gummy Worm Growth Rate

**Introduction:** The study of how something changes over time is called rate analysis. Acceleration, growth and decay are all examples of rates. Data from rate studies can be graphed for further analysis. In this experiment you will be looking at the rate of gummy worms in aqueous solutions. You will compare a variable to a control and make graphs of your results.

**Problem:** How fast will a gummy worm grow if placed in water? Does the growth rate remain constant under all aqueous conditions?

**Hypothesis:**

**Materials:**

Plastic Bags (2)	Gummy Worms (2)	Clock or Timer
Metric Ruler	Water	Variable _____

**Procedure:**

1. Label each plastic bag with a permanent marker so that you can distinguish each worm from each other.
2. Place one gummy worm in each of two plastic bags. Place the on its flat side and align a metric ruler so that you can make accurate measurements of the worm during this experiment. Measure each worm to the nearest tenth of a centimeter and record these first readings as time zero on your data table.
3. Place a predetermined amount of water in one of the bags with a worm.
4. Change one variable for the other bag and its worm. This could be an addition of a small, predetermined quantity of salt, sugar, tabasco, or any one variable change of your choice. What variable did you add/change? \_\_\_\_\_
5. Set you timer/clock so that you can make length observations every hour for four hours. Record the length of each worm each hour on the data table.
6. Compute the difference in length ( $\Delta L$ ,  $L$ ) between each reading and record on data table.

7. Compute and record the rate of growth for both gummy worms for each 60 minute period.
8. Make a graph of the results of this experiment. Your graph should compare the difference in length (  $L$  ) of the two gummy worms over time. Which variable was preset and therefore the independent variable? \_\_\_\_\_

Results and Observations:

	Worm			Worm		
Time	Length	L	rate	Length	L	rate
zero						
1 hour						
2 hours						
3 hours						
4 hours						

Conclusion: (Did you answer the questions? Does your data support your hypothesis?)

Extension: If you grow at the rate your gummy worm without the variable grew, How tall would you expect to be on Halloween this year? (Use your Metric Me height data to calculate)

