Pea Lab Report Sheet	Team No Your Name	
Biology 100 – K. Marr	Team Members	
DateLab Section		
Prelab Questions		

Instructions

Answer the following six questions before coming to lab, but after having read the pea lab handout!

- **1.** What is gibberellic acid?
- 2. Define the following: phenotype-

genotype-

- **3.** Write a hypothesis using the "If .... Then" format for this experiment.
- 4. What is the independent variable of the pea experiment?
- 5. What is the dependent variable of the pea experiment?
- 6. Name at least three variables that you will be controlling in the pea experiment?

Table 1.	Pea Lab Data Table.	Record your measurements of height, internode length data, a	ind a
	description of the he	alth of the plants in this table.	

Data of	Health of Plants	Height of each Plant (mm)								
Observation	(e.g. stem & leat color, stem diameter, stability & overall appearance)	Control Group		Experimental Group						
Day 1 (day sprayed)										
<u>Date</u> :										
Day 2										
Date:										
Day 3										
Date:										
Day 4										
Date:										
Day 5										
Date:										
Day 6										
Date:										
(Measure on the last Day)	Internode Length									
Day 6	(mm)									
Date:	Number of leaflets									
Miscellaneous, Observations, Information, and/or Notes										

**Answer the following question based on your pea lab observations:** The major question asked in this lab is "Can the phenotype of a **genetically** dwarf pea plant be altered by the addition of a plant hormone called gibberellic acid?"

1. Write a hypothesis using the "If .... Then" format for this experiment.

2. On your last day of observations calculate and list the average internode lengths of the experimental and control plants. Include units of measure and round off to the nearest whole number.

Control average internode lengths = \_\_\_\_\_

Experimental average inter-node lengths = \_\_\_\_\_

**3.** On your last day of observation calculate the average number of leaflets in the experimental and control groups and list them below. Round of to the nearest whole number.

Control average number of leaflets =

Experimental average number of leaflets = \_\_\_\_\_

- 4. Graph the Data. Use your data in table 1 to calculate the average daily height of the plants for the control and experimental groups and complete the table below. Use the data in table 2 and the grid on the following page to construct a graph of average daily heights vs. time (i.e. day number) for <u>both</u> the experimental and control groups. <u>Graph both sets of data on the same graph</u> by using different colors and a key. Place average height on the vertical axis and time (i.e. day number) on the horizontal axis. Should the data be plotted as a bar graph or line graph? Look at the variables involved—are they discrete or continuous variables? See the handout on the Scientific Method for tips on how to make a proper graph. Ensure that each axis is labeled fully (including units of measure), and compose an informative title for this figure in the space provided below the grid.
  - *Note*: You may use a graphing program (e.g. *Excel*) to plot the data as outlined above. If you use a graphing program, after printing, cut and tape the graph to fit in the grid on the next page.
  - **Table 2**. Record your measurements that you will graph in the table below.

		Average Height of Plants (mm)		
Day Number	Date of measurement	Control Group	Experimental Group	



Figure 1. \_\_\_\_\_

**5.** What correlation(s) do you observe between number of leaves, internode length, and plant height? Support your answer by using *specific numerical examples* from the data collected.

6. List at least two observations of similarities and/or differences in the general growth of the experimental and control plants other than the observations recorded in questions 2-4 above.

- 7. List *at least three* possible sources of error that may have influenced the data you collected.
- 8. Suggest one additional experiment that would provide more valid data or show other pertinent results. Be specific!!!

- 9. Did the experimental results support your hypothesis? YES or NO (Circle One)
- **10.** Can the phenotype of a genotypically dwarf pea plant be changed? YES or NO (**Circle One**) <u>Explain</u> and support your answer by using <u>specific numerical examples</u> from the data collected.

**11.** According to this investigation which component of an organism's life is more influential on its phenotype—it's genetic make-up or the surrounding environmental influences? Explain using *specific numerical data and observations from this experiment* to support your response.

12. If you were given the opportunity to apply gibberellic acid to your vegetable garden would you do so? YES or NO (Circle One) Use specific numerical data and observations from this experiment to support your response.