LAB # _____ Vegetative Plant Propagation

Lab Instructor _____ Name _____
Date _____ Period _____

Objective: To investigate vegetative propagation in the yellow onion (_____ _____)
******Use full sentences when answering all questions.******

Background

For thousands of years people have "tinkered" with many plant species in order to get certain traits. Asexual reproduction in plants (also known as vegetative propagation) is an ancient practice that has resulted in many useful plants. In this activity you will design a controlled experiment to test the effects of a selected factor on the asexual reproduction of the yellow onion

The following facts on yellow onions may help in your experiment. The bulbs can be grown from a seed, but more typically are produced from small bulbs. Onions grow green tops in cool weather and bulbs in warm weather, depending on the temperature and day length. They are long day plants, and require 14 – 16 hours of daylight to form bulbs. The green shoot or scallion can be harvested after about a month. If left to grow longer, a standard bulb will grow, which can be harvested in late summer or in the fall. At maturity each plant forms a cluster of short-stalked bulbs with silvery white skins. When the tops start yellowing or breaking off naturally, the bulbs are ready to harvest.

Pre-Lab

Read the entire lab description and, if needed, the textbook to answer the following questions.

1. Define/ Describe the following terms and give examples of each
   a. rhizome

   b. runner

   c. bulb

   d. tuber

   e. cuttings

   f. meristems

2. Describe what is meant by vegetative reproduction.

3. What are some (provide at least three) factors that affect the growth of plants? Explain.

4. Describe important facts to distinguish between an Independent Variable and a Dependent Variable.

Extra credit: Bring in a vegetable or fruit that reproduces strictly by vegetative propagation. Write a short paper discussing how your sample was produced. Be prepared to give an oral presentation. Include source(s) of information.

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LAB
Procedures and Observations

Your teacher will designate a variable to investigate. Fill out the EXPERIMENT DESIGN information and answer the questions below.

1. How will you change the Independent Variable?

2. How will you measure the Dependent Variable?

3. What will you use as a control?

EXPERIMENT DESIGN

Independent variable	
Dependent variable	
Title for your experiment (problem being investigated)	
Hypothesis (educated guess)	
Control	
Constant factors	

Write your own procedure below for an experiment that will allow you to test your hypothesis. Then discuss individual procedures among group members. Arrive at a consensus and indicate which procedure will be followed as a group. If any changes to your procedure were made, describe the reason(s) why.

INDIVIDUAL PROCEDURE	GROUP PROCEDURE

Name_____

Period_____

Create and label a table for the group's data collection. You must collect both qualitative and quantitative information

TABLE TITLE: _____

Post–Lab/Conclusions

1. Plot and label an appropriate graph using your group data (Reminders: recall the placement of the Dependent Variable and Independent Variable on axes, use of straight edge and even increments)

GRAPH TITLE: _____

2. *Describe* and *analyze* the results of your experiment. What happened? How might the results be explained?

3. What are at least three possible sources of error in your experiment? Explain.

4. How would you improve your experiment?