

Biology End of Course Exam Study Guide

You may write on this paper, some of your questions you may need to use your own paper.

Benchmark SC.912.N.1.1 Scientific Method

Complete Vocabulary: Independent variable, dependent variable, constants, controlled experiment, control group, experimental group, inference, data,

Pre-fix: micro

1. For each step in the scientific method in one sentence state what is involved

Observation:

Ask a question (state a problem):

Hypothesis:

Experiment:

Collect and Analyze Data:

Conclusion:

2. For the following hypothesis identify the independent variable and dependent variable:
If plant receives fertilizer, then it will grow to be bigger than a plant that does not receive fertilizer

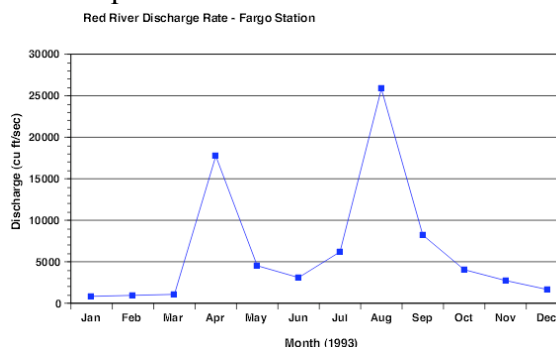
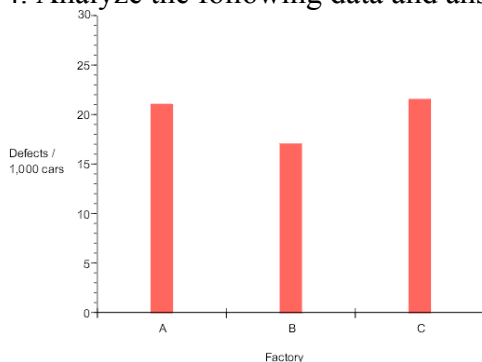
3. Here is your problem: Besides white light, what color light is best suited for a plant to grow?

(a) Write a hypothesis for this experiment. (Identify the independent and dependent variables)

(b) Design a simple experiment to test your hypothesis (What is your control?)

(c) Create a table to organize your data

4. Analyze the following data and answer the questions:



(a) Identify the independent and dependent variables in each graph (write on the graphs)

(b) For each graph describe the relationship

5. Recently a sewer line broke in a neighbor hood near a swimming lake. You are a microbiologist who has been asked to test the water in the lake to see if it is safe to go swimming. You test seven different locations on the lake; your tests all come back negative for fecal matter. You decide that the lake is safe to open up for swimmers.
- (a) Do you have to test every drop of water in the lake? Circle either Yes or No.
- (b) Did you make a hypothesis, a theory or an inference based on your evidence? Circle one

6. Measurement: Complete the table

	What are the metric units	For each unit give an example of what you will measure
Mass		
Length		
Volume		

7. Microscopes

Complete the table below comparing and contrasting different types of microscopes

Type of Microscope	Structure	Function
Compound Microscope		
Dissecting Microscope		
Scanning Electron Microscope		
Transmission Electron Microscope		

EOC Example Question

- Michael wants to test the effect that different concentrations of stomach acid will have on the dissolution of a particular kind of oral medication. As he sets up and completes his experiment, which of the following experimental designs would be most likely to help him answer his question?
 - Allow several pills to soak in different amounts of acid of a single concentration and then measure the amount of dissolution on each.
 - After allowing several pills to be exposed to different acid concentrations, measure the surface area of each that is dissolved.
 - After allowing a pill to be exposed to one acid concentration, place it in different acid concentrations, and then measure the surface area that is dissolved
 - Prepare solutions of different acid concentrations, measure 50 milliliters of each into different beakers, and place different types of pills of the same mass into the beakers.

