Quiz Date:	Due Date:	HW

Science and the Scientific Method

Learning Goals: Develop a scientific investigation with a testable question and hypothesis. Conduct a scientific investigation using qualitative and quantitative observations with appropriate tools.

What is Science?

The goal of science is to _____ and _____ the natural world, to _____ events in the natural world, and to use those explanations to _____.

Science

1. Science deals only with the _____ _____.
2. Scientists _____ and _____ information in a careful, orderly way, looking for patterns and _____ between events.
3. Scientists propose _____ that can be tested by examining evidence.
4. Science is an _____ way of using _____ to learn about the _____ _____.

Scientific Method

A series of _____ used by scientists to solve a _____ or answer a _____

The scientific method starts when you (the scientist) ask a _____ about something that you observe: How, What, When, Who, Which, Why, or Where? And, in order for the scientific method to answer the _____ it must be about something that you can _____, preferably with a number.

Step 1: Observation/Asking a Question (p. R2)	An **observation** is an act of _____ and _____ an event, characteristic, _____, or anything else detected with an _____or with the _____. Observations allow you to make informed hypotheses and to gather data for experiments.
• ***Variables and Constants (p. R30)***	A variable is any factor that can change. There are **three** variables that you have to learn and use correctly. _____**:** This is the factor that you wish to test and this is changed so that it can be tested. The I.V. is expressed in your hypothesis after the word "if" _____**:** The factor that you measure to gather results. The D.V. is expressed in your hypothesis after the word "then". **Control / Constant Variables:** The control group is set up the _____ as the experimental group in every way, except for the factor you wish to _____. Constants are all the factors that are the same in both experimental & control group.
Step 2: Form a Hypothesis (p. R29)	A hypothesis is a tentative explanation for an _____ or _____ _____ that can be tested by further investigation.

	Has to be _____. Uses correct lay out and terminology - for example: "If _____ (I do this) _____, then _____ (this) _____ will happen because _____."
Step 3: The Experiment	Your experiment tests whether your hypothesis is _____ or _____. It is important for your experiment to be a fair test. You conduct a _____ _____ by making sure that you change only one _____ at a time while keeping all other conditions the same (constant). Write a list of specific materials you will need to do your experiment.
Step 4: Data Collection & Analyze Results (p. R33-35)	The data must be collected and _____ onto a _____. The data table should have a _____. The _____ & _____ variables must also be _____ **Title for chart or graph:** The effect of the _____ on the _____ (independent variable) (dependent variable)
Step 5: Draw conclusion (p. R35)	The evidence from the experiment is used to determine if the hypothesis is proven or disproven. Is your hypothesis _____ or _____? State your results. Give a possible explanation