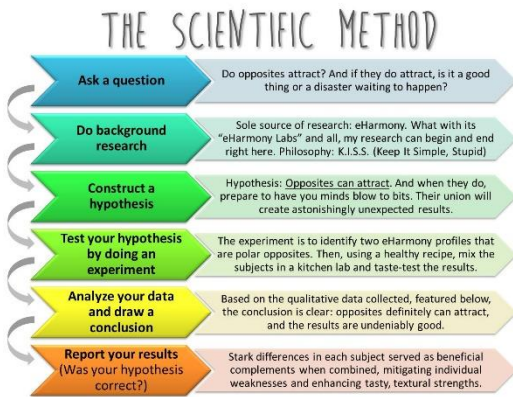


Intro Part Three

Name _____ Period _____

This material will be tested on this date: _____

Intro Part 3 "Ch2 Sect1 Scientific Methods"



The Experimental Method – Scientific Method

- Scientists make most of their discoveries using the _____.
- This method consists of a series of steps that scientists worldwide use to _____.

Observing

- _____ is the process of obtaining information by using the senses as well as the information obtained by using the senses.

- Observing is the _____ of the experimental method.
- Observations can take many forms, including _____.

Hypothesizing and Predicting

- A _____ is a theory or explanation that is based on observations and that can be tested.
- Forming a hypothesis is the _____ step of the experimental method.
- A hypothesis is not merely a guess.
- A good hypothesis should make _____ about the situation.

Hypothesizing and Predicting cont.

- _____ are statements made in advance that express the results that will be obtained from testing a hypothesis if the hypothesis is supported.
- A prediction is used to _____.

Hypothesizing and Predicting cont.

- It is important that any hypothesis can be _____.
- Every time a hypothesis is disproved, the number of possible explanations for an observation is _____.
- By eliminating possible explanations, a scientist can zero in on the best explanation.

Experimenting

- _____ are procedures that are carried out under controlled conditions to discover, demonstrate, or test a fact, theory, or general truth.

- An experiment is performed when questions that arise from observations _____ with additional observations.
- Experiments should be designed to pinpoint _____ relationships.



Experimenting cont.

- Good experiments have two essential characteristics: _____.
- The _____ is the factor that changes in an experiment in order to test a hypothesis.
- To test for one variable, scientists usually study _____ or situations at one time, with the variable being the only difference between the two groups.

Experimenting cont.

- The _____ is the group in the experiment that is identical to the control group except for one factor and is compared with controls group.
- The _____ is the group in the experiment that serves as a standard of comparison with another group to which the control group is identical except for one factor.

Mrs. Gales' Kool-Aid Example (Draw as I draw, label all the parts- you may use notebook paper & take a pic)

Organizing and Analyzing Data

- _____ are any pieces of information acquired through observation or experimentation.
- Organizing data into _____ scientists analyze the data and explain the data clearly to others.

- Graphs are often used by scientists to display _____ in the data.

Organizing and Analyzing Data cont.

- _____ are useful for comparing the data for several things in one graph.

Organizing and Analyzing Data cont.

- Graphing the information makes the trends presented in tables _____.

Drawing Conclusions

- Scientists determine the results of their experiment by _____ of their experiments with their prediction.
- Ideally, this comparison provides the scientist with an obvious conclusion.

Drawing Conclusions cont.

- However, often the conclusion is not obvious.
- In these cases, scientists often use _____ to help them determine whether the differences are meaningful or are just a coincidence.



Repeating Experiments

- Scientists often _____.
- The more often an experiment can be repeated with the same results, in different places and by different people, the _____ scientists become about the _____ of their conclusions.
- Scientists look for a large amount of _____ before they accept a hypothesis.

Communicating Results

- Scientists publish their results, sometimes in scientific articles, to share what they have learned with other scientists.
- Scientific articles include:
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____

Scientific Habits of Mind

- Good scientists tend to share several key habits of mind, or ways of approaching and thinking about things.

- The first habit of mind is _____. Good scientists are endlessly curious which drives them to observe and experiment.
- The second habit of mind is _____. This means that good scientists do not believe everything that they are told.

Scientific Habits of Mind cont.

- The third habit of mind is _____. Good scientists keep an open mind to how the world works.
- Another habit of mind is _____. A good scientist is willing to recognize the results of an experiment even though it may mean that his or her hypothesis was wrong.

Scientific Habits of Mind cont.

- Lastly, good scientists share _____.
- They are not only _____ to new ideas, but also _____ new ideas themselves.
- They have the ability to see _____ where others do not or can imagine things that others cannot.
- This allows good scientists to _____ we know.



THE SCIENTIFIC METHOD



Intro Part 3 "Ch2 Sect1 Scientific Methods"

Student Notes verification page

-A ClassWork 35% Grade ... **BOTH signatures are required**

ACTUAL SIGNATURES preferred (10 point bonus) Not just typed with a cursive font

1. I have completed my notes
2. I have viewed the teaching videos requested while I re-read through the ENTIRE THING to increase my understanding
3. I added any essential facts I heard in the video.

(Student Name Printed)

(Student Signature)

1. I have verified that ALL blanks are filled
2. I have ensured my student has re-read the document while watching the teaching video.
3. I then discussed the lesson with my student to help clarify if needed.

(Parent Name Printed)

(Parent Signature)