

Scientific Method Assignment – Student Edition

I. True or False

On the blank, write true if the statement is true. If false, change the underlined word/s to make the statement true.

- _____ 1. Scientific method is a systematic way of solving a problem.
- _____ 2. Scientific method is a general process of investigation that uses evidence and testing.
- _____ 3. Scientists who use scientific method cannot reproduce another scientist's experiment.
- _____ 4. Scientific studies always start with a conclusion in mind that they aim to provide a solution.
- _____ 5. A variable is a tentative answer to a problem.
- _____ 6. A hypothesis usually describes the relationship between two or more variables.
- _____ 7. A hypothesis is a specific, untestable prediction about what is expected to happen in a study.
- _____ 8. In order to test a claim scientifically, it must be possible that the claim could be proven false.
- _____ 9. Testing the hypothesis means conducting an experiment to gather data.
- _____ 10. Once data are gathered and analyzed, scientists can now come up with a theory that summarizes the results of the experiment.

II. Identification

Complete the table below by providing the basic steps in scientific method.



Scientific Method Assignment – Student Edition

III. Short Answers

Answer the following questions.

1. Describe each step of scientific method.

- a. _____

- b. _____

- c. _____

- d. _____

- e. _____

- f. _____

2. Enumerate the four criteria that a good hypothesis must meet.

3. Describe a controlled experiment and explain its importance.

4. Explain the importance of scientific method in doing a science investigation.

Scientific Method Assignment – Student Edition

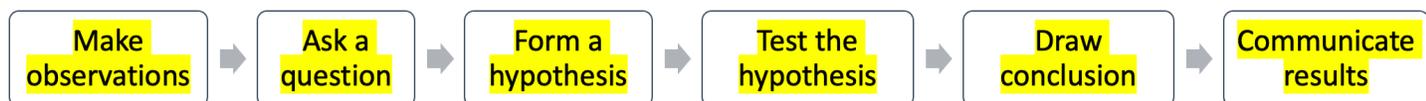
I. True or False

On the blank, write true if the statement is true. If false, change the underlined word/s to make the statement true.

- true** 1. Scientific method is a systematic way of solving a problem.
- true** 2. Scientific method is a general process of investigation that uses evidence and testing.
- can** 3. Scientists who use scientific method cannot reproduce another scientist's experiment.
- problem** 4. Scientific studies always start with a conclusion in mind that they aim to provide a solution.
- hypothesis** 5. A variable is a tentative answer to a problem.
- true** 6. A hypothesis usually describes the relationship between two or more variables.
- testable** 7. A hypothesis is a specific, untestable prediction about what is expected to happen in a study.
- true** 8. In order to test a claim scientifically, it must be possible that the claim could be proven false.
- true** 9. Testing the hypothesis means conducting an experiment to gather data.
- conclusion** 10. Once data are gathered and analyzed, scientists can now come up with a theory that summarizes the results of the experiment.

II. Identification

Complete the table below by providing the basic steps in scientific method.



Scientific Method Assignment – Student Edition

III. Short Answers

Answer the following questions.

1. Describe each step of scientific method.

- a. Make observations is obtaining information about the surroundings which will trigger one's curiosity to study things around them.
- b. A problem is formulated by stating a question that the person wants to know more about the observation made.
- c. Hypothesis is formulated to provide a tentative answer to the problem. The hypothesis should be testable and must show the relationship between dependent and independent variables.
- d. Once hypothesis is formulated, experiment is conducted to test it and determine the relationship between variables.
- e. Once data are gathered from the experiment, scientists can now analyze them and formulate a conclusion which either supports or rejects the hypothesis.
- f. Scientists communicate the results to the scientific community through reports, posters, or journals. These results can be further validated through future studies.

2. Enumerate the four criteria that a good hypothesis must meet.

First, it must state an expected relationship between variables. Second, it must be testable and falsifiable. Third, it should be consistent with the existing body of knowledge. Finally, it should be stated as simply and concisely as possible.

3. Describe a controlled experiment and explain its importance.

A controlled experiment is a scientific test done under controlled conditions, meaning that just one factor is changed at a time, while others are kept constant. The advantage of a controlled experiment is that it is easier to eliminate uncertainty about the significance of the results.

4. Explain the importance of scientific method in doing a science investigation.

Scientific method provides an objective, standardized approach to conducting experiments and, in doing so, improves their results.