

Name _____ Period _____

Introduction to Physical Science • Reading/Notetaking Guide

Scientific Inquiry (pp. 10–15)

This section explains the process of scientific inquiry and describes what makes an explanation called a hypothesis testable. It also explains the difference between a scientific theory and a scientific law.

Introduction (p. 10)

1. What does scientific inquiry refer to?

The Process of Inquiry (pp. 10–14)

2. Is the following sentence true or false? Scientific inquiry often begins with posing questions. _____

3. Circle the letter of each sentence that is a scientific question.

- a. At what temperature does water boil?
- b. When does the sun rise on April 3?
- c. How can my team work better together?
- d. Why does she like science more than he does?

4. A(n) _____ is a possible explanation for a set of observations or answer to a scientific question.

5. Is the following sentence true or false? Scientists consider a hypothesis to be a fact.

6. What is a testable hypothesis?

7. To test a hypothesis, a scientist designs a(n) _____.

Match the term with its definition.

- | | |
|-------------------------------|--|
| ___ 8. responding variable | a. the one variable that is purposely changed to test a hypothesis |
| ___ 9. manipulated variable | b. a factor that can be measured in an experiment |
| ___ 10. controlled experiment | c. the factor that may be measured in response to the manipulated variable |
| ___ 11. parameter | d. an experiment in which only one variable is manipulated at a time |

12. Is the following sentence true or false? If you do not control variables in an experiment, there will be no way to know which variable explains your results.

13. The facts, figures, and other evidence gathered through observations are called _____.

14. In carrying out a controlled experiment, what does a data table help you do?

15. Scientists generally use a system of measurement called _____ to share quantitative data.

16. Circle the letter of each sentence that is true about graphs.

- a. A graph can reveal a trend in data.
- b. Graphs help scientists interpret data.
- c. Graphs are the only way to organize data.
- d. A graph can reveal a pattern in data.

17. A(n) _____ is a summary of what you have learned from an experiment.

18. What should you ask yourself in drawing a conclusion about an experiment?

22. Is the following sentence true or false? Scientific inquiry is a process with many paths, not a rigid sequence of steps. _____

23. In scientific inquiry, what is communicating?

How Science Develops (pp. 14–15)

24. What is a scientific model?

25. What is a scientific law?

26. You can think of a(n) _____ as a rule of nature.

27. What is a scientific theory?

28. Is the following sentence true or false? Future evidence can prove a scientific theory to be incorrect. _____

29. How is a scientific law unlike a scientific theory?
