Name Period Date

SECTION 1.3

SCIENTIFIC THINKING AND PROCESSES

Study Guide

KEY CONCEPT

Science is a way of thinking, questioning, and gathering evidence.

VOCABULARY			
observation	hypothesis	independent variable	constant
data	experiment	dependent variable	theory

MAIN IDEA: Like all science, biology is a process of inquiry.

Complete the table below by giving a brief description and a brief example of each of the scientific process terms.

Scientific Process	Description	Example
Observation	**1.**	**2.**
Data	**3.**	**4.**
Hypothesis	**5.**	**6.**

7. How do scientists use statistics when they test a hypothesis?

_____

_____

8. Why is it important that a scientist's results are evaluated by other scientists?

_____

_____

9. Look at Figure 1.10. Beginning with observation, what are the five parts of scientific thinking?

MAIN IDEA: Biologists use experiments to test hypotheses.

10. In _____ studies, scientists do not interfere with what is going on.

11. Scientists can test hypotheses through _____ .

12. A(n) _____ variable is one which is observed and not manipulated by the scientist.

13. How are constants different from independent variables?

MAIN IDEA: A theory explains a wide range of observations.

14. What is the difference between a theory and a hypothesis?

15. Why are theories never proven?

Vocabulary Check

16. What is a hypothesis?

17. How can you remember the difference between an independent variable and a dependent variable? Think about what the words *independent* and *dependent* mean.