

**CHAPTER 1**

**Study Guide**

**Section 1: Introduction to Biology**

In your textbook, read about what biologists do.

Use each of the terms below only once to complete the passage.

agricultural  
environmental

bioengineering  
living

biologists  
mechanical

biotechnology

Biology is the study of (1) \_\_\_\_\_ things and the environment. People who study biology are called (2) \_\_\_\_\_. Biologists who work in (3) \_\_\_\_\_ research might study how to make crops grow more efficiently. (4) \_\_\_\_\_ biologists work to prevent plants and animals from becoming extinct. Scientists who work in the field of (5) \_\_\_\_\_ often research cells, DNA, and living systems to discover new medical treatments, and those who work in (6) \_\_\_\_\_ might study living systems in order to design (7) \_\_\_\_\_ devices such as artificial limbs.

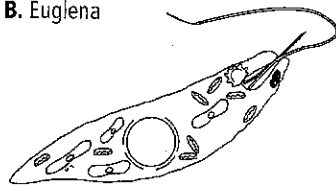
In your textbook, read about the characteristics of life.

Refer to the diagrams. Respond to each statement.

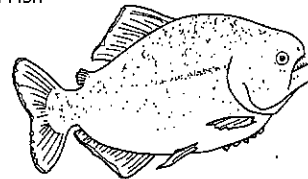
A. Flame



B. Euglena



C. Fish



8. List any image that depicts a living thing.

\_\_\_\_\_

9. Explain why any image you did not list does not depict a living thing.

\_\_\_\_\_  
\_\_\_\_\_

Read each of the following items. If it describes a living thing, write yes. If not, write no.

\_\_\_\_\_ 10. is made of one or more cells

\_\_\_\_\_ 11. cannot respond to its environment

\_\_\_\_\_ 12. requires energy to function

# Study Guide, Section 1: Introduction to Biology continued

Number the levels of the organization of living things from 1 through 6 to put them in order from simplest to most complex.

- |                  |                    |                        |
|------------------|--------------------|------------------------|
| _____ 13. organs | _____ 15. organism | _____ 17. organ system |
| _____ 14. cell   | _____ 16. tissues  | _____ 18. biosphere    |

Read each of the following statements. If it describes a process of reproduction, write yes. If not, write no.

- \_\_\_\_\_ 19. New leaves appear on a tree in spring.
- \_\_\_\_\_ 20. An amoeba divides in half.
- \_\_\_\_\_ 21. A bean plant produces seeds in long pods.
- \_\_\_\_\_ 22. Pollen grains are released from a flower.
- \_\_\_\_\_ 23. A sea star produces a new arm after losing one to a predator.

For each statement, circle the stimulus and underline the response.

- 24. Your mouth waters at the sight of food on a plate.
- 25. There is a sudden drop in air temperature, which gives you goosebumps.
- 26. You get a fever after a virus enters your body.
- 27. You get "butterflies" in your stomach before giving a speech.

Refer to the graph. Respond to the following statement.

28. Name the process that the graph represents. Describe this process.

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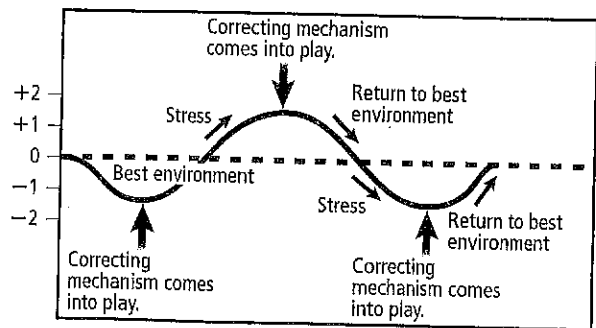
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**CHAPTER 1**

*Study Guide*

**Section 2: The Nature of Science**

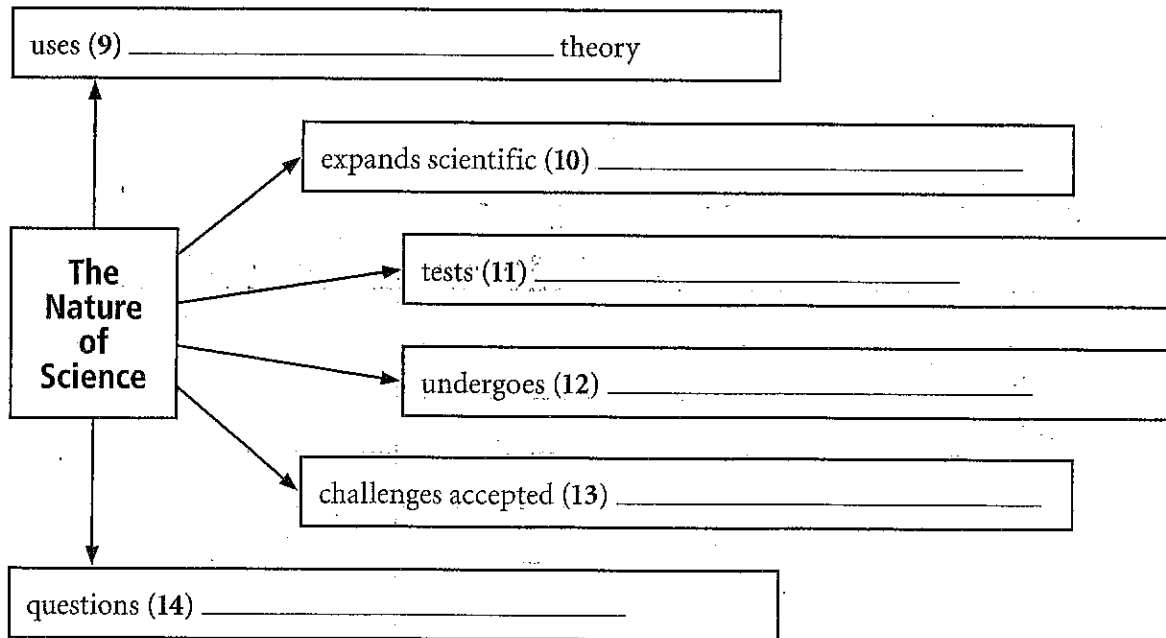
In your textbook, read about the nature of science.

Complete the table by checking the correct column(s) for each description.

Description	Science	Pseudoscience
1. Studying genes and inheritance		
2. Forecasting personality by reading bumps on the head		
3. Observing interactions of organisms in the environment		
4. Peers reviewing investigations and experiments		
5. Telling the future by reading lines on the palms		
6. Forming untestable hypotheses based on nonscientific literature		
7. Forming testable hypotheses based on observations and questions		
8. Communicating experimental findings and offering data for peer review		

Complete the graphic organizer below. These terms may be used more than once:

claims      knowledge      peer review      results      scientific      theories



Respond to the following statement.

15. Name two scientific issues that involve ethics.

\_\_\_\_\_

\_\_\_\_\_

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# Study Guide

## CHAPTER 1

### Section 3: Methods of Science

In your textbook, read about the methods of science.

Match the definition in Column A with the term in Column B.

#### Column A

- \_\_\_\_\_ 1. a procedure that tests a hypothesis by collecting information under controlled conditions
- \_\_\_\_\_ 2. in an experiment, the group that is the standard against which results are compared
- \_\_\_\_\_ 3. in an experiment, the group that is exposed to the factor being tested
- \_\_\_\_\_ 4. the factor that remains fixed in an experiment
- \_\_\_\_\_ 5. the condition being changed by the scientist
- \_\_\_\_\_ 6. the factor that results from or depends on changes to the independent variable
- \_\_\_\_\_ 7. information gained from observation
- \_\_\_\_\_ 8. a testable explanation of a situation

#### Column B

- A. constant
- B. experimental group
- C. independent variable
- D. experiment
- E. control group
- F. dependent variable
- G. hypothesis
- H. data

In your textbook, read about data gathering.

Complete the table by checking the correct column(s) for each description.

Description	Quantitative Research	Qualitative Research
9. Numerical data		
10. Field study of hunting behavior		
11. Thermometer, balance scale, stopwatch		
12. Testable hypothesis		
13. Measurements from controlled laboratory experiments		
14. Purely observational data		
15. Binoculars, tape recorder, camera		
16. Calculations, graphs, and charts		