Name _____ Date _____ Class _____

# *Study Guide*

CHAPTER 1

## 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** | **bioengineering** | **biologists** | **biotechnology** |
| **environmental** | **living** | **mechanical** | |

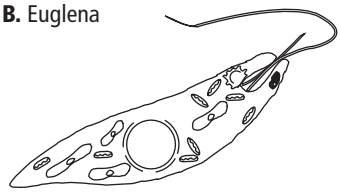
Biology is the study of **(1)** _____ things and the environment. People who study biology are called **(2)** _____ . Biologists who work in **(3)** _____ research might study how to make crops grow more efficiently. **(4)** _____ biologists work to prevent plants and animals from becoming extinct. Scientists 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.**

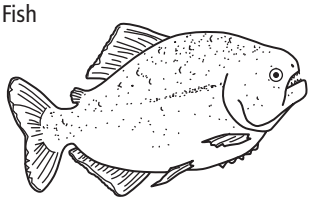
*Refer to the diagrams. Respond to each statement.*

**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

*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

_____ **14.** cell

_____ **15.** organism

_____ **16.** tissues

_____ **17.** organ system

_____ **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.

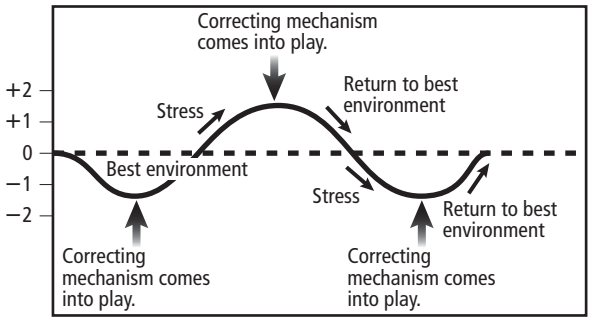
**25.** There is a sudden drop in air temperature, which gives you goosebumps.

**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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# Study Guide

CHAPTER 1

## Section 2: The Nature of Science

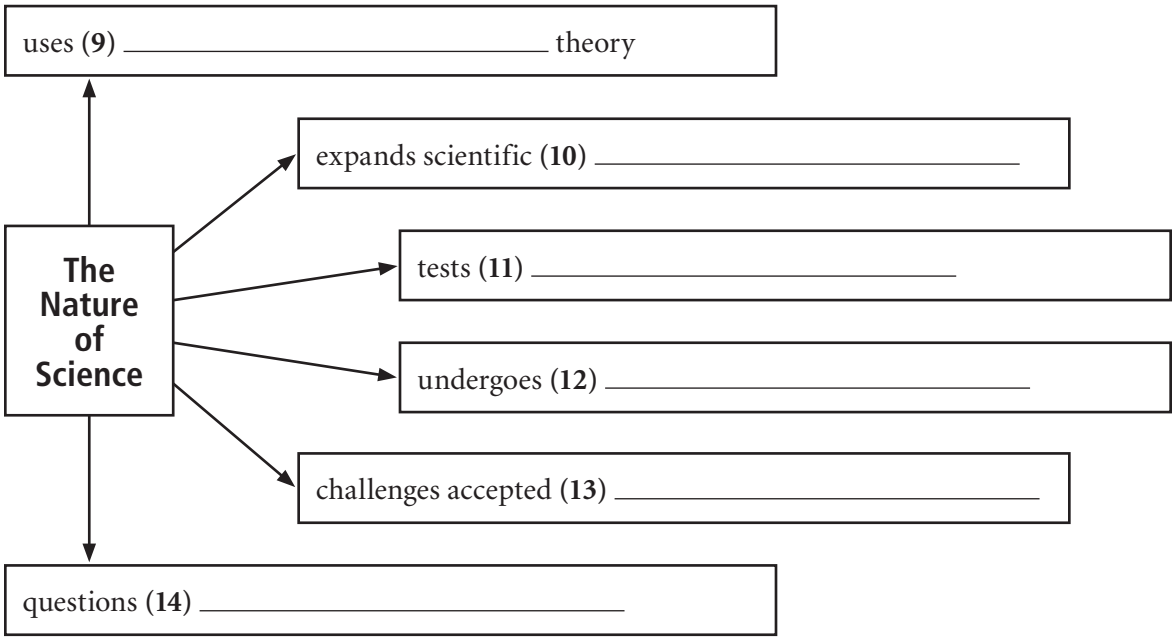
**In your textbook, read about the nature of science.**

*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 | Column B |
|---|---|---|
| _____ | **1.** a procedure that tests a hypothesis by collecting information under controlled conditions | **A.** constant |
| _____ | **2.** in an experiment, the group that is the standard against which results are compared | **B.** experimental group |
| _____ | **3.** in an experiment, the group that is exposed to the factor being tested | **C.** independent variable |
| _____ | **4.** the factor that remains fixed in an experiment | **D.** experiment |
| _____ | **5.** the condition being changed by the scientist | **E.** control group |
| _____ | **6.** the factor that results from or depends on changes to the independent variable | **F.** dependent variable |
| _____ | **7.** information gained from observation | **G.** hypothesis |
| _____ | **8.** a testable explanation of a situation | **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 | | |