

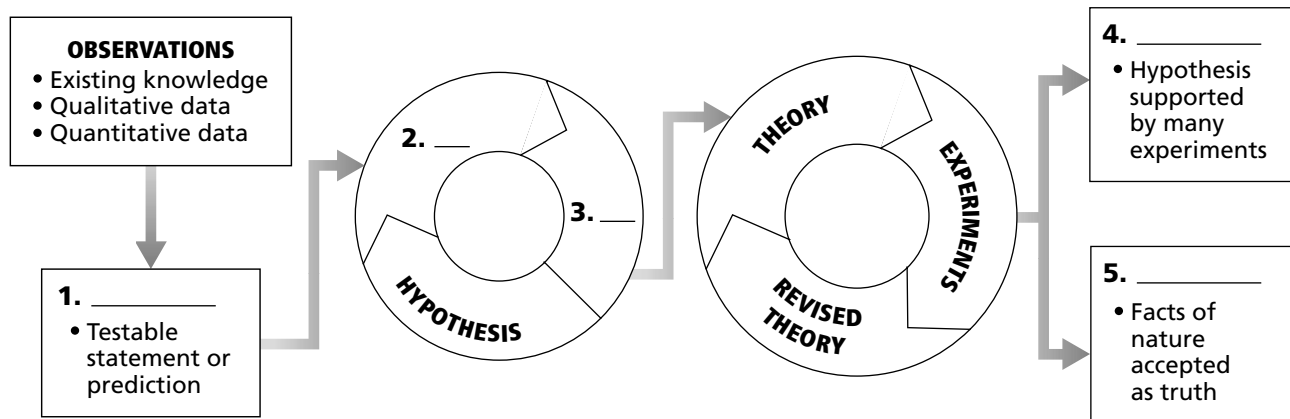
CHAPTER 1 STUDY GUIDE FOR CONTENT MASTERY

Section 1.3 Scientific Methods

In your textbook, read about a systematic approach that scientists use.

Use the words below to complete the concept map. Write your answers in the spaces below the concept map.

conclusions experiments hypothesis scientific law theory



- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

For each item in Column A, write the letter of the matching item in Column B.

- Column A**
- _____ 6. Refers to physical characteristics such as color, odor, or shape
 - _____ 7. Refers to mass, volume, and temperature measurements
 - _____ 8. A variable controlled by the experimenter
 - _____ 9. The act of gathering information
 - _____ 10. Changes in value based on the value of the controlled variable

- Column B**
- a. observation
 - b. qualitative data
 - c. quantitative data
 - d. independent variable
 - e. dependent variable

Section 1.3 *continued*

Circle the letter of the choice that best completes the statement.

- 11.** A constant is a factor that
- | | |
|--|--|
| a. changes during an experiment. | c. is affected by the dependent variable. |
| b. changes from one lab group to another. | d. is not allowed to change during an experiment. |
- 12.** A control is a
- | | |
|---|---------------------------------------|
| a. variable that changes during an experiment. | c. type of dependent variable. |
| b. standard for comparison. | d. type of experiment. |
- 13.** A hypothesis is a(n)
- | | |
|--|--|
| a. set of controlled observations. | c. tentative explanation of observations. |
| b. explanation supported by many experiments. | d. law describing a relationship in nature. |
- 14.** A theory is a(n)
- | | |
|--|--|
| a. set of controlled observations. | c. tentative explanation of observations. |
| b. explanation supported by many experiments. | d. law describing a relationship in nature. |
- 15.** A model is a(n)
- | |
|--|
| a. visual, verbal, and/or mathematical explanation of how things occur. |
| b. explanation that is supported by many experiments. |
| c. description of a relationship in nature. |
| d. tentative explanation about what has been observed. |

In the space at the left, write the word or phrase in parentheses that correctly completes the statement.

- _____ **16.** Molina and Rowland used a (model, scientific method) to learn about CFCs in the atmosphere.
- _____ **17.** Their hypothesis was that CFCs break down in the stratosphere due to interactions with (ultraviolet light, oxygen).
- _____ **18.** Molina and Rowland thought that these interactions produced a chemical that could break down (chlorine, ozone).
- _____ **19.** To test their (data, hypothesis), Molina and Rowland examined interactions that occur in the stratosphere.
- _____ **20.** Based on their data, Molina and Rowland developed a (hypothesis, model) that explained how CFCs destroy ozone.
- _____ **21.** Molina and Rowland concluded that (chlorine, radiation) formed by the breakdown of CFCs in the stratosphere reacts with ozone and destroys it.