

CHAPTER 1 STUDY GUIDE

Introduction to Chemistry

Section 1.2 Chemistry and Matter

In your textbook, read about chemistry and matter.

Write each term below under the correct heading. Use each term only once.

air	magnetic field	car	feeling	heat	human body
light	radio	radio wave	flashlight	textbook	thought

Made of Matter

Not Made of Matter

- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____

- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____

For each statement below, write *true* or *false*.

- _____ 16. The mass of an object can vary with the object's location.
- _____ 17. A mass measurement includes the effect of Earth's gravitational pull on the object being measured.
- _____ 18. Scientists measure the amount of matter in terms of mass.
- _____ 19. Subtle differences in weight exist at different locations on Earth.
- _____ 20. Your mass on the Moon would be smaller than your mass on Earth.

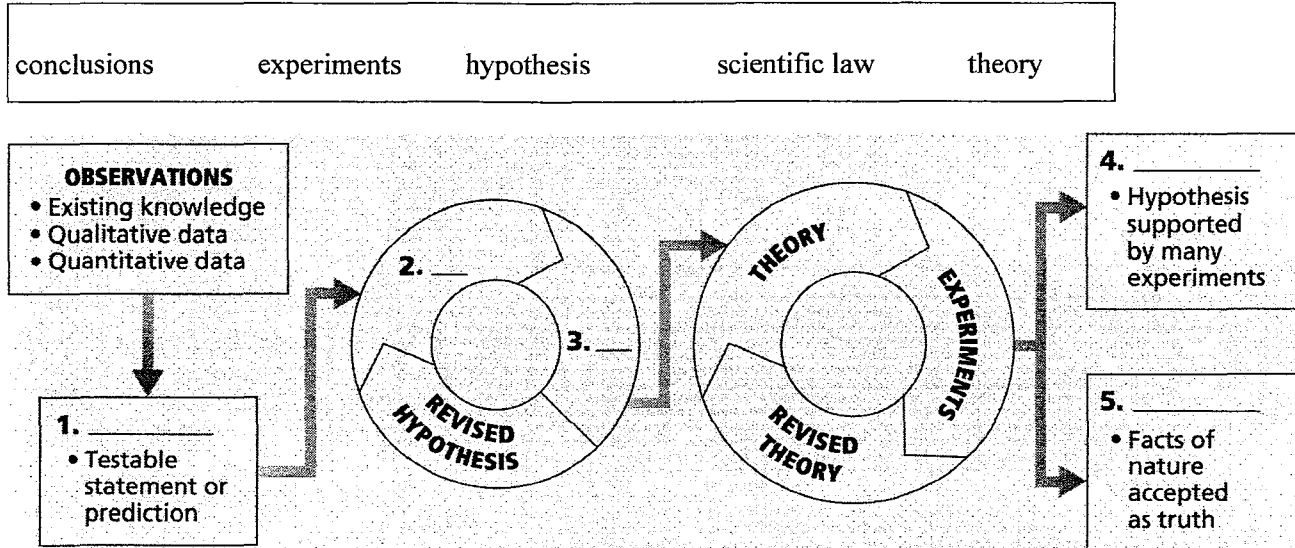
CHAPTER 1 STUDY GUIDE

continued

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.



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.
 - b. changes from one lab group to another.
 - c. is affected by the dependent variable.
 - d. is not allowed to change during an experiment.
12. A control is a
- a. variable that changes during an experiment.
 - b. standard for comparison.
 - c. type of dependent variable.
 - d. type of experiment.
13. A hypothesis is a(n)
- a. set of controlled observations.
 - b. explanation supported by many experiments.
 - c. tentative explanation of observations.
 - d. law describing a relationship in nature.
14. A theory is a(n)
- a. set of controlled observations.
 - b. explanation supported by many experiments.
 - c. tentative explanation of observations.
 - 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.

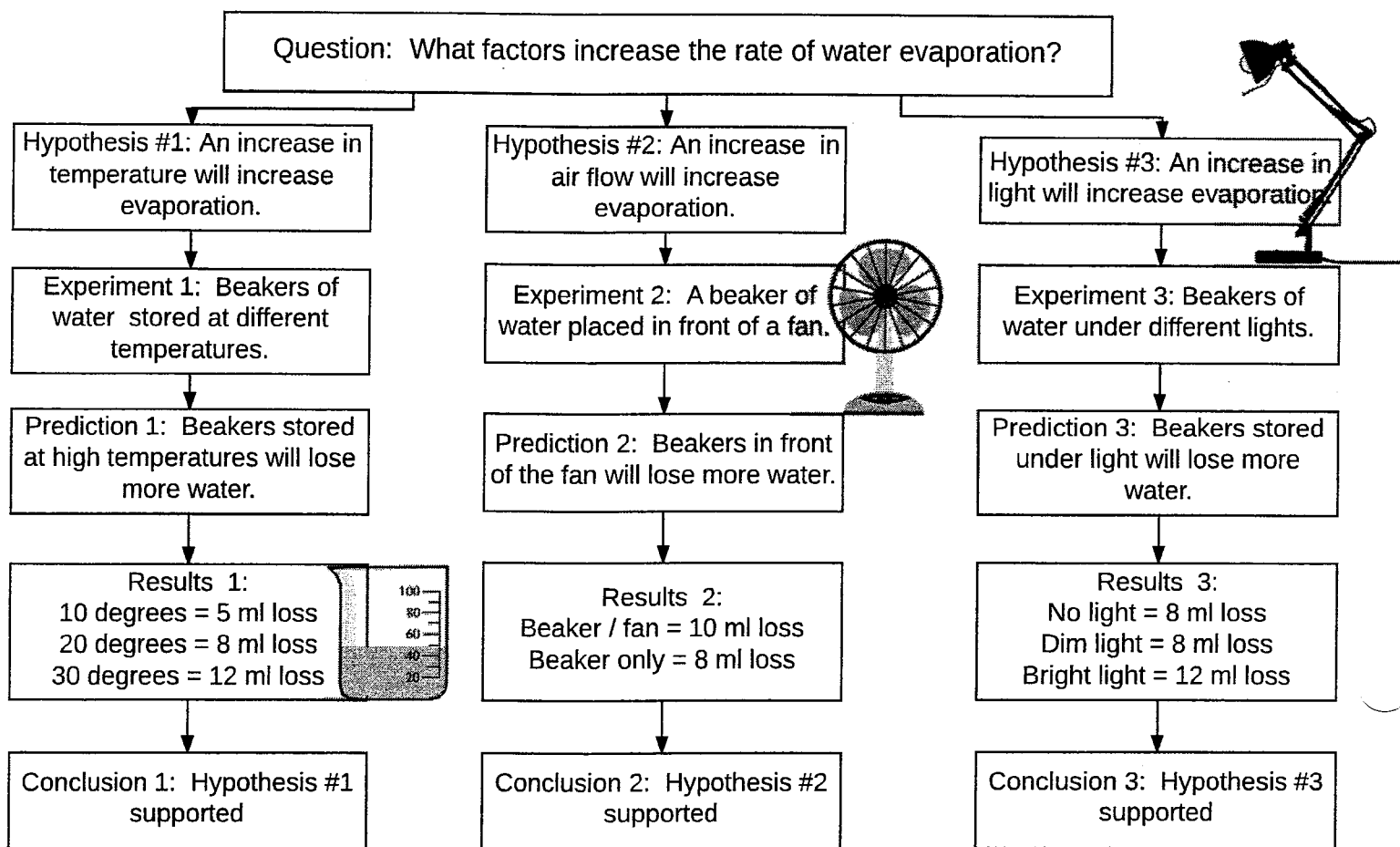
In the space at the left, write the word or phrase in parentheses that correctly completes the statement.

- _____ 16. Meteorologists use (a model, the scientific method) to predict the paths of hurricanes and tropical storms.
- _____ 17. Melanie noticed her dog Opie was constantly scratching, based on her (conclusion, observations) she developed the hypothesis that Opie might have been infested with fleas.
- _____ 18. Archimedes tested several ideas about density, after performing many experiments he (observed, concluded) that only objects that have a density less than that of water would float.
- _____ 19. To test his (data, hypothesis), Jasper fed each one of the test groups a different type of food.
- _____ 20. When testing hypotheses about microscopic matter scientists often use (models, theories) to test their ideas.

Name: _____

Scientific Method: How Can a Causal Question Be Answered?

Directions: Examine the flow chart below which considers a question about water evaporation. Multiple hypotheses are tested and conclusions drawn from the given results of the experiments. Answer the questions regarding the experiments.



1. What are the independent and dependent variables in each of the experiments?

2. What information should be added to the diagram to give the reader a better understanding of how these experiments were conducted.

3. What variables should have been CONTROLLED in the experiments.

4. How much confidence would you have in the conclusion of experiment 3 if you found out that temperature was not a controlled variable? Explain your reasoning.

5. On the back of this page, create your own flow chart to answer a causal question. Be creative!