

Chapter 1, continued

Complete questions 3–10 after reading pages 12–18 in the text. Match each sentence in Column A with one of the steps in the scientific method in Column B, and write the corresponding letter in the space provided.

Column A	Column B
<p>___ 3. I told my classmates that Kaboing! shoes do not help you jump higher and that regular sneakers work better.</p> <p>___ 4. I wanted to know, “Will wearing Kaboing! shoes help me jump higher?”</p> <p>___ 5. I jumped five times in a pair of Kaboing! shoes and recorded the height each time. After resting for 5 minutes, I repeated the test wearing my sneakers.</p> <p>___ 6. I thought I’d jump higher in Kaboing! shoes than in my sneakers.</p> <p>___ 7. I jumped higher in my sneakers than I did in Kaboing! shoes. Kaboing! shoes do not help me jump higher.</p> <p>___ 8. The average height for the five jumps in Kaboing! shoes was 35.5 cm. The average height for the five jumps in my sneakers was 36 cm. On average, I jumped half a centimeter higher in my sneakers than I did in Kaboing! shoes.</p>	<p>a. Ask a question.</p> <p>b. Form a hypothesis.</p> <p>c. Test the hypothesis.</p> <p>d. Analyze the results.</p> <p>e. Draw conclusions.</p> <p>f. Communicate the results.</p>

9. Take another look at question 5. Why do you think the student jumped five times in each pair of shoes instead of just once?

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10. Also in question 5, the student mentioned resting between tests. Why do you think that would have been important to the experiment?

Review (p. 14)

Now that you've finished the first part of Section 2, review what you learned by answering the Review questions in your ScienceLog.

11. Which of the following statements is ALWAYS true for scientific investigations?
- a. Scientists never have a clear idea of the problem they are trying to solve.
 - b. Scientists keep testing the same hypothesis.
 - c. Scientists take accurate measurements and accurately record data.
 - d. Scientists follow the steps of the scientific method in the same order.

Building Scientific Knowledge (p. 18)

12. An idea that is supported by many tests and experiments can become a _____ or a _____.

13. Which of the following is NOT true of a scientific theory?
- a. It unifies hypotheses and observations that have been supported by testing.
 - b. It can predict an observation you might make in the future.
 - c. It can be changed or replaced.
 - d. It is a simple guess.

Mark each of the following statements *True* or *False*.

14. _____ You could be arrested if you break a scientific law.
15. _____ Scientific laws are determined by committee.
16. _____ Laws tell you *why* something happens, not *what* happens.
17. _____ A scientific law is a summary of many experimental results and observations.

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18. Scientifically speaking, why do you think Figure 13 illustrates the big bang as a theory, not as a law?

Review (p. 19)

Now that you've finished Section 2, review what you learned by answering the Review questions in your ScienceLog.

Section 3: Using Models in Physical Science (p. 20)

1. What did the MIT engineers hope to gain from making a model?

What Is a Model? (p. 20)

2. You can represent an _____ or _____ by using a model.

3. Which of the following are ways to use models in science? (Circle all that apply.)

- a. looking at the tiny parts of a microscopic cell on a cell diagram
- b. launching a homemade rocket in your backyard
- c. observing how the parts of matter fit together without being able to see the tiny particles
- d. testing a new design for a building on a computer before spending money on construction