

## Study Guide: 1.3 Scientific Thinking and Processes

### KEY CONCEPT

Science is a way of thinking, questioning, and gathering evidence.

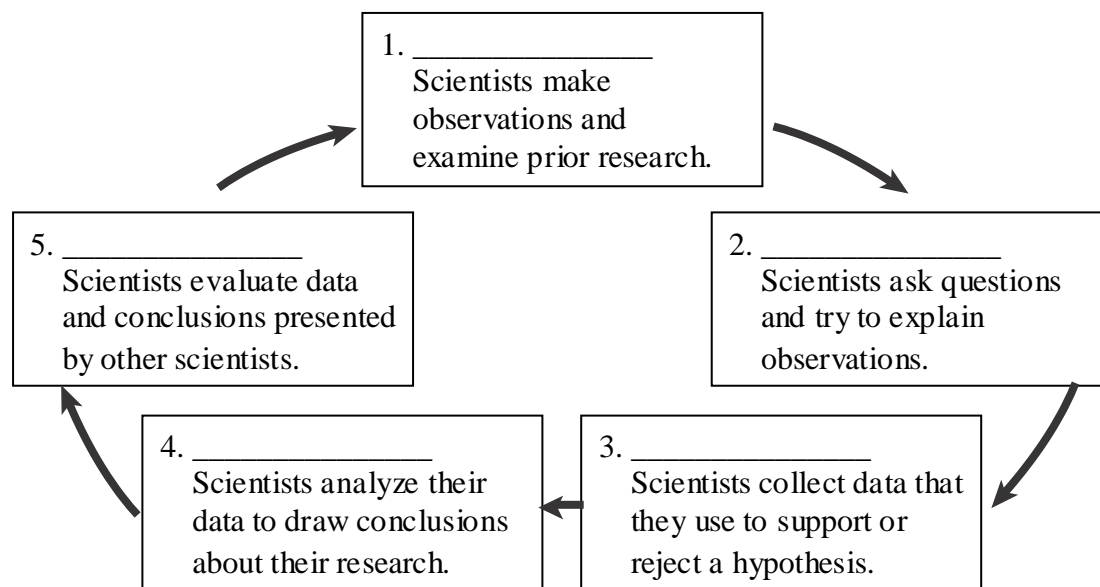
### VOCABULARY

observation	hypothesis	independent variable	constant
data	experiment	dependent variable	theory

**MAIN IDEA:** Like all science, biology is a process of inquiry.

Use the following words or phrases to fill in the blanks in the flow chart.

forming hypotheses	observing	testing hypotheses
evaluating results	analyzing data	



Circle the word or phrase that best completes the sentence.

- A scientist begins his or her research by **making observations** / **forming theories**.
- Scientists make observations and do experiments as a way to gather **variables** / **evidence**.

Fill in the chart using the words from the box.

sights	volume	temperature	mass	sounds	smells
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Qualitative data	Quantitative data
8. _____	11. _____
9. _____	12. _____
10. _____	13. _____

**MAIN IDEA:** Biologists use experiments to test hypotheses.

Circle the dependent variable in each sentence. Draw a box around the independent variable.

- 14. A scientist is testing the effects of medication on the blood pressure of patients.
- 15. A scientist wants to find out how cellular respiration is affected by temperature.
- 16. A scientist is measuring the effect of precipitation on seed germination.

Draw lines to match each type of investigation with an example.

- 17. Observational study                      Adding a solid to a liquid to find out if the solid will dissolve
- 18. Experiment                                Watching the migration patterns of white storks

**MAIN IDEA:** A theory explains a wide range of observations.

Choose whether each statement is true or false.

- 19. *true / false* A theory is a scientific idea that has been proven to be true.
- 20. *true / false* Theories can change over time as new evidence is discovered.

### Vocabulary Check

Draw lines to connect the phrases that mean the same thing.

- 21. independent variable                      conclusion
- 22. dependent variable                        condition that is changed by a scientist
- 23. theory                                        data
- 24. constant                                     condition that does not change