

Directed Reading B

Section: Scientific Models and Knowledge (pp. 26–31)

TYPES OF SCIENTIFIC MODELS

- _____ 1. What is a representation of an object or a system called?
- the real thing
 - a structure
 - a model
 - a prediction
- _____ 2. What is a limitation of models?
- They are never exactly like the real thing.
 - They are too small to be used.
 - They are only concepts.
 - They are on computers.
- _____ 3. What are three types of scientific models?
- physical, mathematical, and conceptual
 - small, medium, and large
 - atomic, molecular, and elemental
 - animal, vegetable, and mineral
- _____ 4. Which is an example of a physical model?
- an equation
 - a microscope
 - a toy rocket
 - human bones
- _____ 5. What may a mathematical model be made up of?
- plastic organs and bones
 - paint and plaster
 - concepts and computers
 - numbers and equations
- _____ 6. Which is an example of a mathematical model?
- a map
 - a graph
 - an action figure
 - a theory
- _____ 7. It is NOT true that computers
- make fewer mistakes than humans.
 - are useful for creating mathematical models.
 - always make correct models.
 - can keep track of more variables than humans can.

Directed Reading B *continued*

_____ **8.** Which of the following is a conceptual model?

- a. a diagram of scientific methods
- b. a model dinosaur skeleton
- c. $6 \times 2 + 2 = 14$
- d. a plastic human heart

9. What is a conceptual model?

USING SCALE IN MODELS

_____ **10.** Which of the following models would NOT use scale?

- a. a model of a sailing ship
- b. an equation
- c. a road map
- d. a floor plan of a house

11. What does scale represent?

12. Why can scale models, maps, and diagrams accurately communicate scientific knowledge?

BENEFITS OF MODELS

_____ **13.** A model can be a kind of testable

- a. question.
- b. dinosaur.
- c. variable.
- d. hypothesis.

14. What can models be used to represent?
