

Skills Worksheet

Directed Reading A

Section: Scientific Models

1. What can scientists build to test their hypotheses?

MODELS IN SCIENCE

- _____ 2. What is a pattern, plan, representation, or description designed to show the structure or workings of an object, system, or concept called?
- a. a test
 - b. a model
 - c. a hypothesis
 - d. a *Proteus*

3. Scientists use models to represent _____ or systems.

4. A model uses something _____ to help us understand something that is not familiar.

5. List the three common types of scientific models.

6. What can be helpful to show things that are too small to see or how something works?

7. List two examples of physical models.

8. A mathematical model is made up of mathematical equations and

_____.

9. Complex mathematical models can have many _____.

10. Omitting a variable in a complex mathematical model can cause the model to

_____.

Directed Reading A *continued*

11. What kind of models are based on systems of ideas or comparisons with familiar things?

12. How does a conceptual model make use of familiar things?

Match the correct description with the correct term. Write the letter in the space provided.

_____ 13. a model used to predict the weather

a. conceptual model

_____ 14. the big bang theory, which describes how the planets and galaxies were formed

b. physical model

_____ 15. a model of a molecule

c. mathematical

model

16. A model can help you see things in your mind

that are very _____ and very _____.

17. Give examples of how models help us picture things that are very difficult to see.

USING MODELS TO BUILD SCIENTIFIC KNOWLEDGE

_____ 18. An explanation for many hypotheses and observations is called a

a. model.

b. law.

c. variable.

d. theory.

19. What are theories based on?

20. A theory explains observations you've made and helps you

_____ what will happen in other tests.

Directed Reading A *continued*

21. Explain how scientists use models to test theories.

22. What is a summary of many experimental results and observations called?

23. A scientific law is formed only after many experimental results and

_____.

24. What do laws describe?

25. How do theories and laws differ?

26. What law says that the total mass of materials formed is the same as the total mass of the starting materials?

After doing the directed reading 1-26:

1. Read the Summary Box on the bottom left of page 23.

2. Answer questions 1-6 on page 23 on lined paper.