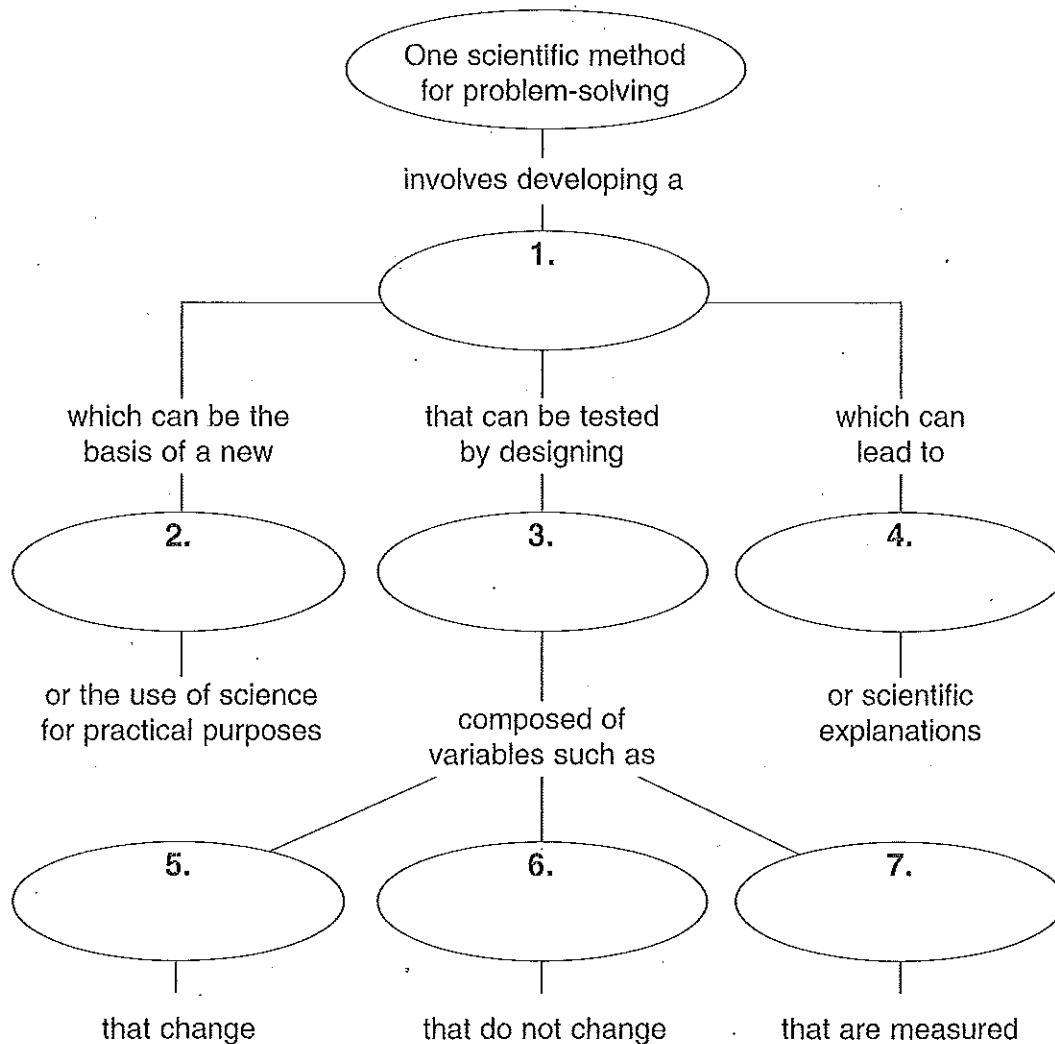

**Directed Reading for
Content Mastery**
**Overview
The Nature of Science**

Directions: Complete the concept map by using the words below.

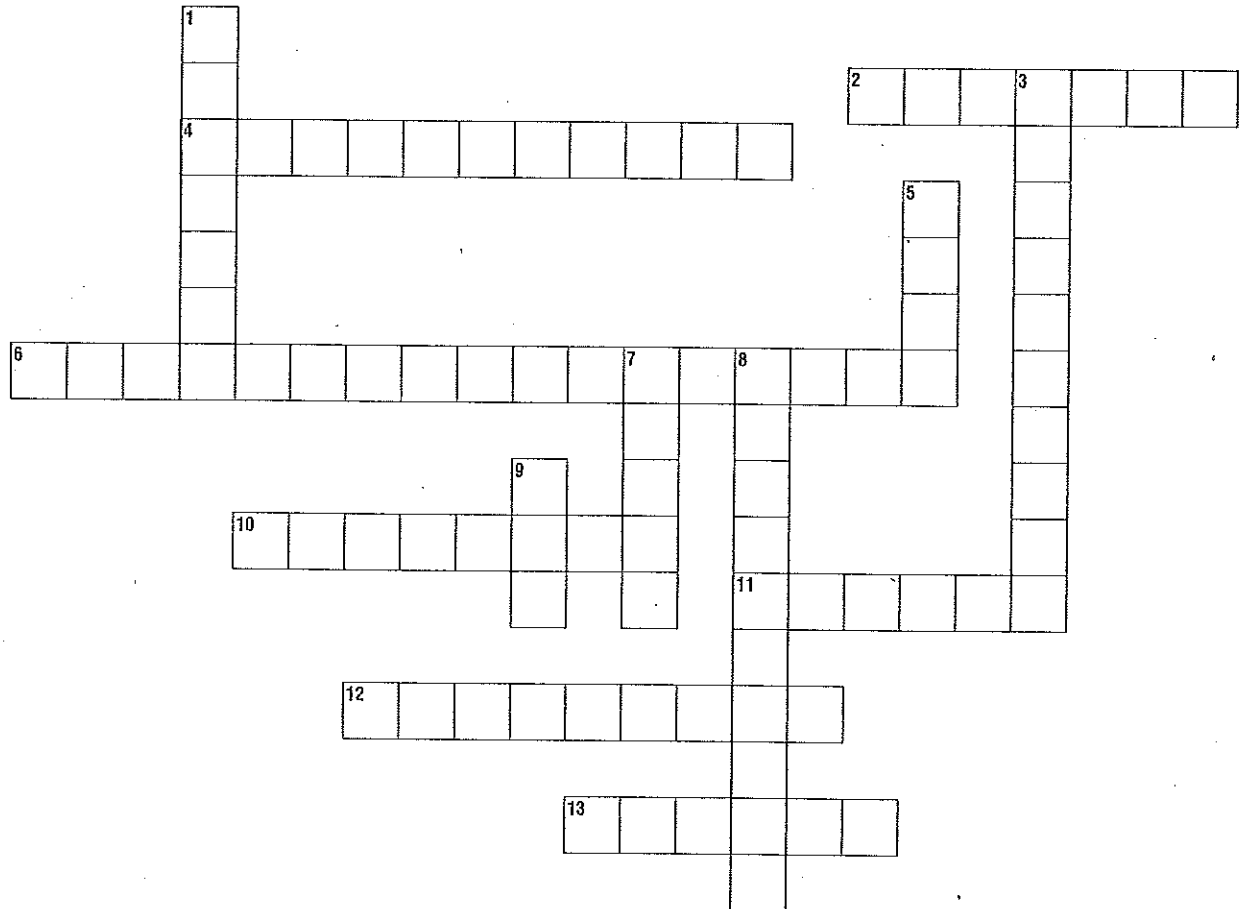
scientific theories
constants
technology
hypothesis
dependent variables
experiments
independent variables


Directions: Circle the terms in parentheses that best complete the sentence.

8. Problems that deal with ethics (can, cannot) be solved using scientific methods.
9. Ethics deals with (moral values, scientific facts).
10. There (are, are no) limits to what science can explain.



Directions: Use the clues below to complete the crossword puzzle.


Across

2. The standard to which an experiment's results can be compared
4. The variable you want to test: _____ variable
6. Problem solving procedures
10. Variable that does not change in an experiment
11. Explanation backed by results obtained from repeated tests or experiments: scientific _____
12. Factors that can change in an experiment
13. Deals with moral values about what is good or bad

Down

1. The process of observing and studying things in your world
3. Use of scientific discoveries for practical purposes
5. A personal opinion
7. Type of science that studies Earth and space
8. An educated guess
9. Rule that describes the behavior of something in nature: scientific _____

SECTION

1

Reinforcement

Science All Around

Directions: Answer the following questions on the lines provided.

1. What is science?

2. Define the word hypothesis. Give an example of a possible hypothesis.

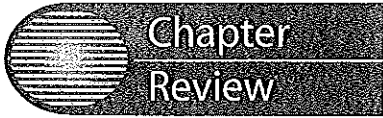
3. List the steps of the scientific method.

4. What are the constants in an experiment?

5. Compare dependent variable and independent variable.

6. Define control.

7. Define technology. Give an example of a technological advancement that you use daily.



The Nature of Science

Part A. Vocabulary Review

Directions: Write the correct term in the spaces beside each definition.

1. a prediction or statement that can be tested _____
2. use of knowledge to make products or tools _____
3. a factor in an experiment that can change _____
4. a standard to which experimental results can be compared _____
5. variable being measured _____
6. variable that changes _____
7. problem-solving by following steps to draw a conclusion _____
8. a process of observing, studying, and thinking about things to gain knowledge _____
9. personal opinion that may affect experiments _____

Part B. Concept Review

Directions: Number these steps for doing an experiment in the correct order in the blanks provided.

- _____ 1. Draw conclusions.
- _____ 2. Form a hypothesis.
- _____ 3. Gather information (research).
- _____ 4. Test your hypothesis.
- _____ 5. Recognize the problem.
- _____ 6. Analyze your data.



Chapter Test

The Nature of Science

I. Testing Concepts

Directions: Match the description in the first column with the item in the second by writing the correct letter in the space provided. Some items in the second column may not be used.

- | | |
|--|----------------------|
| _____ 1. variables that do not change in an experiment | a. hypothesis |
| _____ 2. an educated guess that can be tested | b. Earth science |
| _____ 3. standard to which experimental results are compared | c. variable |
| _____ 4. rule that describes behavior of nature | d. constant |
| _____ 5. deals with morals and values | e. control |
| _____ 6. the use of scientific discoveries to make products or tools | f. technology |
| _____ 7. a personal opinion | g. scientific theory |
| _____ 8. an explanation backed by results from repeated testing | h. scientific law |
| _____ 9. a variable that can change in an experiment | i. independent |
| _____ 10. study of Earth and space | j. ethics |
| | k. dependent |
| | l. bias |

Directions: Identify each statement as **true** or **false**. Rewrite false statements to make them correct.

- _____ 11. Ethics deals with morals and values and can be measured and tested using the scientific method.

- _____ 12. Until proven incorrect, there are no “wrong” hypotheses.

- _____ 13. The more variables you can test in an experiment, the better the results.

- _____ 14. Earth science is the study of rocks and trees only.

- _____ 15. Bias, or personal opinions, never influence scientific results.
