Assessment

Chapter Test

Tools of Environmental Science

MATCHING
In the space provided, write the letter of the description that best matches the term or phrase.

_____ 1. risk  
   a. what scientists use to test a prediction when they cannot use an experiment

_____ 2. hypothesis  
   b. more than a guess, a logical explanation

_____ 3. prediction  
   c. probability of an outcome that is unwanted

_____ 4. experiment  
   d. procedure to test a hypothesis

_____ 5. correlation  
   e. logical statement about what will happen

_____ 6. probability  
   f. steps used by scientists to answer questions

_____ 7. statistics  
   g. systematic process for making decisions

_____ 8. decision-making model  
   h. numerical collection and classification of data

_____ 9. experimental method  
   i. the chance that an event will happen

MULTIPLE CHOICE
In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 10. What essential characteristic does a good experiment have?
   a. A control group is given the experimental treatment.
   b. A single variable is tested.
   c. A control is used.
   d. both (b) and (c)

_____ 11. Your county is considering buying land to form a nature preserve. On this land, an endangered species of bird is known to breed. Which of the following is a possible negative short-term consequence of the county making this decision?
   a. The population of the endangered species increases.
   b. Habitat destruction is immediately decreased.
   c. Environmental controls are made less strict outside the preserve area.
   d. Habitats outside the preserve area become damaged by over development.
12. The three final steps of the experimental method in their correct order are
   a. drawing conclusions, analyzing data, and repeating experiments.
   b. drawing conclusions, repeating experiments, and communicating results.
   c. observing, hypothesizing, and drawing conclusions.
   d. repeating experiments, communicating results, and drawing conclusions.

13. When making a decision about whether or not to build a dam, you are considering an economic value when you ask which of the following questions?
   a. Will the dam provide new leisure activities?
   b. How many jobs will building the dam generate?
   c. Will building the dam destroy natural resources?
   d. Is it right to build a dam here?

14. What step in a simple environmental decision-making model are you taking when you consider whether or not people will benefit financially from setting aside land as a national park?
   a. exploring consequences
   b. making a decision
   c. gathering information
   d. none of the above

15. When you ask the question, “If a marsh is included as part of a nature preserve, will it help protect our water resources?” you are considering which of the following types of values?
   a. aesthetic
   b. educational
   c. environmental
   d. social/cultural

16. Which of the following models would you use to represent the shape of Earth’s surface beneath the oceans?
   a. graphical
   b. mathematical
   c. conceptual
   d. physical

**SHORT ANSWER**

Read each question or statement and answer it in the space provided.

17. Explain why mathematical models are important to scientists. Give two examples of a mathematical model.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
18. Explain why conceptual models are important to scientists. Give two examples of a conceptual model.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

19. Name and describe two additional types of models commonly used by scientists and give an example of each.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Read the following paragraph and answer the questions that follow in the space provided.

A die is a game piece that has six sides numbered one through six.

A student calculates that when the die is tossed, the probability of rolling a “5” is equal to one out of six or 0.17. To test this theory, the student tosses the die 20 times, and rolls a “5” two out of 20 times.

20. What was the sample size used by the student?

________________________________________________________________________

21. How does the result of the probability test compare to the calculated probability?

________________________________________________________________________

22. Based on your answer to question 21, what can you infer about the sample size used by the student? Explain your answer.

________________________________________________________________________
Read the following statement and answer it in the space provided.
23. Explain how you would determine the mean age of the students in your school.

________________________________
________________________________
________________________________
________________________________
________________________________

Read the following paragraph and answer the questions that follow in the space provided.
A scientist has been told by landowners that there are no natural sources of water in a certain section of a local desert. The scientist does not believe that this is true, so she explores the desert. The scientist notices a rock section that seems darker in color than other sections along a cliff. Wondering why the rock section seems darker, she walks over to the cliff to take a closer look. She observes that part of the cliff is damp, which leads her to find a natural spring nearby.

24. Identify two instances when the scientist demonstrates a key habit of mind and identify what that habit of mind is.

________________________________
________________________________
________________________________
________________________________
________________________________

25. Explain how scientific habits of mind are important in the situation described above.

________________________________
________________________________
________________________________
________________________________
________________________________