Name: _____

Study Questions: The Scientific Method

Matching: Write the letter of the word that best matches the definition in the blank.

A. Problem **B. Research** **C. Hypothesis** **D. Analysis**
E. Experiment **F. Observations** **G. Conclusion**

_____ 1. An investigation into what others have learned about the question. This information will help in designing the experiment.

_____ 2. Accurate, up to date records of the results of the experiment.

_____ 3. A prediction of the outcome of the experiment based on research and past experiences. Often referred to as an "educated guess."

_____ 4. A single question that the researcher is attempting to answer.

_____ 5. The steps involved in proving or disproving the hypothesis.

_____ 6. A statement of the results of the experiment.

_____ 7. A graph of the data collected.

Short Answer: Answer each question in the space below.

8. Which step of the scientific method actually tests the hypothesis?

9. What frequently leads to failure when designing and conducting an experiment?

10. How can disproving a hypothesis (finding it to be untrue) be just as valuable as proving one?

11. Why must all observations be accurate and up to date?

12. Why is it important to research a problem before forming a hypothesis?

13. Why is the scientific method a good method of problem solving?

Application: For each experiment below, identify the step of the scientific method being described.

A. Moose

_____ Not one moose out of 721 observed ate any berries.

_____ A moose does not like raspberries because he will not eat them even when they are placed in a large bowl in his feeding area.

_____ Locate a moose. Place a large bowl of raspberries in his feeding area. Observe for several feedings. Record the amount of raspberries eaten.

_____ Does a moose like raspberries?

B. Eagles

_____ How high do eagles nest?

_____ After measuring the height of 3 nests, it seems they nest no more than 50 meters off the ground.

_____ One nest was located 43 meters high, another at 46 meters and the third at 50 meters.

_____ Spot a nest and climb toward it. When you reach it, measure its height with a tape measure.

C. Angelfish

_____ After several days, 4 angelfish were left. Therefore, cannibalism results when 50 angelfish are placed in a 5-gallon aquarium without food for several days.

_____ Place 50 angelfish into a 5-gallon aquarium and observe for several days. Do not feed them. Record the number of fish in the tank each day.

_____ The first day, 5 fish were eaten. The second day 10 more were eaten.

_____ Will angelfish exhibit cannibalism when 50 are placed in a 5-gallon aquarium without food for several days?

D. Dog

_____ The dog's eating habits were the same each day.

_____ The color of light had no effect on the dog's eating habits.

_____ Do dogs eat better when exposed to a particular color of light?

_____ Feed a dog for 7 days, changing the color of light in its area before feeding it each day. Observe and record the dog's eating habits.

E. Sponges

_____ Dive down and observe the sponges for several hours. Take photos of the predators. Identify them.

_____ After 3 days of study and observations with an underwater camera, only small tropical fish feed upon the sponges.

_____ What marine life feeds upon sponges?

_____ A small fish was seen eating a sponge.