

CAN YOU SPOT THE SCIENTIFIC METHOD - CRITICAL THINKING/PROBLEM SOLVING

Name _____

Date _____

Period _____

Each sentence below describes a step of the scientific method. Match each sentence with a step of the scientific method listed below.

A. Recognize a problem

B. Form a hypothesis

C. Test the hypothesis with an experiment

D. Draw conclusions

____ 1. Stephen predicted that seeds would start to grow faster if an electric current traveled through the soil in which they were planted.

____ 2. Susan said, "If I fertilize my geranium plants, they will blossom."

____ 3. Jonathan's data showed that household cockroaches moved away from raw cucumber slices.

____ 4. Rene grew bacteria from the mouth on special plates in the laboratory. She placed drops of different mouthwashes on bacteria on each plate.

____ 5. Kathy used a survey to determine how many of her classmates were left-handed and how many were right-handed.

____ 6. Jose saw bats catching insects after dark. He asked, "How do bats find the insects in the dark?"

____ 7. Justin wondered if dyes could be taken out of plant leaves, flowers, and stems.

____ 8. Alice soaked six different kinds of seeds in water for 24 hours. Then she planted the seeds in soil at a depth of 1 cm. She used the same amount of water, light, and heat for each kind of seed.

____ 9.. Bob read about growing plants in water. He wanted to know how plants could grow without soil.

____ 10. Kevin said, "If I grow five seedlings in red light, I think the plants will grow faster than the five plants grown in white light."

____ 11. Angela's experiment proved that earthworms move away from light.

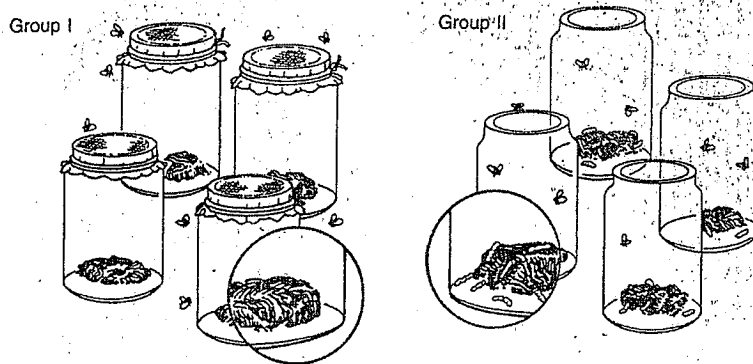
____ 12. Scott said, "If acid rain affects plants in a particular lake, it might affect small animals, such as crayfish, that live in the same water."

____ 13. Michael fed different diets to three groups of guinea pigs. His experiment showed that guinea pigs need vitamin C and protein in their diets.

____ 14. Kim's experiment showed that chicken eggshells were stronger when she gave the hen feed, to which extra calcium had been added.

Scientific Method

Long ago, many people believed that living things could come from nonliving things. They thought that worms came from wood and that maggots came from decaying meat. This idea was called spontaneous generation. In 1668, an Italian biologist, Francesco Redi, did experiments to prove that maggots did not come from meat. One of his



experiments is shown below.

Redi placed pieces of meat in several jars. He divided the jars into two groups. He covered the first group of jars with fine cloth. He left the second group of jars uncovered. Redi observed the jars for several days. He saw flies on the cloth of the covered jars, and he saw flies laying eggs on the meat in the uncovered jars. Maggots appeared only on the meat in the group of jars left uncovered.

1. Scientists use a series of organized steps called scientific method to solve problems. List the steps that are often used. _____

2. What was the problem in Redi's experiment? _____

3. What do you think his hypothesis was? _____

4. How did he test his hypothesis? _____

5. What was the variable in his experiment? _____

6. What was the control in his experiment? _____

7. What do you think Redi's conclusion was? _____