

Putting the Scientific Method to Work

A biology student wanted to investigate the effects of fish oil fertilizer on the growth of plants. A month ago, she planted 10 bean plants. Five of the plants were fertilized once a week with 1ml. of fertilizer mixed in 10ml. of water. The other five plants were given 11ml. of water each week in place of the fertilizer. All other conditions were kept exactly the same for both groups of plants.

1. What is the problem being investigated?
2. Formulate a hypothesis for this experiment
3. Identify the following:
Independent variable:
Dependent variable:
4. What is the control in this experiment and why is it necessary?
5. When analyzing the data, why should the student compare average plant height gain instead of comparing individual plants?
6. Explain why the extra water was used in place of the fertilizer in the No Fertilizer group of the plant growth experiment.
7. Suppose that the student used Marigolds in the experimental group and Hyacinths in the control group. Why would this experiment no longer be valid?