

Design a Scientific Experiment

Instructions for Paper:

The paper assignment is to develop and write a scientific experiment. You are to develop and clearly state a hypothesis based on a series of observations. Then develop a research-based experimental design to try to prove or disprove your hypothesis. Depending on the hypothesis, you may need to use a variety protocols or experiments to test your hypothesis.

Make sure you set up appropriate controls

1. **Make observations:** In order to set up a scientific experiment, you will need to make observations about a particular phenomenon that you wish to investigate further. For example, you notice that birds eat more from a feeder in the winter than in the summer. Your observations may be from things you have personally noticed or from the literature. Give enough background about your observation to clearly state the phenomenon.

2. **Make a hypothesis:** A hypothesis is an educated or logical guess about how or why something occurs. For example, using the bird feeder scenario again, you may make a hypothesis that would say something to the effect of: "Cold temperatures make birds eat more." Clearly state your hypothesis in your paper and remember a hypothesis is a statement and not a question.

3. **Design an experiment:** You want to create an experiment that would test your hypothesis and the end result would be that the evidence from your experiment would either support or disprove your hypothesis. In the bird feeder scenario, you might set up an experiment that would have a group of birds with a feeder in a warm environment and a group of birds (same species) in a cold environment, and measure how much each group eats.

In addition you need to have several consistent dependent variables that rely on your independent variable in which you collect data. In the bird feeder situation, you would want to measure how much food is eaten by the birds and the exact temperatures of the rooms in which the birds are kept.

Formatting of Paper:

The paper should be single spaced, Arial, 12 pitch with one inch margins. Give a research title for you paper, print your name on the paper and sign the paper. The paper should have a minimum of 600 words or a maximum of 1,000 words.

Format for References:

Journal Example

1. Newell, W., Hall, J., Hutkins, S., Lerner, D., and Oates, K. 2003. Interdisciplinarity in Long-Standing Interdisciplinary Programs. *Issues in Integrative Studies*, 21: 9-42

Web Site Reference

2. Project Kaleidoscope. 2007. What Works: Twenty-First Century Science and the Facilities of the Future. www.pkal.org/documents/21stCenturyScienceAndFacilities.cfm