

Do Hedge Apples Repel Spiders?

Objective: *Upon completion of this lab you should be able to:*

1. Conduct a scientific investigation
2. Prepare a standard lab report documenting the results of a scientific investigation
3. Understand the biology of hedge apples and spiders

Background Information:

Recall that hedge apples (*Maclura pomifera*) are supposed to repel spiders from your home. The purpose of this lab is to test this claim. Working with a partner, design your potential experiment by completing the following experimental design work sheet.

Question: Do hedge apples repel spiders?

Hypothesis:

Predictions: *(identify at least one testable prediction from your hypothesis. If the hypothesis is true, then....)*

Alternate Hypotheses: *(state at least one alternate hypothesis)*

Protocol/Experimental Design: *(briefly outline the methods that you would use in your experiment to test your prediction(s). Include what you would measure, sample size, control group, experimental group, etc.)*

Variables:

- Identify the experimental variable(s):
- Identify the controlled variable(s):

Results: (what data will you collect? What *types of graphs* you will use to summarize your data? etc.)

Conclusions: (will your results be adequate to test the hypothesis? Is the sample size large enough? Will you need to use any statistical tests to analyze your data?)

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Conduct Experiment

Once your experimental design has been approved, gather your materials and conduct the experiment.

Post Lab

The results of this lab will be documented by writing a formal lab report. You may discuss the report with others in the class, but you must write your own report. This includes preparing your own graphs, data tables, etc. The reports must be typed. The text should be at least 2 pages long, not including graphs, tables, etc. Directions for writing a lab report are provided at the following website: <http://www.employees.csbsju.edu/ssaupe/biol106/Labs/lab-report.htm> . Turn in, with your lab report a copy of the completed Lab Report Checklist at: http://www.employees.csbsju.edu/ssaupe/biol106/Labs/lab_report_checklist.htm

Some specific things to include in your report: In the introduction, be sure to include some research about hedge apples (what plant are they from? where do they grow? what does the plant look like? what is known about hedge apples? how did the idea that hedge apples can control spiders develop? what is known about this idea?) and information about the spider that we will use (where do they live? what do they eat? etc?). In the Methods section you should describe the experimental arena, how it was constructed, the source of hedge apples (grocery store), source of spiders (collected from my barn, St. Joseph (MN)), how the hedge apples were treated (stored in a refrigerator for 5 weeks before use), how the spiders were treated (collected on October 1, 2008, 4 days prior to use, maintained in a glass container with a nylon mesh lid). Recall that we used a chi square statistical test ([On Line Stat's Calculator](#)) to analyze our data.