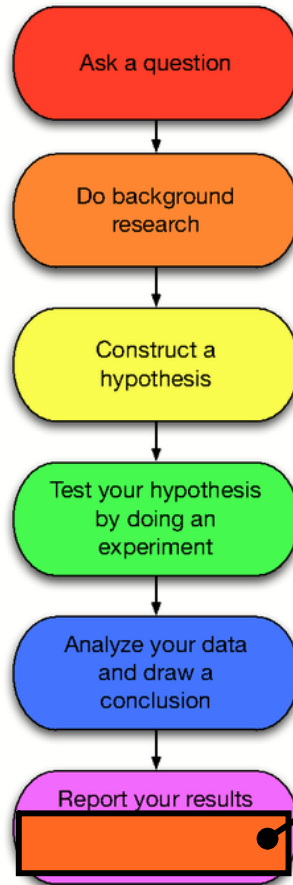


The Scientific Method



Remember, a Hypothesis is Supported or Not Supported **NEVER PROVED!**

Good Scientific Design

After you have your hypothesis, and what you want to know more about, you need to create a testable experiment.

You will need to consider the following:

1. How much time do I have? (3 weeks)
2. Can I test this or build it in the 3 weeks we have?
3. What is my treatment? (what you do to something you're testing)
4. What are my variables? (things that may affect my treatment, or things that may change)
5. What is my control? (the treatment that has nothing done to it, nothing is changed)
6. What materials do I need to run this experiment?



You will need to consider the following:

1. How much time do I have? (2 weeks)
2. Can I test this or build it in the 2 weeks we have?
3. What is my treatment? (what you do to something you're testing)
4. What are my variables? (things that may affect my treatment, or things that may change)
5. What is my control? (the treatment that has nothing done to it, nothing is changed)
6. What materials do I need to run this experiment?



Example question: Could we make packaging that holds more than square boxes?

Hypothesis: A box made in honeycomb shape will hold more than a square box, a round tube, or triangular container.

Experimental Design:

What is the treatment? The Shape of the three types of boxes, all the same height (6" tall, made of hard waterproof plastic and a bottom that is sealed: round, triangular, and tube shaped).

What is the Control? The square box.

What are the variables you would test?

1. How much dry material each box could hold (sand, oatmeal, sugar, flour)
2. How much wet material each could hold (cups or gallons of liquid)

Example question: Can we make fruit seeds grow by mimicking the digestive tract of birds?

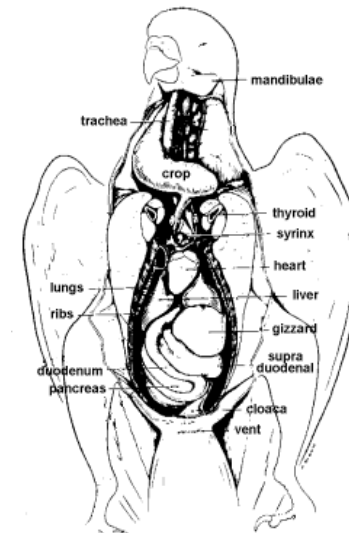
Hypothesis:

Experimental Design: Create a model bird gizzard, with pebbles and sand, and tumble seeds inside for different periods of time to see if fruit seeds (apples, oranges, grapes, watermelon, and cantaloupes) germinate better after being roughed up.

What is the Control?

What are the variables you would test?

What are the treatments?



TITLE: The title of your poster presentation should be the question that you posed for your original test.

Hypothesis: Students should write their hypothesis about their best “guess” of the outcome of the study.

Abstract (No more than one paragraph): The 1,000 mile high overview

In this short paragraph you will briefly tell:

- What your question was
- Your hypothesis
- The test you conducted (location, variables, controls, and what was measured)
- Results (this should be no more than 1-2 sentences.
- If the experiment supported or refuted your hypothesis (do not use the words PROVED or

DISPROVED!)

Materials and Methods (1-2 paragraphs)

Briefly tell what you did, write it such that if someone else wanted to replicate what you did they could do it exactly (don't forget to mention the units you measured in). You

*******NOTE: All graph and pictures must be labeled clearly. *******

Graph Results

You can do either a line or bar graph. The X and Y axis should be labeled as well as the units used to measure. Be sure to use colors or bars that are easy to tell apart.

Conclusion (limited to 1 paragraph)

- Briefly state your findings and why you suggest that the hypothesis was supported or refuted
- Suggest future experiments you could conduct that might further help answer your original question.

