

What is the purpose of Background Research?

Background Research

Steps Prior to Background Research

- ✔ Make an Observation/Pick a Topic
- ✔ Ask a Question
- * Write Background Research Questions

Write Background Research Questions

- * Four Areas
 - * Entity- the area being studied
 - * Independent Variable
 - * Dependent Variable
 - * Relationship between Entity and Variables

Background Research Questions

Entity (the general area/thing being studied)

- Types that can be studied
- Handling/care/safety/ethics within a controlled environment
- Independent Variable
- Structure and Function
- How can it safely and ethically be manipulated
- Dependent Variable
- Structure and function
- Best method to measure, record and observe
- Relationship
- Previous research on the topic

Class Research Project

- * **Area:** Food Production
- * **Observation:** Many people claim there is a noticeable difference between organic and conventional food products.
- * **Question:** Can people tell the difference between organic and conventional food products?

Background Research Questions

- * Entity
- * Independent Variable
- * Dependent Variable
- * Relationship between Entity and Variables

Entity: What are the different types of food production exist?

Independent Variables: What is makes a product organic/ what is organic production?

What is makes a product conventional/ what is conventional production?

Dependent Variables: What senses can be used to assess food products?

Relationship between Entity and Variables: When looking at consumer preferences of food production products, which senses can be used to distinguish between organic and conventional food products?

Background Research Reference

Creating a Citation:

Author: Rachel Tobin, Siobhan Moane and Tracey Larkin

Article Title: Sensory evaluation of organic and conventional fruits and vegetables available to Irish consumers

Pages: 157-162

Name of Journal: International Journal of Food Science and Technology

Year Published: 2013

Citation

Tobin, R., Moane, S., & Larkin, T. (2013). Sensory evaluation of organic and conventional fruits and vegetables available to Irish consumers. *International Journal of Food Science and Technology*, 157-162.

Independent Variable



* Organic

- * A labeling term that indicates approved methods were used to produce the product without synthetic fertilizers, irradiation or genetically modified product.

Source: USDA Agricultural Marketing Service "National Organic Program" <http://www.ams.usda.gov/AMSv1.0/nop>

Independent Variable

* Conventional

- * Primary method of food production using highly efficient practices and "technology, large scale production, hybrids, chemicals (pesticides/herbicides), fertilizers."

Source:
"Sustainable Agriculture: Terms and Definitions" compiled by
Mary V. Gold (2007)
<http://www.nal.usda.gov/atisic/pubs/terms/srp9902.shtm#toc1>

Null Hypothesis


- * The null hypothesis is the hypothesis that the researcher is testing. The null typically states that there is no difference between two characteristics.

Source:
Cotton, J. H., Glese, R. N., & Rezaei, R. J. (2006). *Students and research: Practical strategies for science classrooms and competitions* (4th ed.). Dubuque, IA: Kendall/Hunt.

Significant Difference

- * Statistical significance is determined through statistical calculations and indicates the likelihood the outcome was related to the results or due to chance.

Source:
Cotton, J. H., Glese, R. N., & Rezaei, R. J. (2006). *Students and research: Practical strategies for science classrooms and competitions* (4th ed.). Dubuque, IA: Kendall/Hunt.




Step 1: **Read** the Introduction and Materials and Methods sections and **glue** the appropriate term at each arrow. **Stop** when you get to the Results section.

Do Not glue without checking your results!

Step 2: After the class discussion on the Results Table, **analyze** the results using the instructions at the top of page 160.

Step 3: Return to page 159 and **read** the Results, Discussion, and Conclusion sections and **glue** the appropriate term at each arrow.



Journal Work for Agriscience Project:

- Observation/Ask a Question
- Primary Research Question/Sketch
- Non Directional Hypothesis
- Entity/Variables
- Background Research Questions