

Science Fair

Boards

&

Paper

Items Required to be at Project Table

- Forms
- Board
- Abstract
- Paper
- You (on time)

Items Not Allowed at Booth

- No plants
- No specimens
- No food
- No human or animal parts (Teeth, fluid samples)
- No chemicals including water
- If it doesn't run your project, take a picture and leave it home.

Abstract

- **Maximum 250 words**
 - My limitation is 200 words
 - On one page
- **Purpose of the experiment**
 - What you had hoped to learn
- **Procedure used**
 - Very brief, just tell what you did to help them understand, not every step
- **Data (results)**
- **Conclusion**
 - What did you find out and how are you going to use this information

Sample Abstract

Effects of Marine Engine Exhaust Water on Algae

Jones, Mary E.

Hometown High School, Hometown, PA

This project in its present form is the result of bioassay experimentation on the effects of two-cycle marine engine exhaust water on certain green algae. The initial idea was to determine the toxicity of outboard engine lubricant. Some success with lubricants eventually led to the formulation of "synthetic" exhaust water which, in turn, led to the use of actual two-cycle engine exhaust water as the test substance. **How they got the idea and what they tested.**

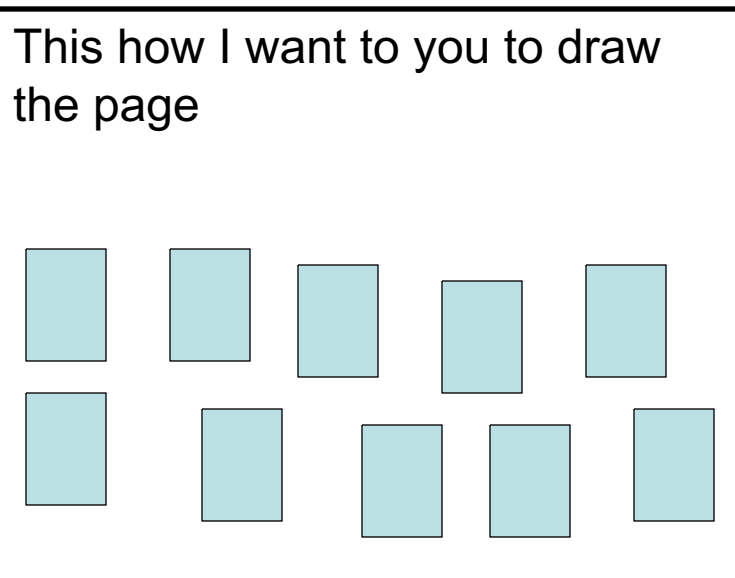
Toxicity was determined by means of the standard bottle or "batch" bioassay technique. *Scenedesmus quadricauda* and *Ankistrodesmus* sp. were used as the test organisms. Toxicity was measured in terms of a decrease in the maximum standing crop. The effective concentration - 50% (EC50) for *Scenedesmus quadricauda* was found to be 3.75% exhaust water; for *Ankistrodesmus* sp. 3.1% exhaust water using the bottle technique. **What they tested and how.**

Anomalies in growth curves raised the suspicion that evaporation was affecting the results; therefore, a flow-through system was improvised utilizing the characteristics of a device called a Biomonitor. Use of a Biomonitor lessened the influence of evaporation, and the EC 50 was found to be 1.4% exhaust water using *Ankistrodesmus* sp. as the test organism. Mixed populations of various algae gave an EC 50 of 1.28% exhaust water. **Data, results in numbers and words.**

The contributions of this project are twofold. First, the toxicity of two-cycle marine engine exhaust was found to be considerably greater than reported in the literature (1.4% vs. 4.2%). Secondly, the benefits of a flow-through bioassay technique utilizing the Biomonitor was demonstrated. **What you figured out.**

Data Book

- This is your Research Paper
- Needs to be in a binder
 - With Abstract
 - Forms
 - Any notes or extra pages you may have written on



Title Page

Window Cleaning Wow!

Mrs. Haven

Northwestern School

6th Grade

Table of Contents

Window Cleaning Wow!

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Introduction

- The introduction sets the scene for your report.
 - Purpose
 - Hypothesis
 - Why did you do this experiment or why did you choose this project
 - What you hope to find out
- Remember to use your hypothesis from your forms

Materials & Methods

- This is a step by step
 - I want you to write a detailed summary of exactly what you did
 - I want to be able to read and do the project right with your writing
 - Include pictures showing your steps
 - We can scan them and then paste them in
 - Or save to disc from digital camera

Results

- Data
 - Graphs
 - Charts
 - Figures
 - Keep the pages with your raw data on it and include it here so they can see that you did the work and the figuring
 - Remember all data must be in metric units
 - I forgot
 - » Here is a web site for conversions
 - » <http://www.metric-conversions.org/length/kilometers-to-miles.htm>

Discussion

Essence of your Paper

- **Compare your results** with commonly held beliefs, research you found, and expected results
 - Tell me what you found and how that is alike or different from what was expected or what you had read about
- **Errors**
 - Discuss what you possibly did wrong and would change if done again
 - Discuss uncontrolled errors (weather took electricity out)
 - How did the data vary between repeated observations
- **What other experiments should be conducted to establish this information.**

Conclusions

- **Briefly Summarize Results** (what you found)
 - Compare your numbers and show how they represent each other or support each other
- **Practical Applications** (**How will you use this information**)
- **Never Include anything new in this page, you are wrapping up all of the stuff you have already talked about.**

Acknowledgements

- You should always **thank** those who have assisted you.
 - Businesses
 - Parents
 - Teacher if they did something extra for you
 - School members
 - Participants in your project

References

- If you have received any new information beyond what you have listed in your research plan, now is the time to include that in another **Bibliography page**.
 - Use the same set up that you were taught for the research plan
 - These notes are in your notebook under science fair

John Doe

Professor Smith

English 1302

5 February 2002

Just Sheer Naked Magic

What weighs about three pounds but has more parts than there are stars in the Milky Way galaxy (Flieger)? What fills the space occupied by only three pints of milk yet includes components that, laid end to end, would stretch several hundred thousand miles (Diagram 19)? What looks like an oversized walnut made of soft, grayish-pink cheese but contains the equivalent of 100 trillion tiny calculators (Restak, Brain 27)? What, according to James Watson, co-discoverer of the helical structure of DNA, is "the most complex thing we have yet discovered in our universe" (qtd. in Begley 66)? To all four of these intriguing questions there is but one surprising answer: the human brain. This miraculous organ is remarkable in its structure, its function, and its chemical

composition.

What is the brain? According to Richard Restak,

the human brain is the master control center of the body. The brain constantly receives information from the senses about conditions both inside the body and outside it. The brain rapidly analyzes this information and then sends out messages that control body functions and actions. ("Brain" 561)

According to Tether, the brain is divided into three main parts: the cerebrum, the cerebellum, and the brain stem (421). These parts, in turn, are largely made up of nerve cells, called neurons, and helper cells, called glia. Researchers have discovered that there may be as many as 100 billion neurons in the brain and a far greater number of glia, possibly as many as one trillion (Kolb and Whishaw 1).

Important discoveries throughout the decade of the 1990's in molecular biology and genetics are revolutionizing our understanding of how the human brain works (Kotulak x). Advances in imaging technology are allowing us to learn more about the human brain than ever before in human history (Kotulak x). Keith A. Johnson

Works Cited

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- Berger, Bob. "Mapping the Mindfields." Omni Jan. 1992: 56-58.
- Damasio, Antonio R. "Aphasia." The New England Journal of Medicine 326 (1992): 531-39.
- Diagram Group. The Brain: A User's Manual. New York: Putnam's, 1982.
- Flieger, Ken. "Memories Are Made of This." FDA Consumer Sep. 1989: 14-19.

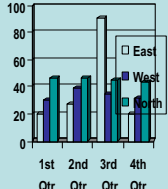
Rpt. in Mental Health. Ed. Eleanor C. Goldstein. Vol. 4.
- Johnson, Keith A., and J. Alex Becker. "The Whole Brain Atlas." Harvard Medical School. 1997. 3 Feb. 2002 <<http://www.med.harvard.edu:80/AANLIB/home.html>>.
- Kolb, Brian, and Ian Q. Whishaw. "Brain." Encyclopedia of Human Biology. Ed. Renato Dulbecco. Vol. 2. San Diego: Academic, 1991.

1-10. 8 vols.
- Kotulak, Ronald. Inside the Brain: Revolutionary Discoveries of How the Mind Works. Kansas City: Andrews and McMeel, 1996.

Visual Display

- Good Title
- Photographs (labeled)
- Charts, Graphs (labeled) (easily understood)
- Organized
- Eye catching

Look on the bulletin board by Mrs.
Clemens door for example.

| | | |
|---|--|---|
| <p>Problem</p> <input type="text"/> | <p>Title</p> | <p>Conclusion</p> <input type="text"/> |
| <p>Hypothesis</p> <input type="text"/> | <p>Data</p> | |
| | <p>Graphs</p> | <input type="text"/> |
| <p>Procedure</p> <input type="text"/> | <p>Pictures</p> <input type="text"/> | |
| | <input type="text"/>  | |
| | <input type="text"/> | <p>Name (F,L)</p> <p>School</p> <p>Grade</p> |

Things have to be placed in this order. You can not change anything except how you write or place the words on the board. Be creative, but make sure it is easily read and understood.

1. Problem – this is your question from (A) on your research plan. You can expand this a little if you need.
2. Hypothesis – this is also on your research plan and needs to be a statement with no I think at the beginning. You also need to add the because part of the sentence to make sure we know what you are testing.
3. Materials
 - a. This are the supplies that you used to create your project
4. Method
 - a. Make sure to tell me step by step what you did to complete your project. This has to be written as step 1 -
b. Not paragraph from.
5. Conclusion – you should be able to copy and paste this from your paper. Make sure conclude everything you did in your testing and tell me nothing new. Summarize your results and how I will use the information. Also, what did you prove.

Results

In the middle area you should have the following things

- 1.Tables
- 2.Graphs
- 3.Paragraph that you wrote from your paper summarizing your results
- 4.Pictures
- 5.Drawings of bacteria

Your Name

**Northwestern Middle School
Grade**

Your final slide should look like this one. I would make my name bigger than the rest of the information. Make sure to include Middle School, so you are judged in the correct group.