Alaska Science and Engineering Fair Judges Training

We are Statewide!

Anchorage
Barrow
Bethel
Cordova
Delta Junction
Fairbanks
Kodiak
Kotzebue
Ketchikan
Juneau
Nome
Palmer
Unalakleet
Valdez
Wasilla
And Everywhere Else!!!!

Science Fair Schedule

FRIDAY

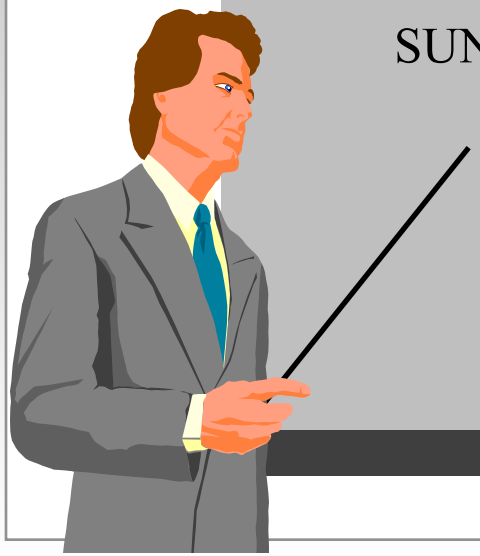
5:00 P.M. – 8:30 P.M. Registration and set up for all projects.

SATURDAY

8:00 A.M. – 5:00 P.M. Judging

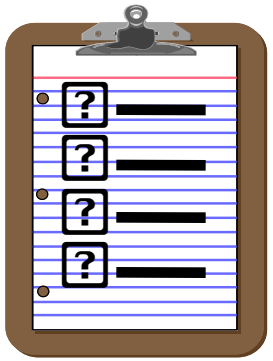
SUNDAY

1:00 P.M. – 3:00 P.M. Awards Ceremony



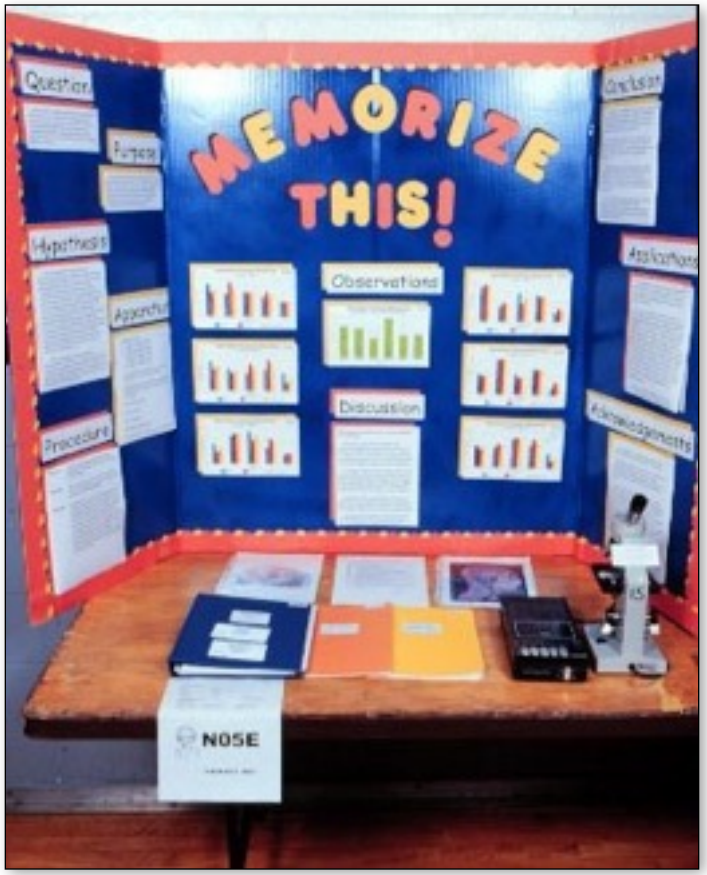
Agenda:

- How does a “Science Fair” look?
- How do “Projects” look?
- What Judges do?
- How does a “Judging Interview” look?
- Judging Day Activities
- How to judge a project
- Some things to know



How Does a Science Fair Look?

The Projects:



Judge's Responsibilities:

- Interview the principal investigators (the students)
- Read the project reports
- Judge fairly, consistently; Use guidelines
- Discuss/resolve differing viewpoints
- Be familiar with ASEF/ISEF rules
- Use post-it notes for positive comments/ recommendations
- Arrive promptly; show up or arrange for substitution

What Happens if the Judges Don't Show Up?

- Affects the quality of the project judging
- Difficult/impossible to find replacements at the last minute
- Requires attending judges to stay later
- Creates frustration for judges
- The head judge FREAKS OUT!!

Judges' Mission:

- **Provide Professional, Independent Judging**
- **Select 1st, 2nd , and 3rd Place Awards and Overall Category Winners**
- **Record/Return Award Information**
- **Promote Excellence in Science while reinforcing the sheer joy of scientific inquiry by providing positive and constructive feedback to the participating students**

The Judging Process:

For Middle and High School

Upon arrival check in with Mike McVee, Head Judge

- **You will be given a few project numbers – only ones that start with an "M" or "H". Collect your judging team and begin the interview process.**
- **Deliberate with your judging team.**
- **After reaching consensus, return completed judging forms to the Judging Desk.**
- **Return to Step #1 and continue. Repeat as necessary.**
- **Do not leave any judging sheets, notes or other materials at the projects -- *very important!***

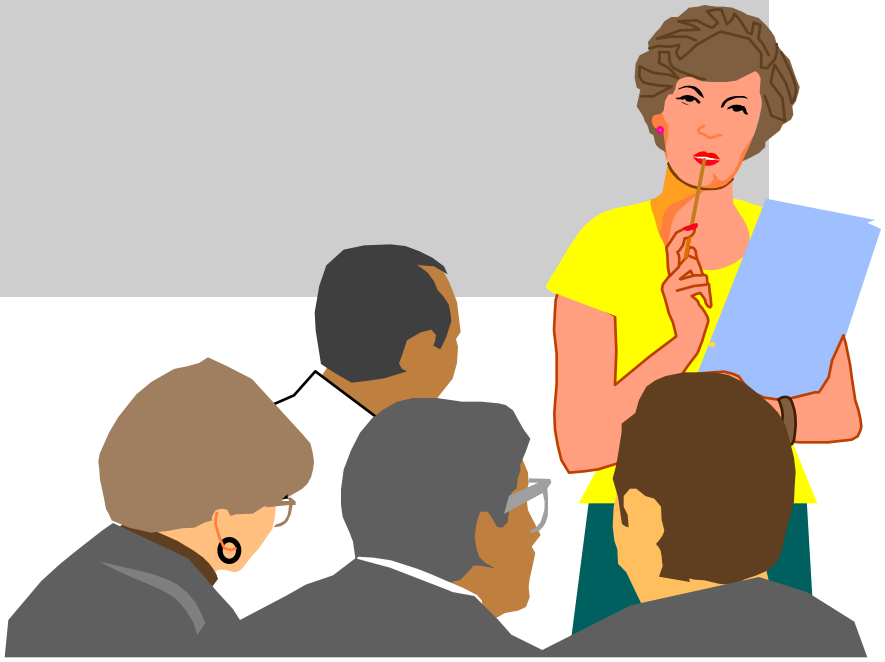
For Elementary School

Upon arrival check in with Head Elementary Judge

- **You will be given project numbers as students arrive.**

As an ASEF judge, you are a…

- Counselor
- Evaluator
- Facilitator
- Motivator
- Role Model



Judges provide a good experience for the competitors:

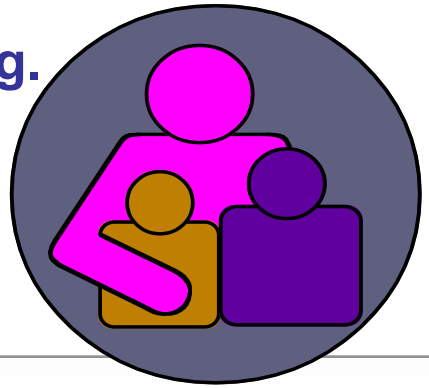
- Be Genuine
- Let the contestants show their stuff
- Encourage conversation
- Avoid value judgments
- Be patient: Allow enough “wait” time
- Always end the interview on a positive note

Behaviors that do make a difference

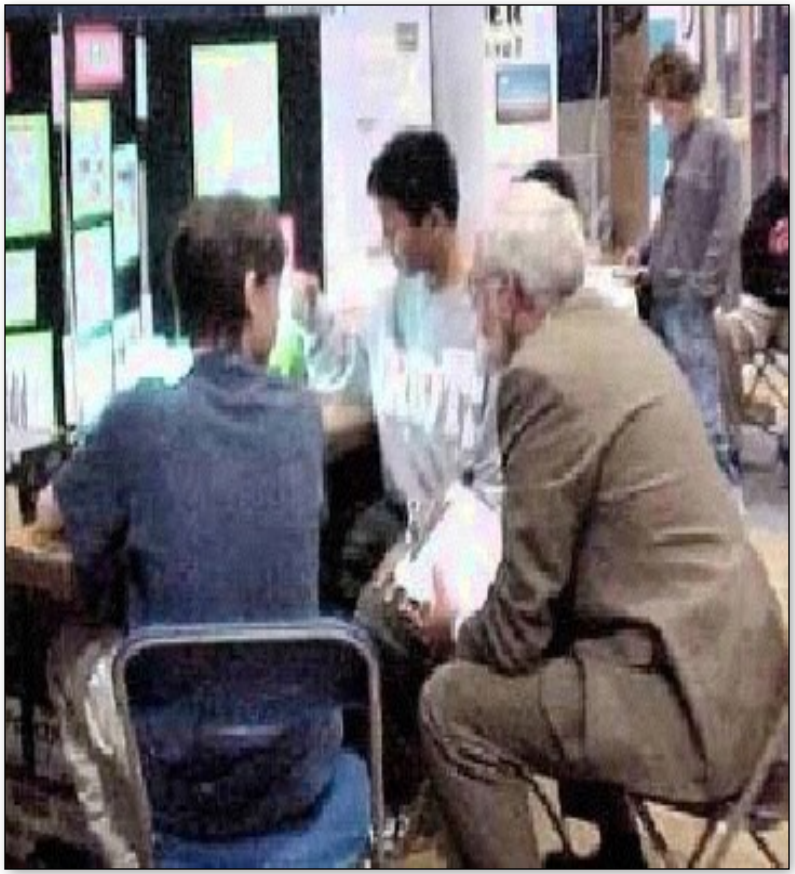
- Ask students enough questions to satisfy yourself that they understood the project.
- When you have reached the student's knowledge limit…

asking questions!!

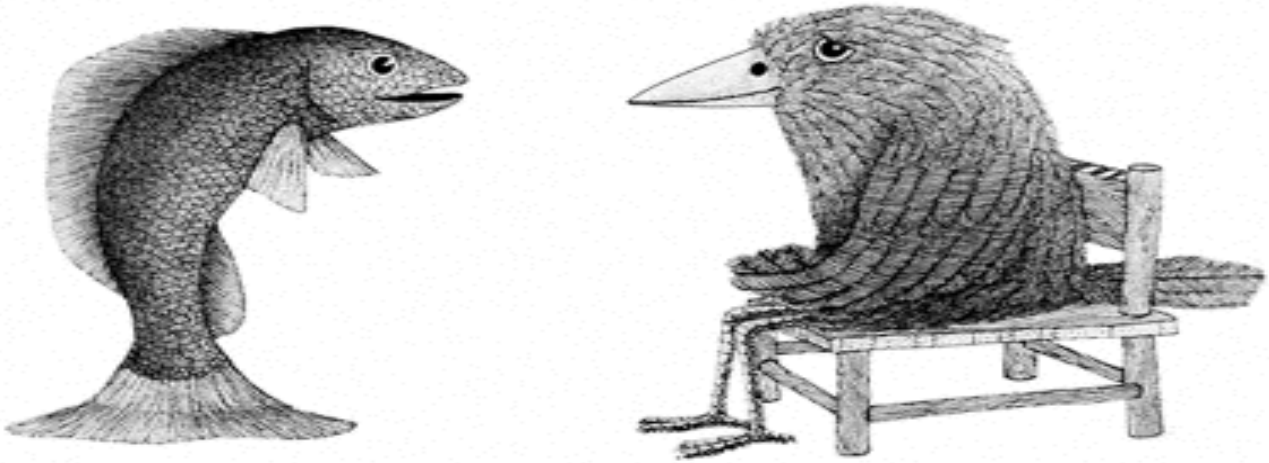
- Remember when you were 12 years old.
- Let the student teach you something.



A Judging Interview:



Language Invites Dialogue



Interview Language:

Paraphrasing:

I heard; let me see if I understand…..

Examples:

- **In other words….**
- **What I'm hearing, then…**
- **From what I hear you say…**
- **I'm hearing many things…**
- **As I listen to you I'm understanding….**

Interview Language:

Mediational Questions:

Invites thinking such as: hypothesizing, analyzing, comparing, predicting, evaluating, and reflecting.

Examples:

- **What do you think would happen if …**
- **When have you done something like this before …?**
- **How did you decide …**

Interview Language:

Suggestions:

I'd like to offer you an idea with a rationale.

Examples:

- **A couple of things to keep in mind are …**
- **What I know about <u>xxxxxxx</u> is …**
- **A few possibilities are … Which one might work for you?**
- **One thing I've noticed is …**

The Judging Arena:

aka: “the boiler room, with refreshments”

Types of Science Fair Projects

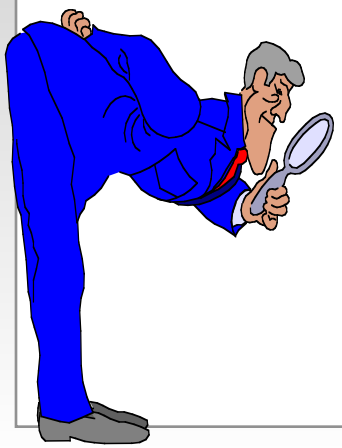
- **Experimental Investigation:** (Scientific Method used)
- **Engineering/ Math Projects:** (Scientific Method used)

  "Which Laminated Beam Design is Strongest"

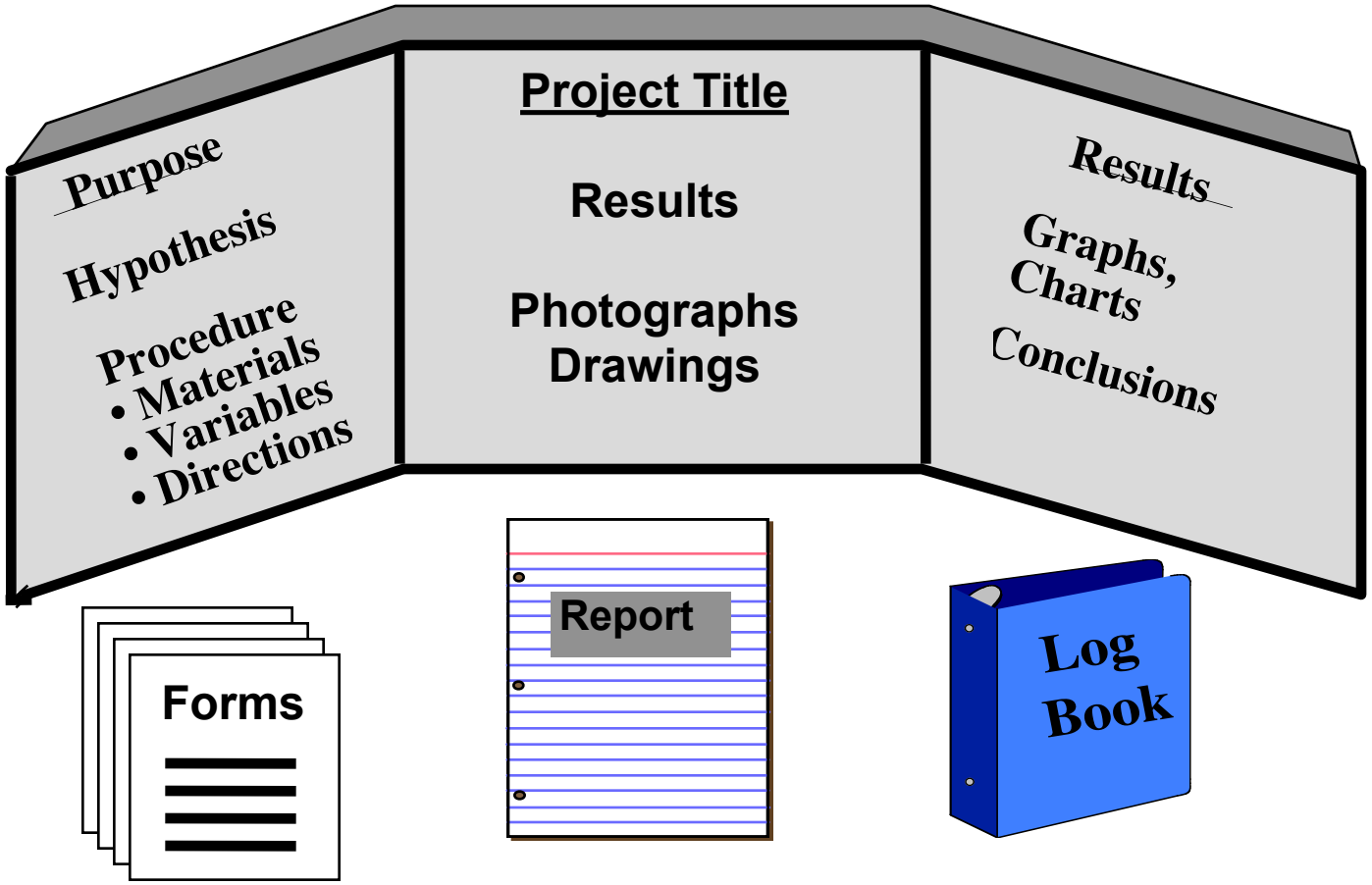
  "Extending a 2D Theorem into Multiple Dimensions"

- **Other Types:** (Scientific Method not used)
  - Report: "How the Sun Works"
  - Information/Brochure Display:

    "The Lung and its Diseases"
  - Survey: "Types and Numbers of Trees in my Yard"
  - Model: "The planets and their Orbits"
  - Demonstration: "The Potato and Lemon Batteries"



Scientific Method Elements



Element Definitions:

Purpose: Reason for the experiment

Hypothesis: Prediction of the results

Procedure: Method of the experiment - includes materials used, variables and step by step directions

Results: Organized data from the experiment

Conclusion: Support of hypothesis or explanation of non-support

***Log Book:** Includes the Problem Statement, Hypothesis, Plan, Library Research, Data Collected, Results, and Conclusions --- *should not be typed!*

***Formal Report:** Includes the Title Page, Table of Contents, Abstract, Purpose, Hypothesis, Background, Materials and Procedure, Results and Conclusions, Bibliography, & Acknowledgments

***could include**

Major Judging Criteria

Criterion	Brief Description	Score Pts.
Scientific Thought	• Evidence of extensive subject knowledge • Scientific method and controls • Cause & effect reasoning • Demonstration of scientific laws/theories	30 (25 Team)
Creative Ability	• Inventive approach • Novel use of materials • Creative display • Artistic use of materials	30 (25 Team)
Thoroughness	• Complete • Concise story • Necessary facts presented	15 (12 Team)
Skill	• Quality of workmanship • Handling and preparation of items • Mounting and display of materials	15 (12 Team)
Clarity	• Exhibit message understood by observers • Logical progression of ideas	10 (10 Team)

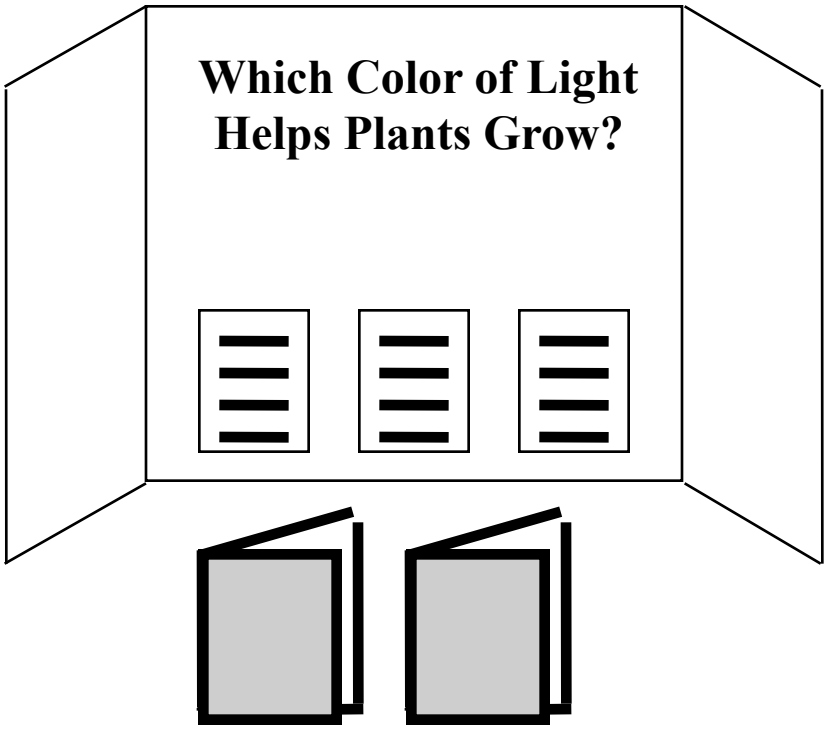
* Team projects will also be judges on Teamwork; 10 pts

Please See Handout:

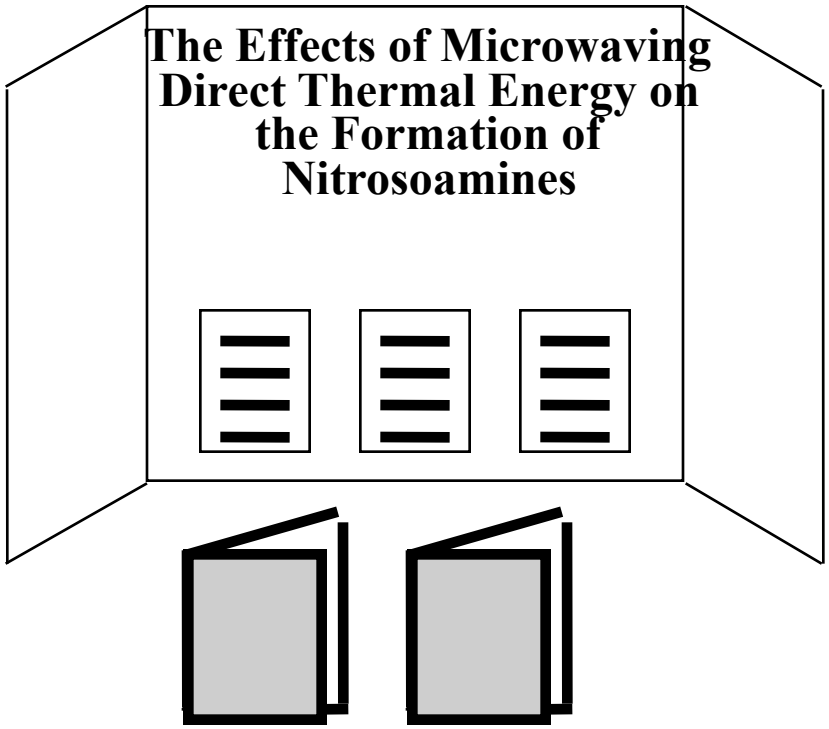
Judging Rubric

Something to consider…..

Which Project is Better?



Project A



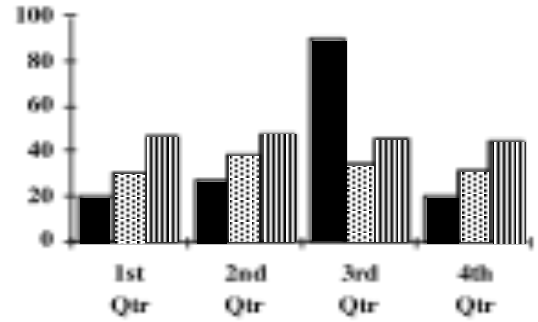
Project B

Which Project is Better?

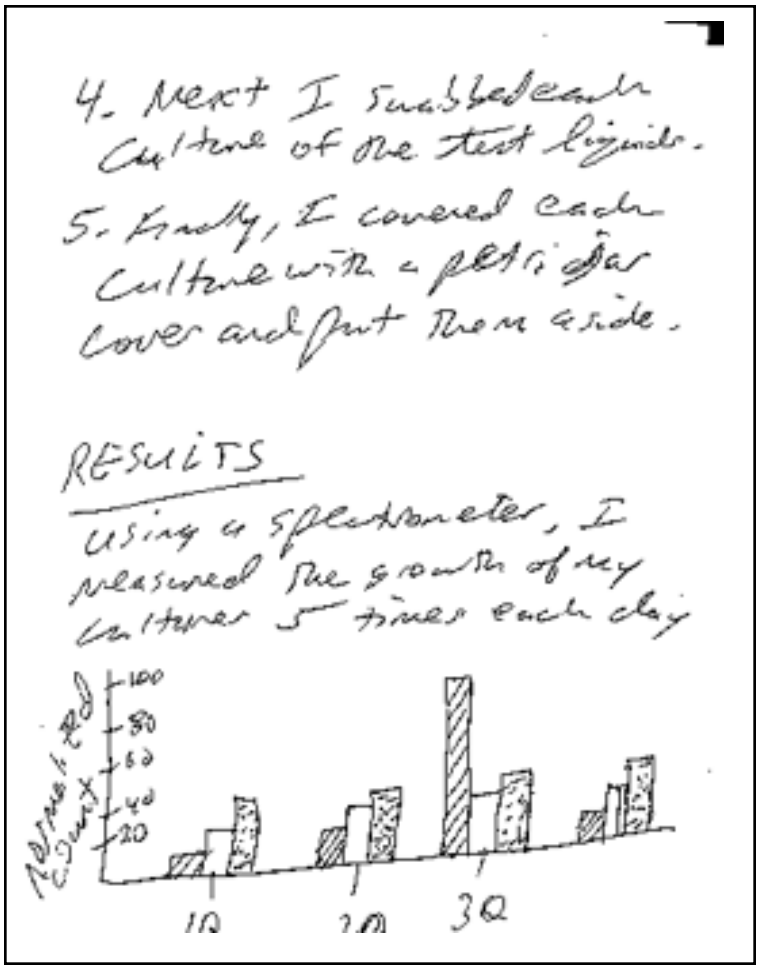
4. Next, I swabbed each culture of the test liquids.
5. Finally, I covered each culture with a Petri jar cover and put them aside in the lab.

Results

Using a spectrometer, I measured the growth of my cultures five times a day.....



Project A



Project B

Which Project is Better?

Conclusion

Based on the results of this experiment, I conclude that my original hypothesis **was correct**.

Various factors such as temperature and humidity, however, may have affected the experiment and therefore invalidated the results.

To obtain better results next....

Project A

Conclusion

Based on the results of this experiment, I conclude that my original hypothesis **was not correct**.

Various factors such as temperature and humidity, however, may have affected the experiment and therefore invalidated the results.

To obtain better results next....

Project B

What do you think?

Uncle Martin

ANSWER: Which Project is Better?

IT DEPENDS…

Did both students follow the scientific method?

Did both students repeat their tests?

Did both students do research and tie it back to their experiment and conclusions?

Did both students do an equivalent amount of work?

Consistently use the judging criteria!

OR NEITHER…

We judge primarily against the scientific method.

If the two projects are identical and the ONLY difference is the way the material is presented (assuming the hand written project is legible) then it is a tie.

Clarity and Creativity are judged and NOT the use of a computer versus the use of crayons!

Project A **Project B**

Awards Process

Judging is completed in rounds with top scorers going on to the next round.
Each project is evaluated twice during each round.
When scores vary greatly, a 3rd judging is necessary.

Finalists are awarded in each category.

Senior High Finalists then compete for an "overall" award and the privilege to compete in Intel's International Science and Engineering Fair.

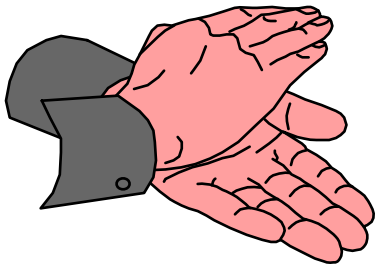
Our Major Sponsor

We want to thank BP Alaska for their support

Thank You, in Advance

Thank you for your commitment and volunteer service in being a ASEF Science Fair Judge. The Alaska Science and Engineering Science Fair receives support from government programs and departments, universities, businesses and individuals. Your participation in this community service event demonstrates your commitment to science education for all students in Alaska.

Questions? Please go to the ASEF website www.alaskasciencefair.org



References:
Alaska Science and Engineering Fair
Bay Area Science and Engineering Fair
RIMS Regional Science Fair; California