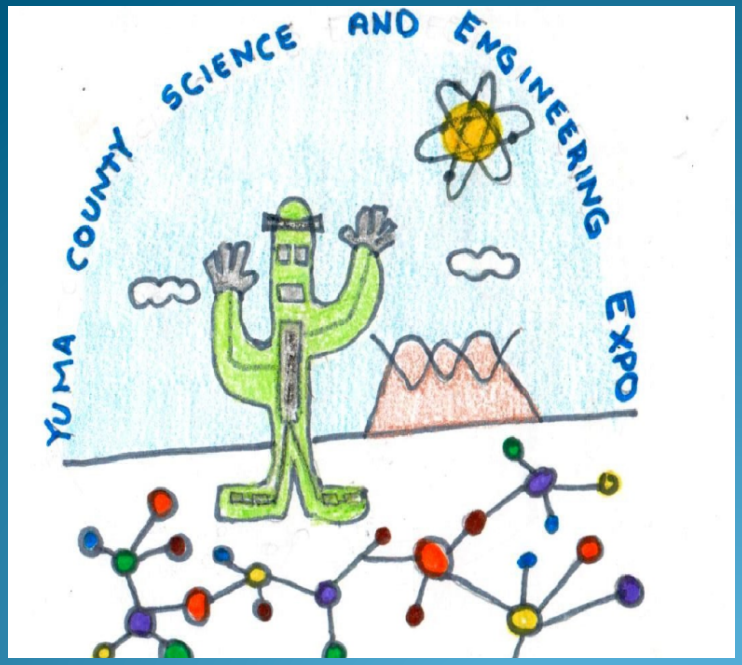
Yuma County Science Expo



Spring 2014

WELCOME

- Good Morning, and thank you for joining us today!
- After this brief presentation on expectations, judging guidelines and criteria:
  a) You will be paired up
  b) Given the appropriate documentation, and utensils
  c) ….. and we hope you **enjoy** the process!

Thank You Sponsors!

- A.T. Pancrazi & Associates
- Arizona Public Service
- Arizona Western College
- Bose Corporation
- Dr. Tim and Melinda Graham
- ELEN Consulting
- Helena Chemical Company
- Jacobs Technology
- Jacobson Company
- Julie Engel
- Louis Didier
- Smith Family Foundation, Inc.
- Tom and Mary Lou Edwards
- The University of Arizona College of Agriculture
- The University of Arizona-Yuma Alumni
- Yuma Area Agriculture Council
- Yuma County Education Service Agency
- Yuma Regional Medical Center Foundation

Committee Members:

Tom Tyree
Julie Rodriguez
Tanya Hodges
Carlo Mendez
Larry Lebsock
Alberto Urbieta
Allison Gilliland
Evelyn Figueroa
Cecilia Vigil

Division Categories

100	Chemistry, Biochemistry
200	Earth and Environmental Science
300	Zoology
400	Botany
500	Engineering and Technology
600	Health, Medicine, Microbiology
700	Physics

Judging Process:

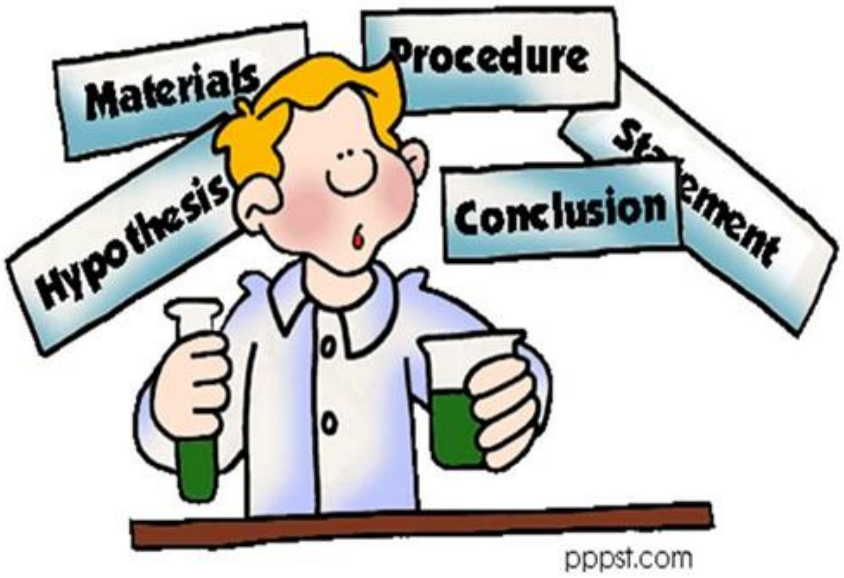
1. Review Display (poster/poster-board & narrative/ research-paper)
2. Briefly Interview Student(s)
3. Discuss with partner judge
4. Fill out judging form- 1/team
5. Hand in forms

Judging Criteria

- **Research Board/Poster: 50 points**
- **Narrative/Research Paper: 25 points**
- **Interview: 25 points**

Projects Must Include

1. **Use of the Scientific Method**
   - title
   - problem
   - hypothesis
   - procedure--a minimum of **5 trials** is required
   - materials list
   - results
   - conclusion



Part 1- Poster Board

YUMA COUNTY SCIENCE AND ENGINEERING EXPO JUDGING FORM

Project ID_____ Category_____

	5 Excellent	4 Proficient	3 Marginal	2 Attempted	1 Inferred/ Implied	0 Missing	Points Earned
Research Board/Poster							
Question sufficiently narrow and answerable							5
Hypothesis address question and research based							5
Procedures/material list clearly identified							5
Variables and controls identified and effects on result clear							5
Data adequate for conclusion and appropriate for problem							5
Conclusion logical and based on collected data							5
Display board is artistic, creative and appealing to the eye							5
Includes new and interesting information/perspective							5
Ingenuity in design and development- logical flow of information							5
Research displays depth of knowledge relevant to project							5
							50
Narrative Report 4-8grade/Research Report 9-12grade							
Experimental report displays depth of knowledge relevant to project							5
Curiosity is evident							5
Shows originality in question asked							5
Experimental report contains abstract, introduction, method, results, references/sources and in APA format							5
4-8th grade- cite at least 3 sources 9-12th grade - cite at least 5 sources							5
							25
Interview/Oral Questions							
Oral interview is clear and well presented							5
Evidence student did own work							5
Enthusiasm evident in project							5
Questions answered appropriately and completely							5
Appropriate dress and etiquette							5
							25
					Total	Points	/100

1.- PROBLEM

- The question to be tested
- This should be stated as an interrogative sentence implying more than a yes or no response.
- Should identify the independent variable (the factor that is changed or tested) and the dependent variable (what will be measured or should change).
- Examples:
  - What is the effect of ___ on ___?
  - How do/does____ affect____?
  - To what extent do/does____affect____?

2.- HYPOTHESIS:

- An educated guess that outlines what is believed to be the intended outcome of the experiment.
- Should also contain a statement of why this outcome will be observed based on some kind of background knowledge.
- Participant may use any of the following models in helping them construct a hypothesis.
  - If I _____then_____, because_____.
  - _____, when I _____ because_____.
  - If I change _____ then_____ will (change by) _____, because_____.
  - The statement that _____ (is/is not) true because _____.
  - (More/Less) _____ will _____, because _____.

3.- **PROCEDURE**: A list of the steps used to conduct the experiment.

- Each statement should begin with an action verb and contain a description of the use of the constant, independent and dependent variables.
- A materials list should be included.
- Indicate a **minimum** of **5 trials for each variable tested**.

4.-**OBSERVATIONS/RESULTS**: Collected quantitative data from the experiment

- Should be displayed with a chart, graph, pictures, log/ journal or some other type of recording device that accurately shows what happened while the experiment was being conducted.
- Should display data collection of 5 or more trials.

5.- **CONCLUSION**

- An interpretation/analysis of the observations/ results of the experimental procedure. States whether the hypothesis was or was not supported.
- Answers the question "What was learned?".
- The results should be interpreted and justified, but should not be stated as a ***proof***.
- May contain a statement about further exploration.

Part 2-Research Paper/Narrative

4-8th grade- Research narrative:

- a brief overview of the project
- a short review of research
- any other information that would provide evidence for assessing the project
- a bibliography with at least ***one source*** for 4th and 5th graders and a minimum of ***3 sources*** for 6th, 7th, and 8th graders . Length of 2-3 pages
- double-spaced and minimum 12-point font if typed
- title page is optional

9-12th grade-Research Paper- APA format

- 4parts- Cover page, Abstract, Body, Resources
- this paper may be any length and should contain research information that supports the experiment
- should contain a complete bibliography of sources and be placed with extraneous materials- minimum 5 sources
- if pictures are used, they may ***not*** show the student's face.

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Part 3- Interview

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					Total	Points	/100

Students need to:

- Answer questions thoroughly and completely
- Be dressed appropriately-school uniforms are ok
- Evident student(s) did own background research, experiment design and conducted experiment

Filling out judging form!

- Be throurough but pragmatic about time allowed for each project
- The participant should demonstrate knowledge of his/her project
- Judges working in pairs or groups should make sure to come together when allotting points to the project
- Return results to compilers at _____

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Top three projects in each category will be announced after each judging session.

All projects winning any award will be announced at the awards ceremony on May 12th.

Display & Safety Regulations

- No projects will be accepted that may cause any harm to an animal of any size or species.
- **The following are *unacceptable* for display**

1) living organisms
2) glass objects of any kind
3) dried plant materials
4) taxidermy specimens or parts
5) human or animal food
6) preserved vertebrate or invertebrate animals (includes embryos)
7) soil or waste samples
8) human/animal parts except for teeth, hair, nails, dried bones
9) dry mount sections, & wet mount tissue slides
10) chemicals including water
11) sharp items
12) flames or highly flammable display materials
13) poisons, drugs, controlled substances, hazardous substances or devices
14) firearms, weapons, ammunitions or reloading devices
15) dry ice or other sublimating solids
16) flames or highly flammable display materials
17) empty tanks that previously contained combustible liquids or gases

- **The following are <u>acceptable for display only</u> (*not for operation*):**

  1) projects with unshielded belts, pulleys, chains, and moving parts with tension or pinch points
  2) class III and IV lasers
  3) any device requiring voltage over 110 volts

- **The following are <u>acceptable for display & operation</u> (*with restrictions*):**

  1) Class II lasers must be student-operated, have "Laser Radiation: do not stare into beam" sign, must have protective housing that prevents access to beam, and must be disconnected when not operating.

  2) Large vacuum tubes or dangerous ray-generating devices must be properly shielded.

  3) Pressurized tanks that contain noncombustibles may be allowed if properly secured.

  4) Any apparatus producing temperatures that will cause physical burns must be adequately insulated.

  5) High-voltage equipment must be shielded with a grounded metal box or cage to prevent accidental contact.

  6) High-voltage wiring, switches, and metal parts must have adequate insulation and overload safety factors, and must be inaccessible to others.

  7) Electric circuits for 110-volt AC must have a nine foot (min.) cord. The cord must have sufficient load-carrying capacity and be approved by Underwriters Laboratories.

  8) Electrical connections in 110-volt circuits must have soldered or made with approved connectors. Connecting wires must be insulated. Voltage greater than 110 volts is not permitted.

  9) Bare wire and exposed knife switches may be used only in circuits of 12 volts or less: otherwise, standard enclosed switches are required.

THANK YOU for your efforts and interest in the future of Science in Yuma!

- We should conclude by 2:00 PM

- Please join us at the AWARD CEREMONY
  - WHEN: Monday, May 12th
  - WHERE: Gila Ridge School Auditorium
  - ADDRESS : 7150 E. 24th Street