SCIENCE FAIRS AND SCHOOL SCIENCE AND SCHOOL SCHOOL

SCIENCE FAIRS AND OLYMPIAD

- Bay Area Regional Science Olympiad (BARSO) Peter Hirsch
 - Fun and learning for students
 - 6-12th Grade
- Synopsys San Jose Science Fair 2011, Sciencepalooza Peter Hirsch
 - First Science Fair for many students
 - 9-12th Grade in San Jose School District
- Synopsys Championship 2011 Peter Hirsch, Ralph Bernstein
 - More Advanced Student and Projects from Santa Clara County
 - 6th-12th Grade, Private and Public Schools in SC County
- Intel International Science and Engineering Fair 2010 Peter Hirsch
 - Held in San Jose in 2010, LA in 2011
 - Very advanced students from all 50 states and other countries

BAY AREA REGIONAL SCIENCE OLYMPIAD (BARSO) PETERHIRSCH

BAY AREA REGIONAL SCIENCE OLYMPIAD (BARSO)

Goal of Science Olympiad is to improve the quality of science education through competitions similar to sporting events

Location: Foothill High School, Pleasanton, Ca.

http://www.barso.org

Part of National Science Olympiad that is active in all 50 states

Geography: Covers middle schools and high schools from the entire Bay Area

Our Goals

The Science Olympiad is devoted to improving the quality of science education, increasing student interest in science and providing recognition for outstanding achievement in science education by both students and teachers.

JUDGES PERSPECTIVE

More work involved in preparation for Olympiad than Science Fairs

- If tests are involved, judges must prepare tests, administer the tests and score the tests
- If students are to bring models, the judge must prepare course, evaluate models, score the event
- There are guidelines for each event for the students and judges to follow, but not much help beyond the guidelines

2009 BARSO

I had to evaluate and judge car racing event

Cars had to go along a tape track and stop at a marked point

Winner was car closest to marked end point



2010 BARSO

I had to create and judge a Pictionary of scientific words

Teams of 2 students

One student looked at the word and drew a picture

Second student had to guess the word

Repeat operations for as many as 30 words in 15 minutes

2011 BARSO

17 Junior High Schools from the SF Bay Area – Division B 14 High Schools from the SF Bay Area – Division C

Each school choose what events they will compete at and teams of students train for these events

- Anatomy (B/C) Teams will be tested on their knowledge of anatomy and health concepts.
- Astronomy (C) Teams identify deep sky objects and solve astronomy problems.
- Awesome Aquifers (B) -
- Battery Buggy (B) Teams will construct a vehicle powered by a battery.
- Bottle Rocket (B) Prior to the tournament, teams will construct up to two rockets designed to stay aloft the greatest amount of time.
- Can't Judge a Powder By Its Color (B) Teams will identify various powders using common chemical and physical properties.
- Chemistry Lab (C) Teams will demonstrate chemistry laboratory skills related to selected topics.

- Compute This (B) Teams will research a problem on the internet and use computer applications to present their findings.
- Disease Detective (B/C) This event requires students to apply principles of epidemiology to a published report of a real-life health situation or problem.
- Dynamic Planet (B/C) Teams will work at stations that display a variety of earth science materials and related earth science questions.
- Ecology (B/C) Students will answer questions involving content knowledge and process skills in the area of ecology and adaptation by examining different ecosystems.
- Experimental Design (B/C) Given a set of unknown objects, teams will design, conduct, analyze and write-up an experiment.

- Forensics (C) Students will identify polymers, solids, fibers, and other materials in a crime scenario.
- Fossils (B/C) Students will identify, describe, and classify various fossil specimens
- Helicopters (C) Teams construct and test free flight rubber-powered helicopters to achieve maximum flight times.
- Junkyard Challenge (B) Teams will construct an Autonomous Device (AD) that solves a Challenge requiring creative problem solving, experimentation and flexible design.
- Meteorology (B) This event involves the use of process skills as applied to meteorology.

- Microbe Mission (B/C) Teams will answer questions, solve problems, and analyze data pertaining to various kinds of microbes.
- Mission Possible (C) Teams will construct a Rube Goldberg-like device to accomplish a task using multiple steps.
- Mousetrap Vehicle (C) Teams will construct a car powered only with the energy from a mousetrap.
- Optics (B/C) Students compete in activities and written questions in the areas of geometric and physical optics.
- Ornithology (B/C) Teams will identify various birds, their characteristics and habitats.
- Pentathlon (B) Physical skills are interspersed with science questions in an obstacle course that is conducted as a relay-style race.

Picture This (B) - Teams will take turns to communicate a set of scientific terms or concepts using pictures while the other team member guesses the terms.

Protein Modeling (C) -

Remote Sensing (C) - Teams use maps and remote sensing technology to explain human land use patterns and the relationship of a region's physical environment to the cultural landscape.

Road Scholar (B) - Requires the accurate interpretation and understanding of various map features using a variety of road and topographic maps.

Science Crime Busters (B) – Teams will identify the perpetrators of a crime or crimes by using paper chromatography and analysis of unknown solids, liquids, and plastics found at the scene of a crime.

- Shock Value (B) Teams will answer problems and engage in a lab activity related to simple circuits.
- Solar System (B) This event will address the Sun, planets and their satellites, comets, asteroids, the Oort Cloud, the Kuiper Belt, meteoroids, meteorites, and meteors.
- Sumo Bots (C) Prior to the competition, students must design and construct a competing robot (bot) that will attempt to move force an opponent's robot from a defined arena.
- Technical Problem Solving (C) Teams will be required to gather and process data to solve a given problem.
- Tower Building (B/C) The objective of this event is to design and build the most efficient Tower meeting the requirements specified in the rules.

- Sounds of Music (C) Students will create musical instruments and explain the physics of the operation of the instruments.
- Storm the Castle (B) Teams will design, construct, calibrate and operate a device capable of launching a projectile far and accurately using only gravitational energy.
- Wind Power (C) Teams will demonstrate physical science laboratory skills related to selected topics.
- Write It/Do It (B/C) A technical writing exercise where students write a description of a contraption and other students will attempt to recreate it using only the written description.

EVENTS THAT I WAS A JUDGE

2010 Picture This

I had to create words, cards and scoring system

2011 Weather Systems – Severe Storms

I had to create a test, administer the test and grade the test

SAN JOSE SCIENCE FAIR

SAN JOSE SCIENCE FAIR

SPETER HIRSCH

SAN JOSE SCIENCE FAIR SCIENCEPALOOZA!

Goal: To do a science project that gets evaluated

Location: San Jose Fairgrounds

Date: March 5, 2011

Geography: East San Jose School District High Schools

Participants: 900 students in grades 9-12 from the East Side Union High School

District in San Jose

Website: http://www.outreach-foundation.org/programs.html

Judges: Volunteers from the bay area that have an interest in physical and biological

sciences

SAN JOSE SCIENCE FAIR SCIENCEPALOOZA!

Judges Prospective

Need to evaluate Creativity, Presentation, Oral Communication, Difficulty

Scientific Thought 30 pointsCreativity 30 Points

Thoroughness 15 Points

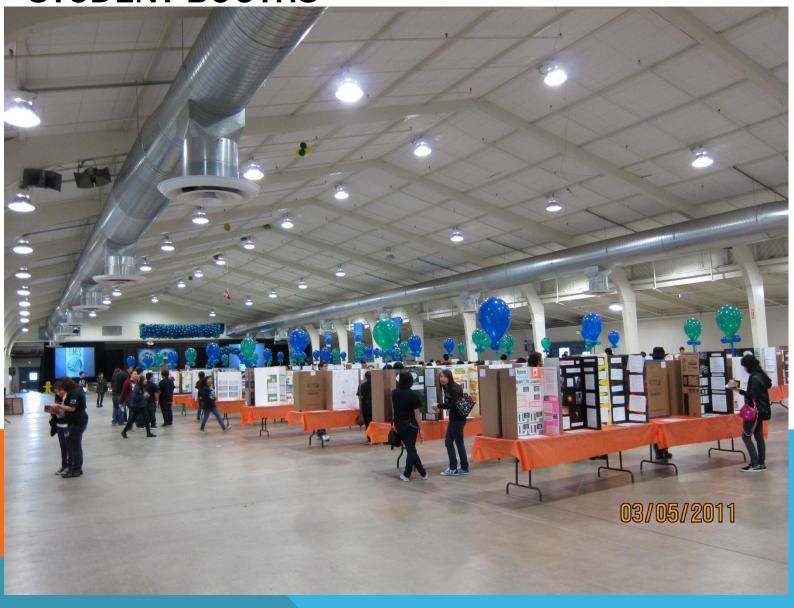
Skill 15 PointsClarity 10 Points

- Did the student do it or did someone else do it? Was the experiment purchased?
- You have time before the actual judging to go through the exhibits and try to understand them and formulate questions
- When you judge
 - You have about 10-15 minutes per booth to hear the presentation and get your questions answered
- For most of the students this is the first time they have done a science experiment and had it evaluated.
- Judges: Volunteers that have an interest in the Physical or Biological Sciences

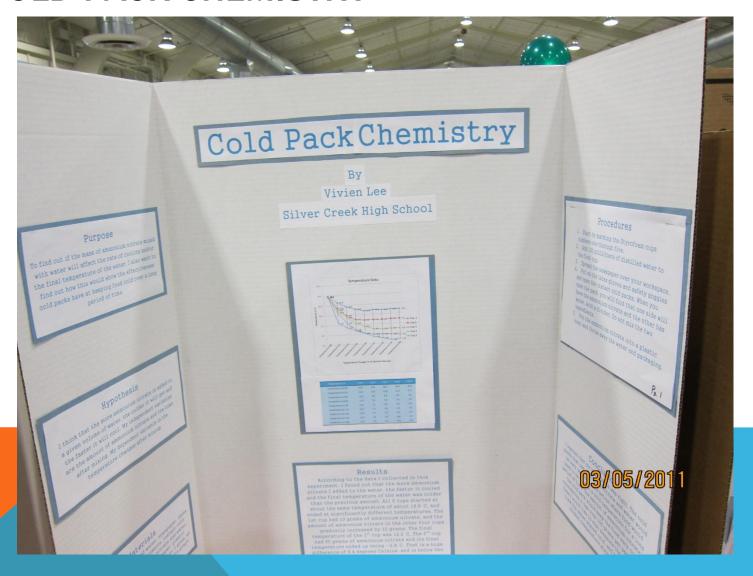
SCIENCEPALOOZA! ENTRANCE TO STUDENT BOOTH AREA



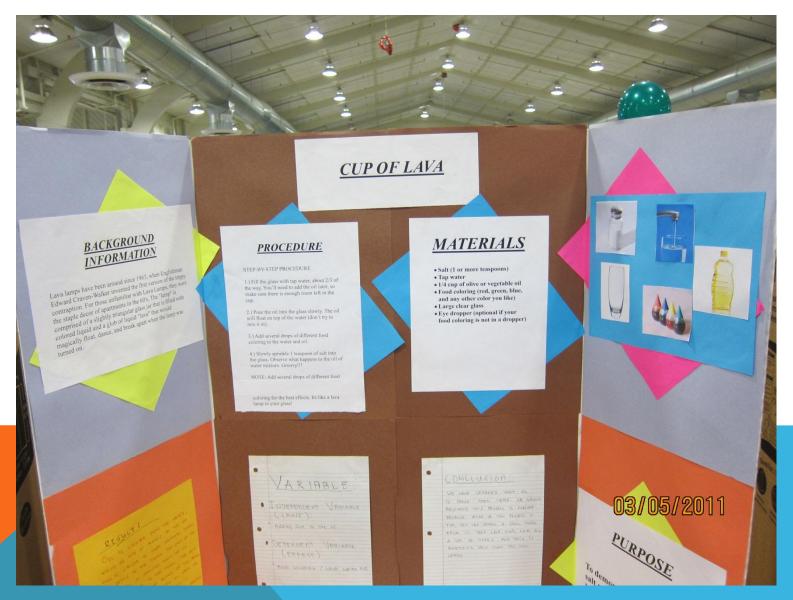
SCIENCEPALOOZA! STUDENT BOOTHS



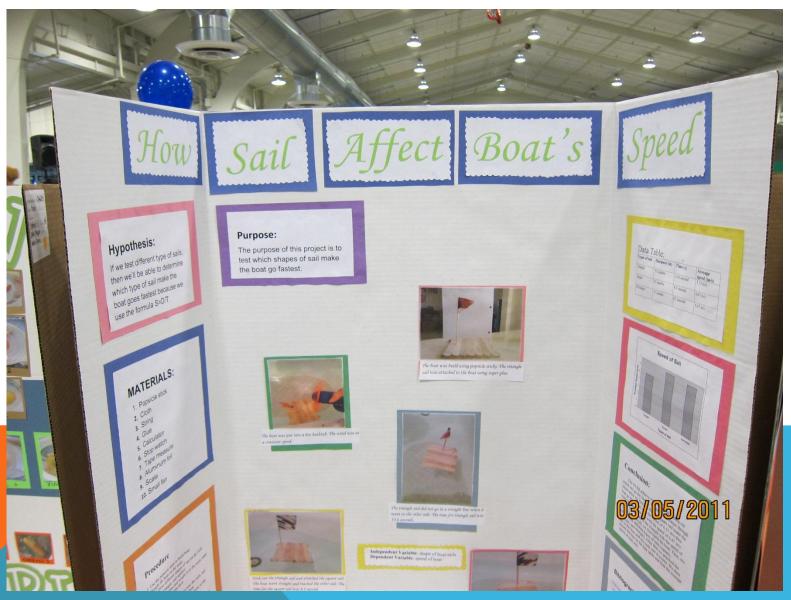
SCIENCEPALOOZA! COLD PACK CHEMISTRY



SCIENCEPALOOZA! CUP OF LAVA



SCIENCEPALOOZA!HOW A SAIL AFFECTS THE BOAT'S SPEED



SCIENCEPALOOZA!BROWNING OF APPLES



SCIENCEPALOOZA! ITS NOT REAL 'TILL IT'S DISTILLED



JUDGES BUILDING



SANTA CLARA COUNTY

SANTA CLARA COUNTY PETER HIRSCH

SYNOPSYS SANTA CLARA COUNTY SCIENCE FAIR CHAMPIONSHIP 2011

- Took place at San Jose Convention Center March 9, 2011
- 751 Projects
- 986 Students
 - 49% Male, 51% Female
- 92 Schools
 - 41% Private, 59% Public
- 195 Teachers
- Grades 6-12
- Top students in the Junior and Senior Divisions will be selected to compete in the California State Science Fair in Los Angeles May 2-3, 2011.
- Top Grand Prize winners advance to an all-expenses-paid trip to the Intel International Science & Engineering Fair in Los Angeles, CA, May 8-13, 2011.

SYNOPSYS SANTA CLARA COUNTY SCIENCE FAIR CHAMPIONSHIP 2011

Judges Prospective

Need to evaluate Creativity, Presentation, Oral Communication, Difficulty

 Scientific Thought 	30 points
 Creativity 	30 Points
 Thoroughness 	15 Points
• Skill	15 Points
 Clarity 	10 Points

- You have time before the actual judging to go through the exhibits and try to understand them and formulate questions
- Projects are more challenging and interesting than those at the school district level
- When you judge
 - You have about 10-15 minutes per booth to hear the presentation and get your questions answered
- Judges: Volunteers that have an interest in the Physical or Biological Sciences
 - They match of projects with your skills and interests

GOALS OF SCIENCE FAIRS

- Students learn to do a science project
 - Objectives, Background, Goals, Conclusions
- Students learn to do some research
- Students create a display and abstract to communicate the science project
- Students present project to Judges
- http://sites.google.com/site/synopsyschampionship/

PROJECTS THAT I WAS ASKED TO JUDGE

Computer Science and Math Projects

12 Grade level

- A Novel Particle Swarm Optimization Algorithm for Efficient Workload Allocation in Distributed Computing Systems - A. Nathan and A. Raman ,Lynbrook High School
- Accounting for Cross-Talk between Signaling Pathways identifies Novel Model for Early and Late Post-Transplant Acute Rejection – A Liu, Gunn High School
- Modeling Malaria Transmission in Human Populations A. Majumdar, Lynbrook High School
- On the Creation of Music through the application of Genetic Programming to Fractal Systems – S. Cesar, Wilcox High School
- The Nature of Fractals K. Ciampaoli, P. Ebertocski, St. Lawrence Academy
- Simplification of Various Homomorphic Encryption Schemes for Optimal
 Situations in Ensuring Privacy for Accessing Information E. Hu

SCIENCE AND ENGINEERING MIELINIERNATIONAL FAIR SEF

INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR (ISEF)



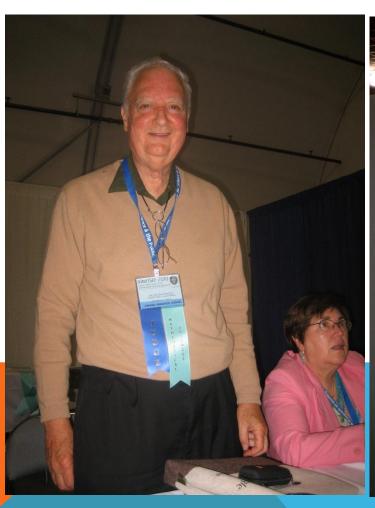
INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR (ISEF)

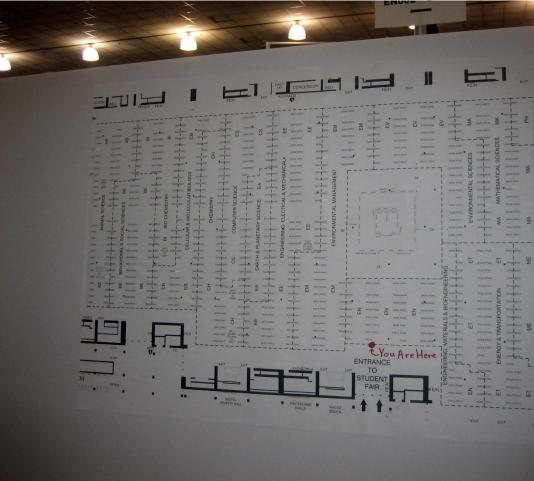
Judges Prospective

- Need to evaluate Creativity, Presentation, Oral Communication, Difficulty
- You have time before the actual judging to go through the exhibits and try to understand them and formulate questions
- Projects are more challenging and interesting than those at the county and state levels
- When you judge
 - You have about 10-15 minutes per booth to hear the presentation and get your questions answered
- Judges: Volunteers that have an interest in the Physical or Biological Sciences
 - They match of projects with your skills and interests

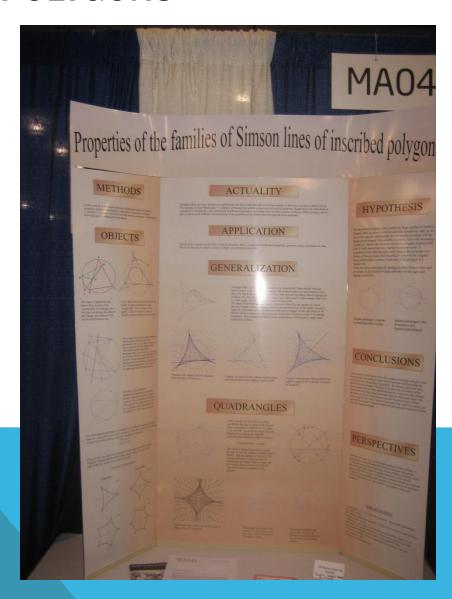
INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR

I was asked to judge the math entries





ISEF: PROPERTIES OF SIMSON LINES OF INSCRIBED POLYGONS

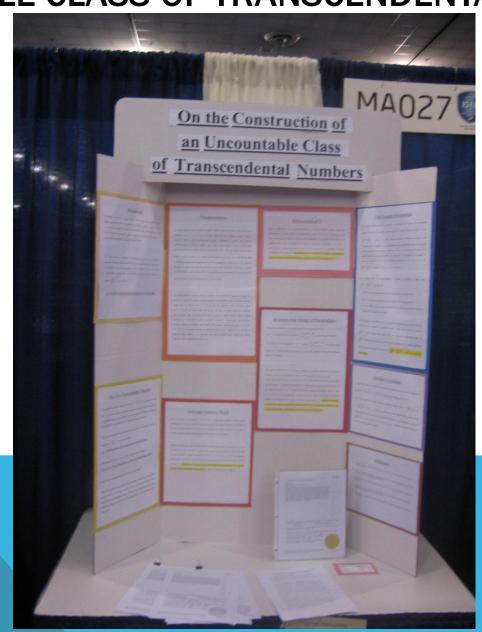


ISEF: BATTER UP



ISEF: ON THE CONSTRUCTION OF UNCOUNTABLE CLASS OF TRANSCENDENTAL

NUMBERS



ISEF: ANALYSIS OF OPTIMAL EVACUATION FROM CLOSED SPACES

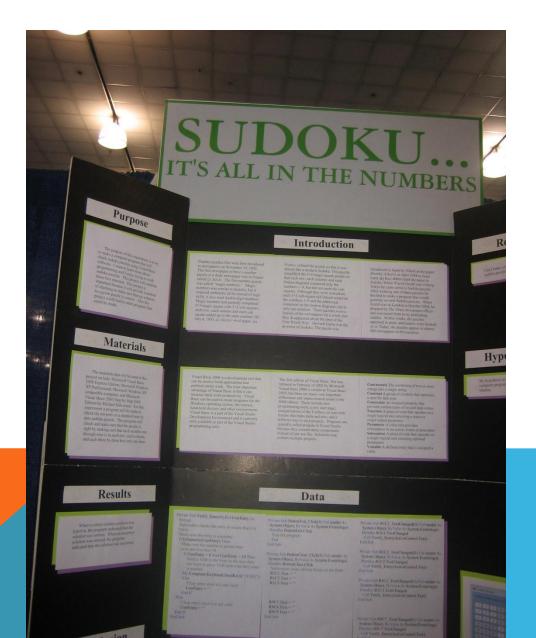


ISEF: PRIME NUMBERS AND NEW



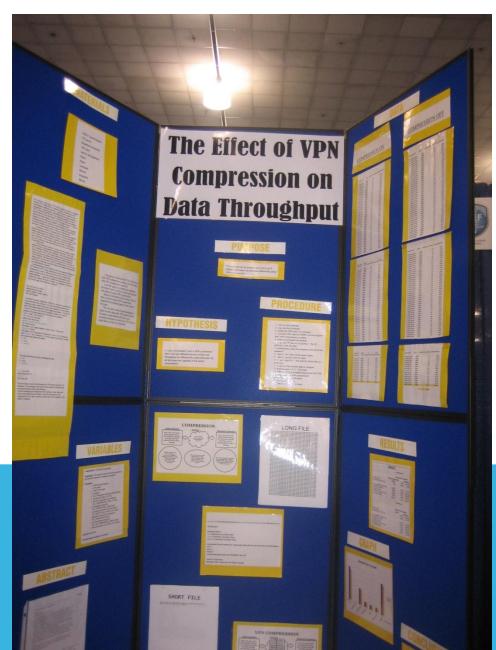


ISEF: SUDOKU...IT'S ALL IN THE NUMBERS



ISEF: THE EFFECT OF VPN COMPRESSION ON

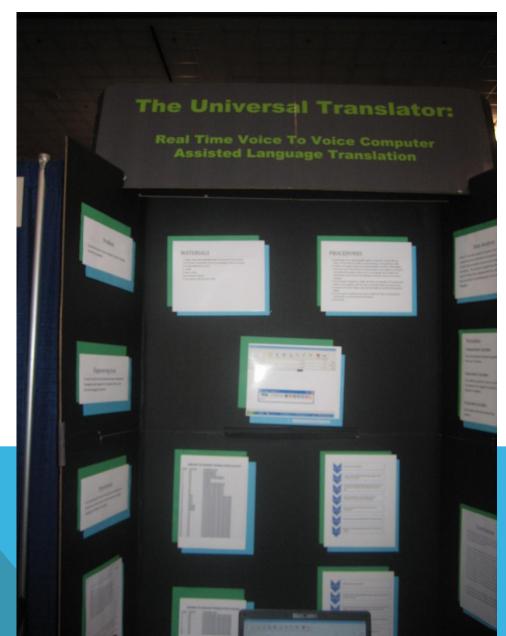
DATA THROUGHPUT



ISEF: THE UNIVERSAL TRANSLATION

REAL TIME VOICE TO VOICE COMPUTER ASSISTED LANGUAGE

TRANSLATION



ISEF: NATURAL OIL BOOM



SUMMARY SCIENCE OLYMPIADS AND SCIENCE FAIRS

- Lots of fun for both students and judges
 - You will be impressed at the quality and skill of many of these young students
 - Gets students interested in science and the scientific process
- Both students and judges are learning from these events
- Does require some work and time to judge these events
 - For the Olympiad it may be 1-2 days effort to prepare and 1 day to judge
 - For the Science Fairs it is about 4-6 hours to judge
- Lunch is provided to the judges and parking if needed
- Let me know if you are interested in judging for March 2012