PRSEF teacher Resource Center for student research Workshop

Chuck Vukotich
SCIENCE FAIR

- PRSEF
- ISEF
- Broadcom Masters
- PJAS
ISEF

- 1800 students
- From over 400 affiliated fairs
- From 80 countries, regions, and territories
- All ISEF Finalists have won an all-expenses paid trip to compete here.
- Awards total $5 million
Broadcom MASTERS

• Math, Applied Science, Technology, and Engineering for Rising Stars

• 300 Semifinalists

• 30 Finalists

• All Broadcom MASTERS Finalists win an all-expenses paid trip to compete in Washington DC
Presenting Research
What do Judges look for?

- Good Science
- Originality/Creativity
- Work
- Statistics
- Abstracts
- Sources/References
  - Check Out POWER LIBRARY
### Rubrics

**Project # Feedback Form – Senior/Intermediate Division**

The purpose of this form is to provide one judge’s assessment of the strengths and weaknesses of the presenter’s work in order to improve future projects. It does not indicate how well the presenter performed with respect to other PRSEF participants.

<table>
<thead>
<tr>
<th>Judging Criteria</th>
<th>Outstanding</th>
<th>Above expectations</th>
<th>At Expectations</th>
<th>Areas for Improvement</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scientific thought</strong></td>
<td>Hypothesis is relevant, testable, and novel</td>
<td>Conclusion is fully supported by data</td>
<td>Hypothesis is relevant, testable, &amp; new to the student; research beyond simple internet search</td>
<td>Provide data that support the conclusion</td>
<td>/20</td>
</tr>
<tr>
<td><strong>Experimental methods</strong></td>
<td>Variables &amp; controls clearly defined and complete</td>
<td>Variables &amp; controls defined and complete</td>
<td>Variables &amp; controls defined but may be incomplete</td>
<td>Define variables and provide controls</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>Multiple trials, with multiple samples, performed</td>
<td>At least 2 independent trials with multiple samples performed</td>
<td>Single trial with multiple samples performed</td>
<td>Perform multiple trials with multiple samples</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Experimental methods well planned, documented, &amp; executed</td>
<td>Experimental methods well planned &amp; carefully executed</td>
<td>Experimental method appropriate but execution incomplete</td>
<td>Use an experimental method that is appropriate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thorough work notebook</td>
<td>Work notebook included</td>
<td>Weak notebook</td>
<td>Prepare and present a notebook</td>
<td></td>
</tr>
<tr>
<td><strong>Analytical approach</strong></td>
<td>Data completely supports conclusions</td>
<td>Data adequate to support conclusion</td>
<td>Data consistent with conclusions but not convincing</td>
<td>Present data that support conclusions</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>Data limitations defined and understood</td>
<td>Data limitations not fully understood</td>
<td>Limitations of data not addressed</td>
<td>Understand and describe the limitation of the data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Statistical analysis is appropriate &amp; correctly executed</td>
<td>Statistical analysis correctly executed</td>
<td>Statistical analysis included</td>
<td>Apply correct and appropriate statistical analysis</td>
<td></td>
</tr>
<tr>
<td><strong>Visual Presentation</strong></td>
<td>Poster is primarily graphs or tables, scientific question, conclusions, &amp; brief descriptions of methods</td>
<td>Data presentation is clear and concise</td>
<td>Text and visually displayed information</td>
<td>Revise the poster to balance text and visually displayed information</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>Data presentation is clear and concise</td>
<td>Material is well organized and reader needs minimal assistance.</td>
<td>Proper use of data presentation (graphs/tables)</td>
<td>Organize the material to assist the reader</td>
<td></td>
</tr>
<tr>
<td><strong>Oral Presentation</strong></td>
<td>Well prepared, reflects a deep understanding in the question and relevance to a broad audience</td>
<td>Well prepared, reflects a deep understanding of the question</td>
<td>Well prepared, reflects an adequate understanding of the question.</td>
<td>Provide a complete description of the question.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Responds ready to questions</td>
<td>Familiarity of background appropriate to experience level</td>
<td>Limited familiarity with background material</td>
<td>Provide at least one suggestion for further research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can reason from findings to suggest further research</td>
<td>Can reason from findings, with help, to suggest further work</td>
<td>Able to suggest further research</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Judge’s Constructive Comment/Suggestion:
Teacher Judge Training Program

- Opportunity to learn about the judging process.
- You will
  - Be assigned to a category
  - Review projects and interview students
  - Discuss projects
  - Express your opinion
- You will NOT vote to make the final decision on awards.
Better Science Fair Projects

- Process to explore how to improve student research in Pittsburgh Region
- Here today to help teachers understand process
- Here today to ask your opinion (Later in program)
- Want to know more? Get Report from
  - ISEF@Pitt.edu