Merit Judges
Judging Workshop
2017
BASEF

- Bay Area Science and Engineering Fair - one of the largest and longest-running science fairs in Canada (1960)
- The Bay Area Science and Engineering Fair draws students in grades 7 through 12 from the City of Hamilton (including Ancaster, Dundas and Stoney Creek), the Regional Municipality of Halton (including Burlington, Oakville and Milton) and Six Nations in Southern Ontario. Students from Haldimand, Norfolk and Brant Counties have participated since 2003.
- The fair attracts over 400 participants annually, from grade seven to 12. BASEF is affiliated with the Canada Wide Science Fair and the Intel International Science and Engineering Fair, and several of the top projects from BASEF are sent on to compete at these events.
BASEF

• The mission of BASEF is to promote project-based science and encourage youth to conduct research in areas of science, engineering and technology, utilizing the scientific method or engineering design process.

• BASEF believes all students should be given the opportunity to participate in science fairs. Students learn invaluable academic and life skills through researching, experimenting, displaying and presenting their projects.

• The judging process and public viewing components allow students to practice their “people” and communication skills and gain self-confidence and a sense of accomplishment for a job well done.
BASEF Judging Team

Judging, Rules, Safety Committee

Ass't Judge in Chief Merit Judging

Judge in Chief Special Awards

Special Award Judges

Category Chair Biotechnology
  - Merit Judges

Category Chair Earth & Environmental Sciences
  - Merit Judges

Category Chair Engineering & Computer Sciences
  - Merit Judges

Category Chair Life Sciences
  - Merit Judges

Category Chair Health Sciences
  - Merit Judges

Category Chair Physical Sciences & Mathematical Sciences
  - Merit Judges

Safety Coordinator

Scientific Review Committee

Safety Inspectors

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BASEF 2016 Highlights

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BASEF 2016 Highlights

- Celebrated 56th Anniversary Year
- Over $200,000 in cash, prizes, trips, scholarships and participation awards were distributed
- Activity Day morning with presentations - 1,100 students - 600 students and 500 BASEF entrants
- 16 students won all-expense paid trips to compete in the Canada Wide Science Fair in Montreal, Quebec
- 5 high school students won all-expense paid trips to compete in the Intel International Science & Engineering Fair in Phoenix, Arizona
- 233 students received Merit Awards, $12,000+ in cash, and $116,500 in merit scholarships
- 170+ special awards were distributed, totalling $26,800 in cash plus $10,000 in scholarships and one internship valued at $2,000
- Awards also given to one Champion Teacher and three new schools
Typical Science Fair
Typical Science Fair
The Judging Arena
What to Expect on Judging Day

8:00    Judges Arrive - Coffee and snacks
8:30    General Welcome and Introduction
9:00    Category meetings with all judges and category chairs
9:30    Preliminary judging without students present
11:30   Judges Meet with category chairs - preliminary discussion
11:45   Judges’ Luncheon
1:00    Student Interviews With Judges - 10-15 minutes/project
4:00    Judging interviews end
4:00    Tally of scores - report to category chairs
4:30    Submit scoring sheets - resolve any scoring issues
Conduct of Volunteers

- As an adult volunteer BASEF judge, you are in a position of trust with the children you will be interviewing.
- All judges are to behave in a responsible manner.
- If you observe any problem, unsafe or inappropriate behaviour, promptly report it to any member of the BASEF Organizing Committee.
Projects
Projects
Judging Form

Bay Area Science and Engineering Fair 2006 - Judging Form

Project: Advanced Coding
Judge: I. K. Better

M27 - Please write entry name here

Project Description and intent in the Mark Space Box to the right:

Make Project Description and intent in the Mark Space Box to the right.

A. Scientific Thought (maximum 45 marks)

1. Select whether the project is either an experiment, study, or innovation.
2. Determine the level of the project by matching the description with the project. Circle the deserving mark out of a maximum of 45.

<table>
<thead>
<tr>
<th>Level</th>
<th>Level 1 (Basic)</th>
<th>Level 2 (Fair)</th>
<th>Level 3 (Good)</th>
<th>Level 4 (Excellent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application and reporting of an experiment to test one or more hypotheses</td>
<td>Extension of a known experiment through modification of its design.</td>
<td>Application of an existing technology to solve a specific problem</td>
<td>New approach to the study of a problem that creates new information from a mass of data</td>
</tr>
</tbody>
</table>

B. Display (maximum 10 marks)

- Is the material neat and carefully done?
- Is the layout complete, logical and self-explanatory?
- Does the project clearly and logically present?
- Is the display simple and visually balanced?
- Does it capture attention?
- Does it have impact?
- Is there good balance and use of contrasts?
- Do the backboards, tables and displays match together?

Circle: 1 2 3 4 5 6 7 8 9 10

Score:

C. Notebook / Work Journal (maximum 20 marks)

- Is the notebook clear, concise and neat?
- Is it different from the blackboard display?
- Is it well organized?
- Is there a summary of actual work noting both successes and failures?
- Is there a bibliography?
- Are there acknowledgments?

Circle: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Score:

D. Abstract (maximum 5 marks)

- Is the abstract present?
- Does the abstract contain all aspects of the project?
- Is the information concise, clear, and accurate?
- Is the abstract well written? (grammar, syntax and spelling)

Circle: 1 2 3 4 5

Score:

E. Interview (maximum 20 marks)

- Student is aware of the material or the process of the project and has difficulty answering questions about the project.
- Student can summarize the project adequately and answer the majority of questions about the project clearly and logically.
- Student explains the project well and can answer all questions about the project clearly and logically.

Circle: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Score:

Please write some constructive comments for students.

NOTE: This form will be machine scanned; please do NOT fold. Use this form ONLY for the project if printed in the ID Section.

Score:

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### Judging Form

#### Step One
- Choose a Definition.
  - Experiment
  - Study
  - Innovation

### A. Scientific Thought (maximum 45 marks)

1. Select whether the project is either an experiment, study, or innovation.
2. Determine the level of the project by matching the description with the project. Circle the deserving mark out of a maximum of 45.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Level 1 (acceptable)</th>
<th>Level 2 (fair)</th>
<th>Level 3 (good)</th>
<th>Level 4 (excellent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>Duplication and reporting of an experiment to test a previously confirmed hypothesis.</td>
<td>Extension of a known experiment through modification of its procedure, data collection, analysis or application.</td>
<td>A new approach to the design, modification or application of an existing experiment with control of some variables.</td>
<td>A new experimental approach to a research problem in which most of the significant variables are controlled.</td>
</tr>
<tr>
<td>Study</td>
<td>Study and presentation of printed material related to the basic issue.</td>
<td>Study of material collected through compilation of or expansion of existing data and through observation. The study attempts to address a specific issue.</td>
<td>Study based on new observations and research of a previously studied topic. Appropriate analysis of data and conclusions made.</td>
<td>An approach to the study of a problem which correlates information from a number of sources. The report also offers new insights or solutions to the problem.</td>
</tr>
<tr>
<td>Innovation</td>
<td>The development and evaluation of models or innovative devices, using techniques or approaches from the field of technology or engineering.</td>
<td>Building models or other devices that duplicate existing technology, minimal reporting.</td>
<td>Make improvement to an existing technology or use an existing technology for new applications.</td>
<td>Design and build an innovative adaptation of an existing technology for a new application.</td>
</tr>
</tbody>
</table>

Score out of a possible 45 marks:

- 15 16 17 18
- 19 20 21 22
- 23 24 25 26
- 27 28 29 30

Score:

A  Score:
Judging Form

**Side One**

**Step Two**
- Choose a level

**A. Scientific Thought** (maximum 45 marks)

<table>
<thead>
<tr>
<th>Definition</th>
<th>Level 1 (acceptable)</th>
<th>Level 2 (fair)</th>
<th>Level 3 (good)</th>
<th>Level 4 (excellent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment investigation undertaken to test one or more hypotheses.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific interest. Variables identified and controlled.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Score out of a possible 45 marks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Choose a level.
Judging Form

Side One

Step Three
- Choose the appropriate score for the Definition and Level chosen
- Transfer number chosen to Score box
Study, Experiment or Innovation?

EXPERIMENT:
Investigation undertaken to test one or more hypotheses.

To develop and test a new technique for measuring a liquid's viscosity.
EXPERIMENT:
Investigation undertaken to test one or more hypotheses.

To discover the most powerful way to punch and kick an object, so that one can maximize their self-defence ability.
Study, Experiment or Innovation?

EXPERIMENT:
Investigation undertaken to test one or more hypotheses.

The purpose of my project was to see if fatigue would affect your hand-eye coordination and accuracy.
STUDY:
A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.

The purpose of this research and analysis is to show that wind-assisted (Skysail) ship propulsion can significantly reduce fuel consumption and emissions. Commercial vessels that transport goods and people across large bodies of water are the most likely to benefit from the use of tethered kites to propel the vessel forward. The resulting reduction in fuel consumption (where wind power replaces engine power), also contributes to reducing harmful emissions. The calculations in this study show to what extent fuel consumption and emissions reductions are possible.
Study, Experiment or Innovation?

STUDY:
A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.

The purpose of this project is to study the effects of hypocalcemia and its subsequent results on the depolarization rates on the myocardial cells in patients with congestive heart failure.
INNOVATION:
The development and evaluation of models or innovative devices, using approaches from the field of technology or engineering.

The purpose of our project is to synthesize homemade, more environmentally friendly insecticides that will serve as effective substitutes for synthetic products, such as Raid.
INNOVATION:
The development and evaluation of models or innovative devices, using approaches from the field of technology or engineering.

To create a door that generates electricity when ever you spin it. This could be installed into all the subways, and it would run the lights in the subway because people are constantly going through the doors. I hypothesized than average walking pace would generate enough electricity to do this.
The purpose of our project is to
better the chances of a bridge
standing up to an earthquake with
little or no damage.

Even if a bridge stands after the
earthquake the important parts of
the bridge may be damaged, thus
leaving the bridge with very little
chance of standing up to the next
quake which may come.
## Judging Form

### Side Two

### Step Four
- Circle the appropriate score for Skill and Dramatic value
- Transfer number chosen to ‘B’ Score box

### B. Display (maximum 10 marks)
- Is workmanship neat and carefully done?
- Is lettering clear?
- Are colours strong and suitable?
- Is the layout complete, logical and self-explanatory?
- Is the content clearly and logically presented?
- Is the display simple and visually balanced?
- Does it capture attention?
- Does it have impact?
- Is there good balance and use of contrasts?
- Do the backboards, table and all displays meld together?

| Circle: 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Score: B |
Judging Form

Side Two

Step Five

- Circle the appropriate score for Notebook/Work Journal
- Transfer number chosen to ‘C’ Score box

<table>
<thead>
<tr>
<th>C. Notebook / Work Journal (maximum 20 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Is the notebook clear, concise and neat?</td>
</tr>
<tr>
<td>• Is it different from the backboard display?</td>
</tr>
<tr>
<td>• Is it well organized?</td>
</tr>
<tr>
<td>• Is there a journal summarizing actual work noting both successes and failures?</td>
</tr>
<tr>
<td>• Is there a bibliography?</td>
</tr>
<tr>
<td>• Are there acknowledgements?</td>
</tr>
</tbody>
</table>

Circle: 1  2  3  4  5  6  7  8  9  10
       11 12 13 14 15 16 17 18 19 20

Score: C
Side Two

Step Six

• Circle the appropriate score for Abstract
• Transfer number chosen to ‘D’ Score box
Judging Form

Side Two

- Step Seven
- Circle the appropriate score for Student’s understanding
- Transfer number chosen to ‘E’ Score box and add notes

<table>
<thead>
<tr>
<th>Student is unsure of the material or the process of the project and has difficulty answering questions about the project.</th>
<th>Student can summarize the project adequately and can answer the majority of questions about the project.</th>
<th>Student explains the project well and can answer all questions about the project clearly and logically.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle: 6 7 8 9 10</td>
<td>Circle: 11 12 13 14 15</td>
<td>Circle: 16 17 18 19 20</td>
</tr>
<tr>
<td>Please note some constructive comments for students.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Judging Form

Side One

Step Eight
• Total Scores and write number in the totals box.
Judging Projects

Before starting to judge take a quick walk-around of all of your assigned projects, to get a feel for what they are about, what they look like, and where they are located.

To judge a project do the following:

• Read through the backboard in some logical order; assess its impact, and how well it tells the "story" of the project. Were you able to understand quickly what the project is trying to do, and what the results were?

• If equipment or devices are part of the display, do they serve an obvious purpose, based on what you have seen so far?
Judging Projects

- Read through the abstract. Assess it
  (If missing, ask for it in interview. No abstract = 0)

- Read through the workbook (journal and/or full report). Assess it.
  (If missing, ask for it in interview. No workbook = 0)

- Write down your questions and compliments, for use in the interview,
  and add to comments section of the judging form.

- Initial the morning section of the Project Placard

- Note your marks

- Focus on individual, independent assessment in the morning judging
  and for the interview process - if you have questions, you can
  collaborate with senior judges later in the day.
Judging Projects

• Once all projects are marked and interviewed: Write down the rank order of the projects you have judged, based on your overall impressions of the day.

• Which one is best?

• Which should be at the bottom of the list?

• Now check the total mark you have assigned to each project.

• Is your impression consistent with the marks you've assigned? Decide if you need to review anything.
Other Forms to Look For

- Continuation Projects Form (YSF7)
- Form 4.1D Human Participants - Informed Consent
- Science Project Informed Consent Form
- Form 4.1C Human & Animal Research Approval
- Science Project Human/Animal Research Approval Form
- Form 4.1B Human Participants – Significant Risk
- Application For Review of Research with Human Participants Involving Significant Risk
- Form 4.1A Human Participants – Low Risk
- Approval of Low Risk Projects involving Human Participation (e.g., surveys of attitudes, beliefs or skill tests)
- Designated Supervisor Form (YSF3)
- Contribution From a Recognized Institution (YSF1)

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Interviews
Interviews

- When you have completed the interview portion of judging a project, sign the placard on the project table.
Interview Tips

• Be genuine
• Show you are interested
• Let the students present their findings
• Listen actively
• Encourage conversation by asking students about their projects and their methods
• Ask questions - at their level of understanding
• Sign the placard
• End meeting on a positive note
Judging Tips and Tricks

- Get there early
- Look at all of your assigned exhibits before starting to judge your exhibits
- Be aware of your scheduled interview times, as printed on your project judging forms
- Set timing goals for your exhibits.
  (10-15 min per project)
- Exhibitors’ understanding is as important as the project
- All students should be acknowledged & commended for their effort in putting forward a project (no matter what grade)
- Revise your scores as many times as you need to
- Don’t tally judging sheet in front of Exhibitors
- If stuck on a project, see your Category Chair
- Judging should be finished by about 4:00p.m.
- Be prepared to stay until 4:30p.m. or until the Judge and Category Chair Meeting is completed.
Working the Data
Working the Data

Distribution of Range of Project Marks

Project Mark Range

# of Projects

0 5 10 15 20 25 30 35

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0 5 10 15 20 25 30 35

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Typical Distribution of Average Project Scores

SF Avg Score Cumulative Distribution

- SF2003
- SF2004
- SF2008
- SF2007
- SF2006
- SF2009

Avg Score Cumm. Dist.
2016 Awards Ceremony
2016 CWSF Team

CWSF 2016
Montreal
Quebec
Past Participant

Kayla Cornale

Encana Best in Fair Award at the 2006 Canada Wide Science Fair

Youth in Motion’s Top 20 Under 20 ranking in 2006

2007 CNN's Young Hero Award Winner

Attended Stanford University, California 2007-2012
B.A., Master of Linguistics

Currently with Athletics Ontario as its Para-Athletics Coordinator. Her role is to oversee and manage the merging and development of services for athletes with a disability into mainstream Athletics Ontario programs.

"Sounds into Syllables(TM) II: Windows to the World of Childhood Autism", is the second phase of a teaching system she developed to help children with autism overcome social communication difficulties - with music.
Past Participant

“The Uno: Tomorrow’s Transportation Solution”

Ben Gulak

The Uno - #1 Invention of the Year 2008 Popular Science

Appeared on Dragon’s Den and asked the Dragons for $1.25-million for 20% of the Uno. All five opted in, making it the biggest deal in show’s history at the time

TED Fellow

Other Inventions:
The Shredder a “cool stand-up power sport vehicle”
The Mule a remote-controlled all-terrain vehicle
Past Participant

Youth in Motion’s Top 20 Under 20 ranking in 2008

Participant at Sanofi-Aventis Biotech Challenge, and the Intel International Science and Engineering Fair. In 2007, he was the only high school student exhibiting at the Canadian Genetics Society Conference.

Attended Yale University majoring in Economics with a combined BS/MS in Molecular, Cellular and Developmental Biology

TEDxYale Speaker