



BASEF 2010

The 50th Bay Area Science & Engineering Fair
March 24-27 / McMaster University / Hamilton ON

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Big ideas.
Infinite possibilities.

Judging Workshop

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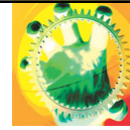
BASEF

- 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) in Southern Ontario. Students from Haldimand, Norfolk and Brant Counties have participated since 2003.
- The fair attracts 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.

2010

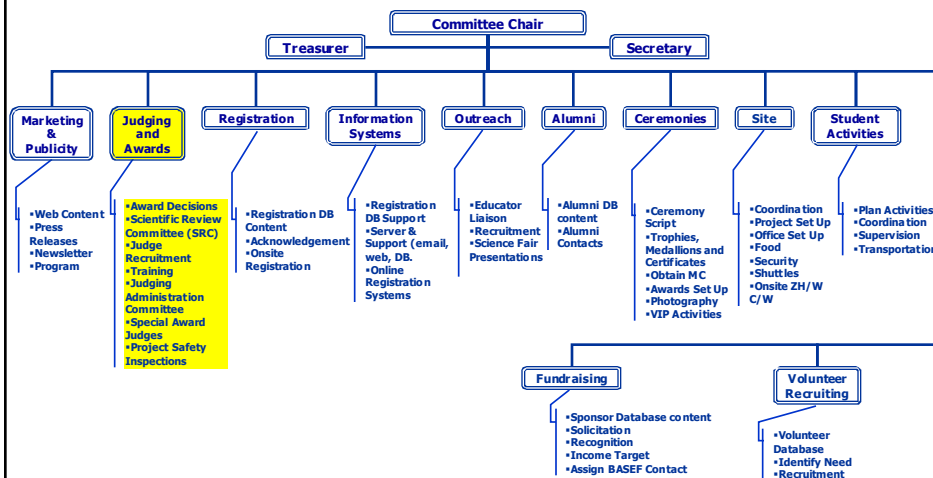
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BASEF



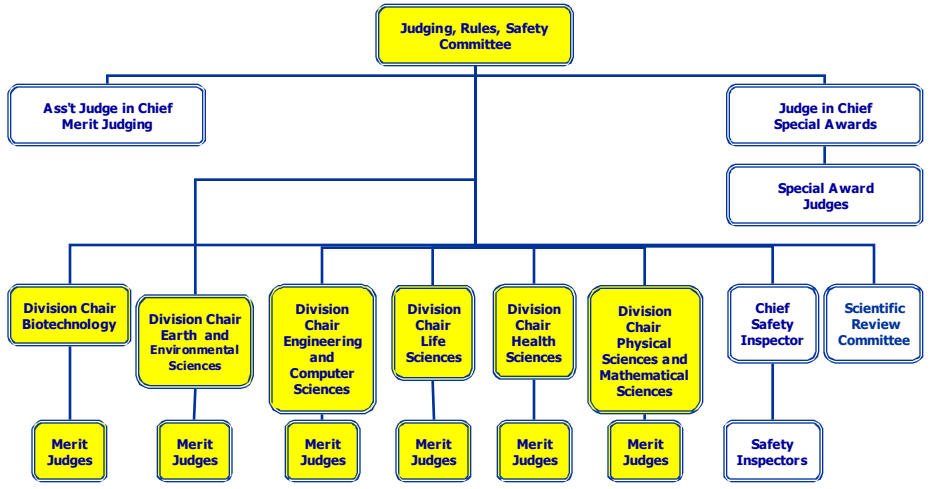
- The mission of BASEF is to promote project-based science and encourage youth to conduct research in areas of science, engineering and technology, utilizing the scientific method or engineering design process.
- BASEF believes all students should be given the opportunity to participate in science fairs. 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 Organization





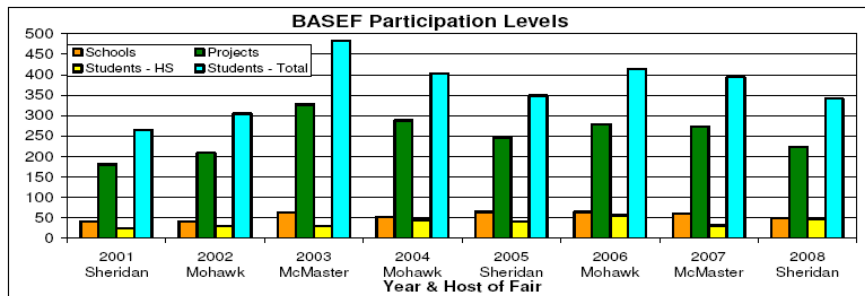
BASEF Judging Team



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BASEF



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BASEF 2009 Highlights



- Over \$110,000 in cash, prizes, trips, scholarships and participation awards
- Activity Day events sponsored by Bell Canada included the McMaster Engineering Fireball Show, McMaster
- COOL Chem Cabaret, Niagara Wind Power's local alternative energy applications, BASEF Alumnus Ben Gulak, and a Working Windmill construction contest
- 16 students won all-expense paid trips to compete in the Canada Wide Science Fair in Winnipeg, Manitoba, accompanied by 4 chaperones.
- 4 high school students won all-expense paid trips to compete in the Intel International Science & Engineering Fair in Reno, Nevada, along with 2 chaperones
- 77 students received Merit Awards, \$4,815 in cash, and \$38,500 in scholarships
- 146 special awards were received, totalling \$13,850 cash plus \$3500 in scholarships

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Typical Science Fair



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The Judging Arena



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What to Expect on Judging Day



- 8:00 Chief Judge and Division Chairs' Meeting
- 8:30 General Welcome and Introduction
- 8:45 Division Chair And Judge Group Meetings
- 9:00 Preliminary Judging Without Students
- 11:30 Judges Meet with Division Chairs
- 11:45 Judges' Lunch
- 1:00 Student Interviews With Judges
- 3:30 Judge and Division Chair Meeting - Tally Scores
- 4:30 Chief Judge, Division Chair, Awards Committee meeting

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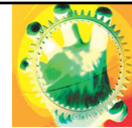
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Conduct of Volunteers

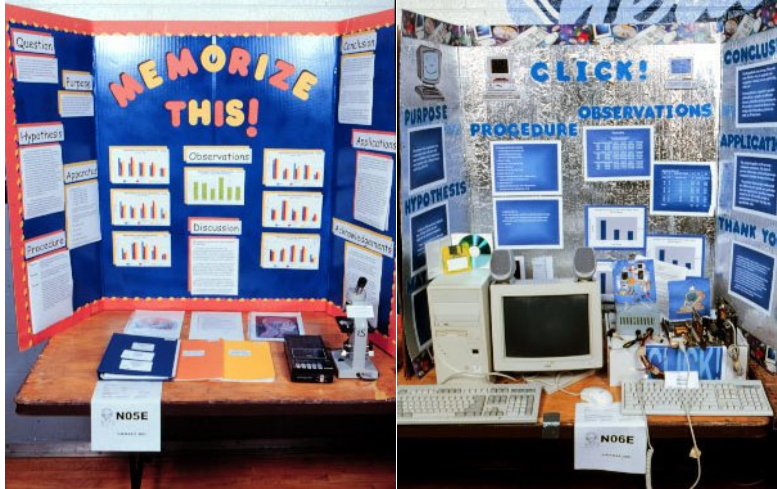


- As an adult volunteer BASEF judge, you are in a position of trust with the children you will be interviewing.
- All judges are to behave in a responsible manner.
- If you observe any problem, unsafe or inappropriate behaviour, promptly report it to any member of the BASEF Organizing Committee.

Projects



Projects



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Judging Form



Bay Area Science and Engineering Fair 2006 - Judging Form

Project: Advanced Coding
Judge: I. Knowledge

Project ID: M27

Was Project Mark here, and note it in the Mark Score Box to the right.

Was Project Mark here, and note it in the Mark Score 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 desiring mark out of a maximum of 45.

Definition	Level 1 (acceptable)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation and reporting of an experiment to test and/or prove hypotheses.	Application and reporting of an experiment to test or prove hypotheses.	Development of a system improvement through modification of an experiment, data collection, analysis or application.	A new approach to the design, modification or application of an existing experiment with control of some variables.	A new experimental approach to a research problem in which most of the significant handling are controlled.
Study A collection and analysis of data, showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.	Study and presentation of printed material related to the basic issue.	Study of material collected through completion of an experiment or expansion of existing data and through observation. The study attempts to address a specific issue.	Study based on new observations and research of a previously studied topic. Appropriate analysis of data and correlations made.	A new approach to the study of a problem which correlates information from a number of sources. The report also offers new insights or judgments to the problem.
Innovation The development and evaluation of models or devices that use innovative technology, using approaches from the field of technology for engineering.	Building models or other devices that evaluate existing technology, minimal inventing.	Using improvement to an existing technology or use an existing technology for a new application.	Design and build an innovative adaptation of an existing technology for a new application.	Design a novel technology or strategy for changes from an innovative system that has commercial or human benefit.

Score out of a possible 45 marks.

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
34	35	36	37	38	39	40	41	42	43	44	45							

NOTE: This form will be machine scanned; please DO NOT FOLD. Use this form ONLY for the Project # printed in the ID Section.

A Score:

B. Display (maximum 10 marks)

- Is workmanship neat and carefully done?
- Is labeling clear?
- Are colours strong and visible?
- 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 contrast?
- Do the backboards, table and all displays meet together?

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

B Score:

C. Notebook / Work Journal (maximum 20 marks)

- Is the notebook clear, concise and neat?
- Is it different from the backboard display?
- Is it well organized?
- Is there a journal summarizing actual work noting both successes and failures?
- Are there a bibliography?
- Are there acknowledgements?

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

C Score:

D. Abstract (maximum 5 marks)

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

Circle: 1 2 3 4 5

D Score:

E. Interview (maximum 20 marks)

Student is aware of the material in the process of the project and can answer all questions pertaining to the project.

Student can summarize the project adequately and can answer all questions about the project.

Student answers the project well and can answer all questions about the project clearly and logically.

Circle: 6 7 8 9 10 Circle: 11 12 13 14 15 Circle: 16 17 18 19 20

E Score:

Please note some constructive comments for students.

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Judging Form



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.

Definition	Level 1 (acceptable)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation undertaken to test one or more hypotheses.	Duplication and reporting of an experiment to test a previously confirmed hypothesis.	Extension of a known experiment through modification of its procedure, data collection, analysis or application.	A new approach to the design, modification or application of an existing experiment with control of some variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
Study A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.	Study and presentation of printed material related to the basic issue.	Study of material collected through compilation of or expansion of existing data and through observation. The study attempts to address a specific issue.	Study based on new observations and research of a previously studied topic. Appropriate analysis of data and correlations made.	A new 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.
Innovation The development and evaluation of models or innovative devices, using techniques or approaches from the field of technology or engineering.	Building models or other devices that duplicate existing technology; minimal reporting.	Make improvement to an existing technology or use an existing technology for new applications.	Design and build an innovative adaptation of an existing technology for a new application.	Build a novel technology or integrate technologies to form an innovative system that has commercial or human benefit.
Score out of a possible 45 marks.	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45
				A Score:

Side One

Step One

- Choose a Definition.
 - Experiment
 - Study
 - Innovation

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Judging Form



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.

Definition	Level 1 (acceptable)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation undertaken to test one or more hypotheses.	Duplicate reporting of an experiment to test a previously confirmed hypothesis.	Extend a known experiment through modification of its procedure, data collection, analysis or application.	A new approach to the design, modification or application of an existing experiment with control of some variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
Study A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.	Study and presentation of printed material related to the basic issue.	Study of material collected through compilation of or expansion of existing data and through observation. The study attempts to address a specific issue.	Study based on new observations and research of a previously studied topic. Appropriate analysis of data and correlations made.	A new 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.
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Score out of a possible 45 marks.	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45
				A Score:

Side One

Step Two

- Choose a level

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Judging Form



Side One

Definition	Level 1 (satisfactory)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation undertaken to test one or more hypotheses.	Duplication and reporting of an experiment to test a previously confirmed hypothesis.	Extension of a known experiment through modification of its procedure, data collection, analysis or application.	A new design, modification or application of an existing experiment with controlled variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
Study A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.	Study and presentation of printed material related to the basic topic.	Study of material collected through compilation or observation attempts to address a specific issue.	Study based on new observations and research of a previously studied topic. Appropriate analysis of data and correlations made.	A new 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.
Innovation The development and evaluation of models or innovative devices, using techniques or approaches from the field of technology or engineering.	Building models or other devices that duplicate existing technology; minimal reporting.	Make improvement to an existing technology or use an existing technology for new applications.	Design and innovation of an existing technology or application of a new technology.	Build a novel technology or integrate technologies to form an innovative system that has commercial or human benefit.
Score out of a possible 45 marks.	15 16 17 18	20 21 22 23	25 26 27 28	30 31 32 33
	19 20 21 22	24 25 26 27	29 30 31 32	34 35 36 37
	23 24 25 26	28 29 30 31	33 34 35 36	38 39 40 41
	27 28 29 30	32 33 34 35	37 38 39 40	42 43 44 45
	Score: A			

Step Three

- Choose the appropriate score for the Definition and Level chosen
- Transfer number chosen to Score box

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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)										B	Score:	
<ul style="list-style-type: none"> 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		

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Judging Form



Side Two Step Five

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

C. Notebook / Work Journal (maximum 20 marks)										C	Score:	
<ul style="list-style-type: none"> • Is the notebook clear, concise and neat? • Is it different from the backboard display? • Is it well organized? • Is there a journal summarizing actual work noting both successes and failures? • Is there a bibliography? • Are there acknowledgements? 												
Circle:	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		



Judging Form



Side Two

Step Six

- Circle the appropriate score for Abstract
- Transfer number chosen to 'D' Score box

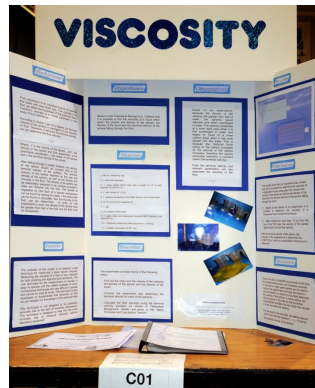
D. Abstract (maximum 5 marks)					D	Score:
<ul style="list-style-type: none"> ▪ Is the abstract present? ▪ Does the abstract contain all aspects of the project? ▪ Is the information concise, complete, and accurate? ▪ Is the abstract well written? (grammar, syntax and spelling) 						
Circle:	1	2	3	4	5	

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

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Study, Experiment or Innovation?



EXPERIMENT:

Investigation undertaken to test one or more hypotheses.

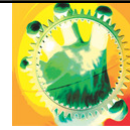


To discover the most powerful way to punch and kick an object, so that one can maximize their self-defence ability.

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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.

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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 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.

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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.

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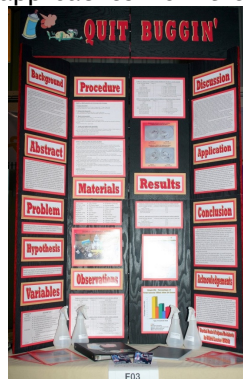
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Study, Experiment or Innovation?



INNOVATION:

The development and evaluation of models or innovative devices, using approaches from the field of technology or engineering.

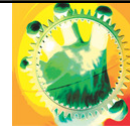


The purpose of our project is to synthesize homemade, more environmentally friendly insecticides that will serve as effective substitutes for synthetic products, such as Raid.

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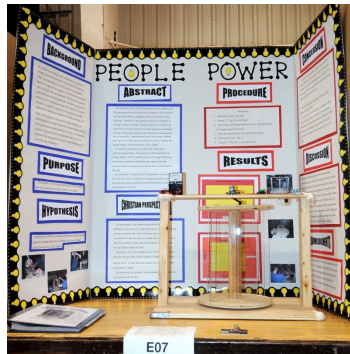
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Study, Experiment or Innovation?



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 wolud generate enough electricity to do this.

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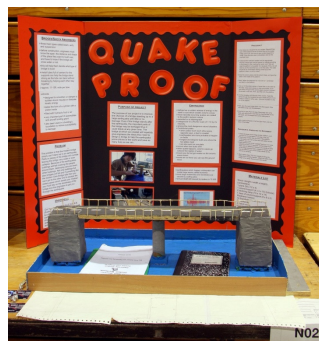
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Study, Experiment or Innovation?



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 better the chances of an bridge standing up top a 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.

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How to Judge a Project



- Bring a clipboard, calculator - pens and pencils provided
- 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. This form is retained by BASEF but not shown to the student.
- Initial the morning section of the Project Placard then note your marks on the judging form
- 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.

How to Judge a Project



- 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



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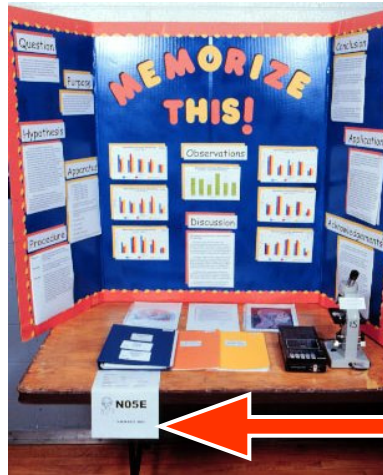
Interviews



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Interviews



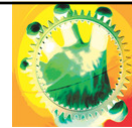
- When you have completed the interview portion of judging a project, sign the placard on the project table.



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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

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Interview Tips



- Set timing goals for your interviews exhibits.
- Be aware of your scheduled interview times, as printed on your project judging forms
- Contestants' understanding is as important as the project
- Every project must receive a passing mark (50%)
- Revise your scores as many times as you need to
- Don't tally judging sheet in front of contestants (or their friends)
- If you need help, see your Division Chair
- Judging should be finished by about 4:00p.m.
- Be prepared to stay until 4:30p.m. or until the Judge and Division Chair Meeting is completed in order to resolve any discrepancies

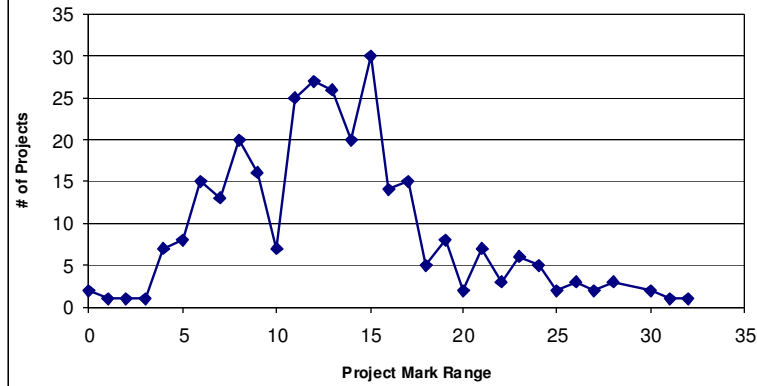
Working the Data



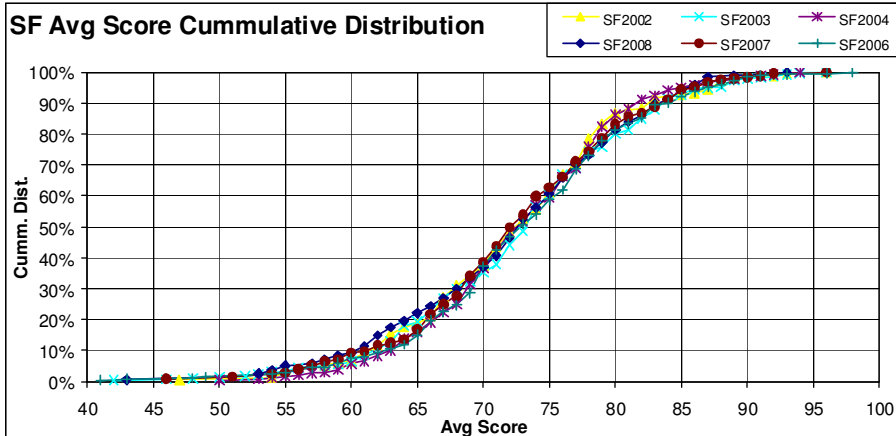
Working the Data



Distribution of Range of Project Marks



Typical Distribution of Average Project Scores



2009 CWSF Team



CWSF 2009

**Winnipeg
Manitoba**

BRONZE MEDAL AWARDS:

"Which Way is North" - Physical & Math Science junior division

"We're Still Not Plastic Bags, Perfecting the Perfect Plastic" - Engineering intermediate division and an honourable mention award in the Environmental Innovation division

"Even Cleaner Even Greener" Physical & Math Science intermediate division

HONOURABLE MENTION AWARD: *"Beware! of Potatoes"* - Life Sciences junior division

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2009 - ISEF Team



ISEF 2009

**Reno
Nevada**

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Past Participant



Kayla Cornale

"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

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

First Place in the Behavioural
and Social Sciences Category
at the 2006 ISEF

20
Under 20

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

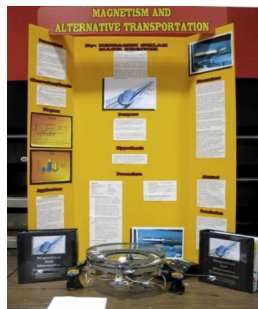
2007 CNN's Young Hero Award
Winner

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Past Participant

Ben Gulak

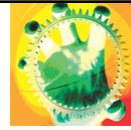


Ben's early engineering work with magnetic levitation won him a bronze medal at BASEF in 2004. By 2008, he had developed a revolutionary new motorcycle, the Uno, for which he won top awards at the national and international fairs, been featured on The Dragon's Den and the Tonight Show, and had seen his invention on the cover of Popular Science. Ben is currently studying engineering at MIT and has started BPG Technologies to develop the Uno commercially.

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Fundraising - Sponsors



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SPECTATOR**

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Chartered Accountant

 **Comstock**
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Mr. Edward Oldham,
Patent & Trade Mark Agent

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