



Judging Training Manual

The Science Fair Opportunity

If you are reading this Judges Training handout, you have either volunteered as a judge or you have accessed this handout out of personal interest. If you are a Judge, thank you for your interest and commitment to the youth of tomorrow. If you accessed this handout out of interest I would encourage you to see the Science Fair web site at <http://basef.mcmaster.ca>.

As a science fair judge, you will be provided with a number of opportunities for the small amount of time that you will invest in judging. Also you will gain personal rewards from the experience and interaction with the students that cannot be found by any other experience.

Judges Benefits

- ◆ Excellent Opportunity to Network
- ◆ Develop Communication Skills
- ◆ Develop Analytical and Evaluation skills (Translates into leadership and management skill base)
- ◆ Sharpen your Investigative Skills
- ◆ Build Self Confidence
- ◆ Share Knowledge with Today's Youth
- ◆ Have fun while helping others

Judges are an integral part of a science fair. As a judge you are part of the science fair infrastructure. Your time as a judge has impact that goes far beyond the day of judging, your time reaches out and influences students, schools, the community, businesses and science fairs.

Students Benefits

- ◆ Learn more about Science
- ◆ Are presented with a challenge
- ◆ Earn Recognition and win acceptance
- ◆ Gain Pleasure from achievement
- ◆ Build Self Esteem and Self Confidence
- ◆ Meet members of the Business Community
- ◆ Meet members of the Scientific Community

School Benefits

Science fairs create an event for schools to use to raise interest in education. Schools also gain in having better students through their experience of science fair competition and interaction with the judges.

Community Benefits

The community gets the long-term benefits of the leadership development of our children who participate in science fairs.

Business Benefits

Science fairs are a medium that can be used to promote businesses through raising community awareness of the businesses that support science fairs. Businesses also reap rewards from the communication and leadership skills that their volunteer judges gain through participating in the science fairs.

Science Fair Benefits

The Science Fair gains exposure to businesses and schools. Science Fairs, a network of volunteer organizations, are sponsored by community and business donations. Well run science fairs build fair credibility and solidarity of all of the fair supporters.

The Roles of a Judge

The Judging role is multi faceted. Judging is more than putting scores on paper. As a judge you will step into a number of roles through the judging day. Fulfilling all of these roles is important for having a successful science fair. You may not fill all of these roles as a judge when interviewing a student, but through the day you will have the opportunity to exercise all of the roles.

Evaluator

The main role of a Judge is to evaluate the various projects and assign them a score. This is usually done in the morning before the students arrive. You will be evaluating the project on the basis of what you see. Quality of work and presentation fit into this function as a judge.

Facilitator

In the afternoon, you get to meet the students. You will still be evaluating the project, but you will also be a Facilitator, creating an open and positive atmosphere to allow the student to comfortably tell you about their project and the research that they did. This role is important because quality of your facilitation will result in amount of information you will receive to make an accurate evaluation of the project as a whole.

Counselor

When a student asks you, "What could I have done better in this project?", you have then stepped into the role of a counselor. You can make a recommendation of what could have taken the project up to the next level of quality.

Motivator

An important role of a judge is to give the student some compliments that will make them feel good about their work and motivate them to compete again. The students have put in a lot of work to compete in the

fair and should be complimented on that as well as the work that they have done. The simplest compliment given to a student can spur them on to future success in life.

Role Model

Remember that when communicating with the students, you are in the role of the judge, a leader in the community, from business or academia. Your actions portray to the students what the science fair is all about. Take care in what you do and say in the presence of the students.

Provide a good experience for the Competitors

As a judge you can provide a good experience for the student competitors by using the following items:

- ◆ Be Genuine
- ◆ Let the contestants show their stuff
- ◆ Encourage conversation
- ◆ Avoid value judgements
- ◆ Give one opportunity for improvement
- ◆ Recognize 3 Project Strengths
- ◆ End meeting on a positive note
- ◆ Smile

Judge Behaviour with Students

When with the students, there are things that you can do to make the experience a learning experience for the students and an enjoyable experience for you:

- ◆ Show you are interested
- ◆ Listen actively
- ◆ Give positive reinforcement to nourish self esteem (say what you like about project)
- ◆ Work to put students at ease, (Sit Down)
- ◆ If students are intimidated they will not speak freely
- ◆ Ask students about their Projects, not just what they did
- ◆ Ask students enough questions to satisfy yourself that they understood the project.
- ◆ When you have reached the student's knowledge limit. STOP asking questions
- ◆ Have 1 Positive Comment for every student
- ◆ Remember when you were 12 years old
- ◆ Let the student teach you something

Sample Questions

These are some good sample questions that will spur on conversations during the judging process.

- ◆ Why did you decide to study this topic?
- ◆ What are your controlled variables?
- ◆ How accurate are your readings?
- ◆ What future applications can you see from the results of this project?
- ◆ What one outstanding thing did you learn doing this project?
- ◆ How would you improve this project if you would do it again?

Suggested Wording

Personalize your language

- ◆ I liked....
- ◆ I enjoyed....
- ◆ I feel that.....
- ◆ I see that.....

If asked

- ◆ 'I suggest...
- ◆ A technique I have used.....
- ◆ The project would have more impact on me if....

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.

Communications with Students

- ◆ All conversation is to be science fair related; steer away from personal discussions
- ◆ Your role is as a Project Judge, not a student counselor.
- ◆ If conversations become personal, encourage the student to discuss the matter with parents, school counselors, etc. Quickly end the conversation.
- ◆ Avoid one on one conversations with students outside of the project areas, especially in isolated circumstances
- ◆ Should a student be interested in further discussions of their project after the science fair (i.e. mentoring), do not agree to such arrangements without the full knowledge and consent of their parents or guardians.

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 Judge / student Interview
- 3:30 Judge and Division Chair Meeting - Tally Scores
- 4:30 Chief Judge, Division Chair, Awards Committee meeting

Judging Tips and Tricks

- ◆ Get there early
- ◆ Look at all of your assigned exhibits before starting to judge your first project.
- ◆ Set timing goals for your exhibits (10-15 min per project)
- ◆ Contestants understanding is as important as the project
- ◆ Every Project must receive a passing Mark
- ◆ Revise your scores as many times as you need
- ◆ Don't tally judging sheet in front of Contestants
- ◆ If stuck on a project, see your Division Chair
- ◆ Judging is finished after the 3:30 Judge and Division Chair Meeting is completed
Be prepared to stay until 4:30

How to Judge a Project

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.

- ◆ Read through the backboard in some logical order; assess it's 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?
- ◆ 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.
- ◆ Note your marks.
- ◆ Remember not to "team-judge", but be sure to ask your Division Chair or another experienced judge if you have any questions during judging.
- ◆ 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?
 - 1) Now check the total mark you have assigned to each project.
 - 2) Is your impression consistent with the marks you've assigned? Decide if you need to review anything.

Using the Judging Form

As a judge the main tools that you will use are a pencil, a clipboard, and judging forms. All tools are supplied on the judging day. To use the judging form effectively, follow the steps on the following pages. It is just that easy.



The Form (Page 2)

B. Display (maximum 20 marks)			B	Score
<p>Skill (maximum 10 marks)</p> <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? <p>Circle: 1 2 3 4 5 6 7 8 9 10</p> <p>Dramatic Value (maximum 10 marks)</p> <ul style="list-style-type: none"> ▪ 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? <p>Circle: 1 2 3 4 5 6 7 8 9 10</p>				
C. Notebook / Work Journal (maximum 10 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? <p>Circle: 1 2 3 4 5 6 7 8 9 10</p>				
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) <p>Circle: 1 2 3 4 5</p>				
E. Interview (maximum 20 marks)				
Student is unsure of the material or the process of the project and has difficulty answering questions about the project.	Student can summarize the project adequately and can answer the majority of questions about the project.	Student explains the project well and can answer all questions about the project clearly and logically.	E	Score:
<p>Circle: 6 7 8 9 10</p>	<p>Circle: 11 12 13 14 15</p>	<p>Circle: 16 17 18 19 20</p>		
Please note some constructive comments for students.				

Side One Step One - Choose a Definition



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	20	21	22	23	25	26	27	28	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

A	Score:
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Side One Step Two- Choose a level




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.															
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Score out of a possible 45 marks.	15	16	17	18	20	21	22	23	25	26	27	28	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

A	Score:
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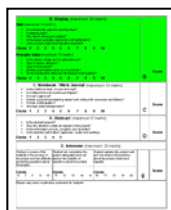
Side One Step Three - Choose the appropriate score for the Definition and Level chosen.

Transfer number chosen to Score box.

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, application or modification of an existing technology 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	Study of material collected through compilation of information from a number of sources. An attempt is made 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

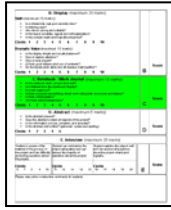




Side Two Step Four - Circle the appropriate score for Skill and Dramatic value
Transfer number chosen to 'B' Score box

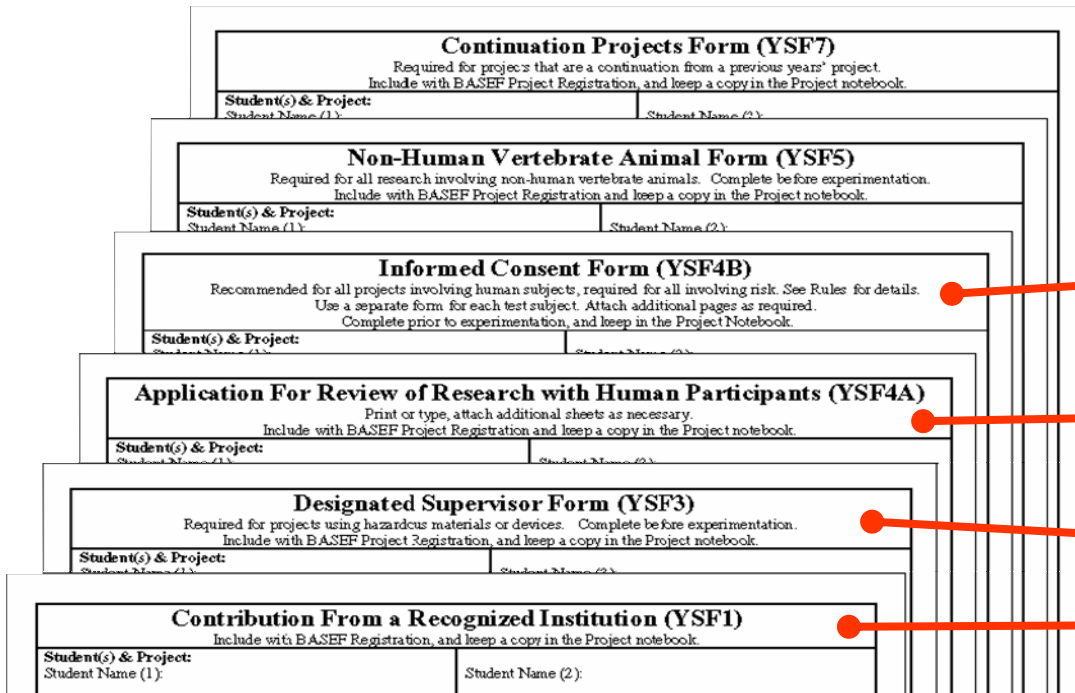


B. Display (maximum 20 marks)		B	Score
<p>Skill (maximum 10 marks)</p> <ul style="list-style-type: none"> ▪ Is workmanship neat and carefully done? ▪ Is lettering clear? ▪ Are colours strong and suitable? ▪ Is the layout complete, logical and self-explanatory? ▪ Is the content clearly and logically presented? <p>Circle: 1 2 3 4 5 6 7 8 9 10</p> <p>Dramatic Value (maximum 10 marks)</p> <ul style="list-style-type: none"> ▪ 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? <p>Circle: 1 2 3 4 5 6 7 8 9 10</p>			

**Side Two Step Five - Circle the appropriate score for Notebook/Work Journal.
Transfer number chosen to 'C' Score box**

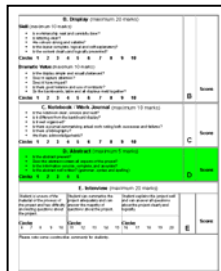
	C. Notebook / Work Journal (maximum 10 marks)	C	Score
	<ul style="list-style-type: none"> ▪ Is the notebook clear, concise and neat? ▪ Is it different from the backboard display? ▪ Is it well organized? ▪ Is there a journal summarizing actual work noting both successes and failures? ▪ Is there a bibliography?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

Other Forms to look for

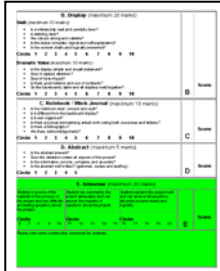


- Continuation Projects Form (YSF7)**
 Required for projects that are a continuation from a previous years' project. Include with BASEF Project Registration, and keep a copy in the Project notebook.
- Non-Human Vertebrate Animal Form (YSF5)**
 Required for all research involving non-human vertebrate animals. Complete before experimentation. Include with BASEF Project Registration and keep a copy in the Project notebook.
- Informed Consent Form (YSF4B)**
 Recommended for all projects involving human subjects, required for all involving risk. See Rules for details. Use a separate form for each test subject. Attach additional pages as required. Complete prior to experimentation, and keep in the Project Notebook.
 5% of Projects
- Application For Review of Research with Human Participants (YSF4A)**
 Print or type, attach additional sheets as necessary. Include with BASEF Project Registration and keep a copy in the Project notebook.
 10 to 15% of Projects
- Designated Supervisor Form (YSF3)**
 Required for projects using hazardous materials or devices. Complete before experimentation. Include with BASEF Project Registration, and keep a copy in the Project notebook.
 Lasers
- Contribution From a Recognized Institution (YSF1)**
 Include with BASEF Registration, and keep a copy in the Project notebook.
 Fruit Flies

**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			

Side Two Step Seven - Circle the appropriate score for Student's understanding



Student is unsure of the material or the process of the project and has difficulty answering questions about the project.	Student can summarize the project adequately and can answer the majority of questions about the project.	Student explains the project well and can answer all questions about the project clearly and logically.	E	Score:
Circle: 6 7 8 9 10	Circle: 11 12 13 14 15	Circle: 16 17 18 19 20		
Please note some constructive comments for students.				

Side One Step Eight

- Total Scores and write number in the totals box.



Bay Area Science and Engineering Fair - Judging Form

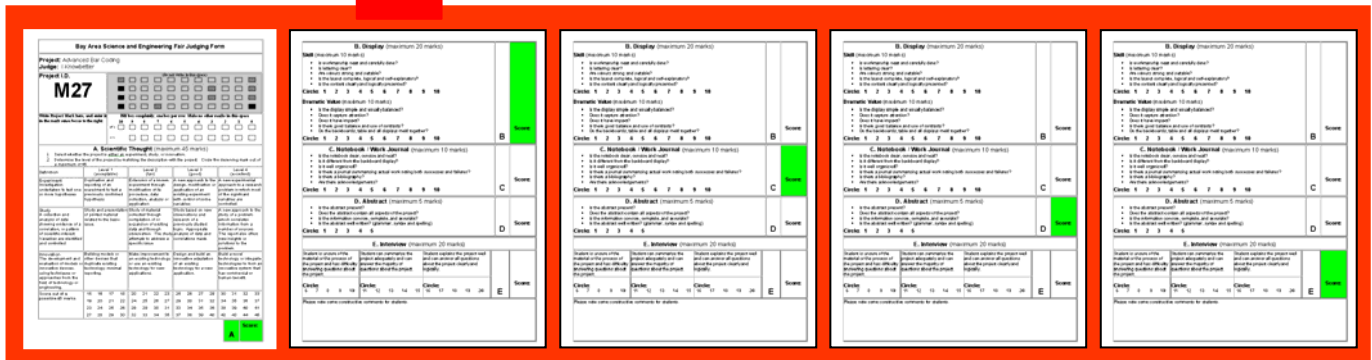
Project: Advanced Coding
 Judge: I Knowbetter

Project ID: **M27**

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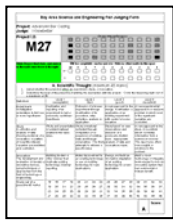
10	9	8	7	6	5	4	3	2	1	0
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10's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fill box completely, one box per row. Make no other marks in this space.



Side One Step Nine

- Transfer scores to bar code boxes with pencil provided.



Bay Area Science and Engineering Fair - Judging Form																																																	
Project: Advanced Coding																																																	
Judge: I Knowbetter																																																	
Project ID: M27	(Do not write in this space) <table border="1"><tr><td>■</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>■</td></tr><tr><td>■</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>■</td><td>□</td><td>□</td><td>■</td></tr><tr><td>■</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>■</td><td>□</td><td>□</td><td>■</td></tr><tr><td>■</td><td>□</td><td>□</td><td>■</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>■</td></tr></table>	■	□	□	□	□	□	□	□	□	□	□	■	■	□	□	□	□	□	□	□	■	□	□	■	■	□	□	□	□	□	□	□	■	□	□	■	■	□	□	■	□	□	□	□	□	□	□	■
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Write Project Mark here, and enter it in the Mark Sense Boxes to the right: 78	Fill box completely, one box per row. Make no other marks in this space. 10 9 8 7 6 5 4 3 2 1 0 10's <table border="1"><tr><td>□</td><td>□</td><td>□</td><td>■</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>■</td></tr></table> 1's <table border="1"><tr><td>□</td><td>■</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>□</td><td>■</td></tr></table>	□	□	□	■	□	□	□	□	□	□	□	■	□	■	□	□	□	□	□	□	□	□	□	■																								
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Final Word

We at the BASEF Science Fair would like to thank you for your participation as a volunteer judge. Your involvement will help to make this a successful fair.

Enjoy the Experience

