Step into the future with QRSTF

QRSTF Judges' Handbook v4.2

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The Quinte Regional Science and Technology Fair

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The Quinte Regional Science & Technology Fair Inc. Judges' Handbook

Introduction:

Judges and Judging are vital, indispensable elements of the Quinte Regional Science and Technology Fair. This handbook is designed to instruct and support the judging process. All judges are strongly encouraged to study this handbook and attend one of our *Judges' Orientations* held in March. There will also be a *Judges' Briefing* on the morning of the event.

The QRSTF has been proudly promoting science and technology to our youth in Hastings and Prince Edward Counties for over 65 years. By agreeing to judge for us you are helping continue this worthwhile tradition. For further information on the background, structure, and goals of the QRSTF, visit http://www.qrstf.ca

1.0 Judging Tasks

1. **To select winners of the QRSTF Awards.** All projects are organized into groups of five or six for each grade level. A pair of judges individually interviews each project in the group to rank order the projects. This first round judging elevates the first place to the second round where best in grade is chosen. A third round selects the best in division (junior, intermediate and senior). Medals and plaques are awarded during the Award Ceremony

2. **To select winners for each of the Special Awards**. Individuals and companies sponsor awards. They provide criteria for their award. Judges, either supplied by the sponsor or by the QRSTF, review the eligible projects to select the one(s) that best meet the criteria. Students have self-nominated for up to three awards. The Special Awards judges are expected to visit each of those that were self-nominated and sign them off.

3. **To select up to 5 students (grades 7 to 12)** to represent our region at the **Canada Wide Science Fair**. An experienced group of judges reviews all projects in grades 7 to 12. They will adhere to the protocols described in the QRSTF Policies and Procedures document to select projects of high calibre that have the potential to win at the national level.

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2.0 Your Role as a Judge

There are two aspects to fulfilling your role as a judge, supportive and evaluative.

Supportive: Our judges are a vital part of providing a positive and rewarding scientific experience for our participants. As such a judge is expected to:

- Listen intently to participants.

- Encourage participants to explain their work thoroughly.

- Provide positive constructive feedback. The *Project Feedback* Form is used for this purpose — See Appendix

- Encourage students to continue to pursue scientific inquiry in some capacity.

- Display welcoming body language. Use a warm friendly voice. Smile!

Evaluative: Your evaluative role is to rank the projects. In the general, first round of judging, projects are in grade level groups of 4 to 6 and need to be ordered 1st, 2nd, 3rd and Honourable Mention in each group. For the Special Awards judging, the project that best fits the award criteria is to be selected.

The Project Judging Rubric. All first-round grade level judges are expected to use the Project Judging Rubric. Special Awards judges may use it to break ties.

- The rubric is divided into 3 sections, Scientific Thought, Creativity & Originality, and Communication. Each section provides criteria for each level of project. Judges should be conversant in the use of these criteria. (See the Project Judging Rubric in the Appendix).

- In addition, the Scientific Thought is presented in two columns — Discovery (research conducted as a case study or an experiment) or Innovation (the development of devices, models or techniques). See Appendix for elaboration). Discovery projects and Innovation projects are judged against each other using the Rubric. They have equal merit.

The Result Summary Sheet. This form is to be used in conjunction with the Project Judging Rubric. Each judge in a pair has their own row for each project to record their results. (See the Result Summary Sheet in the Appendix).

- Each judge will interview participants separately – (max 20 min.)

- While interviewing the judge will choose the most appropriate level in each section. (level 1, 2, 3, or 4) – based on the criteria in the Project Judging Rubric

- After interviewing, break ties among same levels by using the mark ranges provided. Example, two projects are judged to be "Level 2" in Scientific Thought. But one project has a much clearer set of procedures. So, assign a higher mark, a 34, as opposed to a 31 for the weaker group. (Mark ranges for each level are on the rubric.)

- Each judge enters their marks for each section in the Result Summary Sheet and totals their scores.

- Then average the two partner totals.

- Use the averages as a reference to decide on overall ranks in your group. (The marks are a guide).

- At the bottom of the page, circle the number of medals required.

- Each judge will have a Sheet – One Sheet is to be submitted to the committee room to collect medals, while the other is to be used by the judging pair for reference as they hand out awards to the participants they judged.

- Return to the students. Hand out ribbons and medals and Project Feedback forms. Try and complete this before public viewing begins at 11:30

In Summation: In your *Supportive* role, fill out the *Project Feedback* form and return it to students. In your *Evaluative Role*, become familiar with the *Project Judging Rubric* and how to use it to determine the marks to be entered in the *Result Summary Sheet*. Submit your overall ranks to the Committee Office. If you are a Special Awards judge, then you will need to understand the Award Criteria you will be assessing. Finally, please complete the "Judge's Feedback to QRSTF" (in the Appendix) and submit that to the committee office.

Additional Information:

> In the Appendix you will find:

- All forms referred to above.

- A detailed First Round Judges' checklist and schedule

- A list of what to expect in your Judge's Envelope

- Helpful advice on interacting with students

- Judging FAQ's

3.0 Appendix to Judge's Handbook

1. Project Feedback Form

2. Project Judging Rubric

3. Good Communicator Award

4. Discovery vs Innovation Type Projects

5. Result Summary Sheet

6. Judge's Feedback to Fair Form

7. First Round Judge's Check List

8. Judge's Schedule – Day of Fair

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Project Feedback Form

To be presented to students when informing them of the judging results.

Project Name:_____

What I (we) liked about this project- Its strengths.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Recommendations:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Judged By: _____

_____

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Project Judging Rubric
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Use this rubric to assign a level (**1,2,3** or **4)** against the criteria for the project. Then choose a mark within the range provided for that level. This mark reflects the quality and strength of the project relative to other projects you have assigned the same level.

Part A: Scientific Thought Mark:_____ / 50	
Discovery: An experiment or study	**Innovation:** Develop devices, models or techniques
Level 1 Mark Range 26 to 30 (least impressive)	
Replicate a known experiment to confirm previous findings or collate data from a variety of sources without further analysis.	Build models (devices) to duplicate existing technology or to demonstrate a well known physical theory or social/behavioural intervention.
Level 2 Mark Range 31 to 35	
Extend a known experiment with modest improvements to procedures, data gathering or application; or synthesize data from a variety of sources to confirm existing conclusions. Attempts to address a specific issue.	Improve or demonstrate new applications for existing technological systems, social or behavioural interventions, existing physical theories or equipment, and justify them.
Level 3 Mark Range 36 to 41	
Devise and carry out an original experiment. Identify and control some of the significant variables or synthesize data from a variety of sources to strengthen or extend existing conclusions. Carry out an analysis using arithmetic, graphs or simple statistics.	Design and build innovative technology or provide adaptations to existing technology or to social or behavioural interventions; extend or create new physical theory. Human benefit, advancement of knowledge and/or economic applications should be evident.
Level 4 Mark Range 42 to 50. (most impressive)	
Devise and carry out original experimental research which attempts to control or investigate most significant variables. Data analysis is thorough and complete for the grade level. There is internal consistency – all parts of the report address the purpose. Results are related to real world significance. Further studies are suggested.	Integrate several technologies, inventions or designs and construct an innovative application that will have human and/or commercial benefit. Performance of the prototype or procedure is thoroughly evaluated. Suggestions for improvement are made. Relevance and significance of the work is explained.

Part B: Creativity and Originality Mark:_____ / 20			
Level 1 (9 to 11)	**Level 2 (12 to 14)**	**Level 3 (14 to 16)**	**Level 4 (17 to 20)**
Simple design with little student input. A textbook /internet type project.	Some creativity in a project of fair to good design. Topic is a common one.	Imaginative project, well thought out. Some creativity in design or use of materials.	Highly original approach, showing much resourcefulness and creativity in design, use of equipment, or analysis.

Part C: Communication Mark:_____ / 30			
The level is based on four elements: summary, interview, project display board and sample logbook pages.			
Level 1 (15 to 17)	**Level 2 (18 to 20)**	**Level 3 (21 to 24)**	**Level 4 (25 to 30)**
Most or all of the four elements are simple or incomplete. There is little evidence of attention to effective communication. In a pair project, one member may have dominated the presentation.	Some of the four elements are simple, or incomplete, but there is evidence of student attention to communication. In a pair project, one member may have made a stronger contribution to the presentation.	All four elements are complete and demonstrate attention to detail. The communication components are each well thought out and executed. In a pair project, both members made an equitable contribution to the presentation.	All 4 elements are complete and exceed age/grade expectations. The visual displays are logical and well presented. The summary and logbook are informative and clearly written. The bibliography goes beyond web-based articles. The oral presentation is clear, logical, enthusiastic and contributed to equally in a pair project.

Total Mark:_____/100 *March 2025*

Enter Marks in the Result Summary sheet. Determine ranks. Submit the sheet to the committee room. ***These forms are not to be given to students.*** Provide the *Project Feedback* form to each student.

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Odeon-Cineplex Good Communicator Interview Form
Name of Interviewer:_____

Name of Science Project: _____

_____

Student Authors and Grade: _____

_____

What is the Question or Purpose?_____

_____

_____

What was changed / studied? _____

_____

What was measured? _____

_____

What happened? _____

_____

_____

_____

_____

_____

Rate the project with these scales
A score of 1 is very low and a score of 5 is very high.

HOW WELL DOES IT LOOK?   1 2 3 4 5

DID THE AUTHORS ANSWER YOUR QUESTIONS WELL?
                                         1 2 3 4 5

WERE THE PRESENTERS ENTHUSIASTIC?
                                         1 2 3 4 5

WERE THE CHARTS AND GRAPHS HELPFUL?

                                         1 2 3 4 5

HOW WELL DID THE CONCLUSIONS MATCH THEIR
INFORMATION?   1 2 3 4 5
Name of Science Project: _____

_____

Student Authors and Grade: _____

_____

What is the Question or Purpose?_____

_____

_____

What was changed / studied? _____

_____

What was measured? _____

_____

What happened? _____

_____

_____

_____

_____

_____

Rate the project with these scales
A score of 1 is very low and a score of 5 is very high.

HOW WELL DOES IT LOOK?   1 2 3 4 5

DID THE AUTHORS ANSWER YOUR QUESTIONS WELL?
                                         1 2 3 4 5

WERE THE PRESENTERS ENTHUSIASTIC?
                                         1 2 3 4 5

WERE THE CHARTS AND GRAPHS HELPFUL?

                                         1 2 3 4 5

HOW WELL DID THE CONCLUSIONS MATCH THEIR
INFORMATION?   1 2 3 4 5
Name of Science Project: _____

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Discovery vs Innovation Type Projects

There are 2 main type of projects we see at our fair, Discovery (case studies and experiments) and Innovations.

Discovery: includes Experiments and Case Studies

Experiment:

An experiment presents data to test an hypothesis. As such it may:
Compare different things:
- Efficiency of various light bulbs
- Effect of sunlight on fabric type

Examine the effect of a change in some factor
- Effect of sunlight length on plant growth
- Effect of increasing temperature on cyanoacrylate glue

Case Studies:

A case study involves the collection and analysis of information.
- Loon habitats
- Meteors and human history
- Age of airliners and crash probabilities

Innovations:

An innovation refers to the enhancement of a device or system and the invention of a new device or system. Typically, data is presented to evaluate the changes.
- Biodegradable golf tees
- A voice-controlled faucet
- Binocular robotic vision

All project types are of equal scientific value. No one type is considered to have more merit than another.

Result Summary Sheet

Result Summary Sheet for 1st Round Group # _____

Identification Judging Team # _____	Judge Initials	Scien. Think. 50	Creat. & Origin. 20	Com 30	Total 100	Average	Overall Rank
Proj Number_____. Title_____ Student(s):	J 1						
	J 2						
Proj Number_____. Title_____ Student(s):	J 1						
	J 2						
Proj Number_____. Title_____ Student(s):	J 1						
	J 2						
Proj Number_____. Title_____ Student(s):	J 1						
	J 2						
Proj Number_____. Title_____ Student(s):	J 1						
	J 2						
Proj Number_____. Title_____ Student(s):	J 1						
	J 2						

Circle the # of Medals Required	Gold for first - Awarded at Ceremony	Silver for Second	Bronze for Third	Honourable Mention Ribbons
	0	1 or 2	1 or 2	1 or 2

2025
Judge's Feedback to QRSTF Committee Form

Categories, judging procedures and criteria are reviewed annually. First Round Judges, specifically, are asked to evaluate their experience using the Project Judging Rubric and Result Summary Sheet. All comments are welcome as we continually strive to improve the QRSTF.

First Round Judges Checklist
Judging Results must be turned in before 11:30.

☐   As a pair, read the project summaries to formulate first questions.

☐   Locate your group with the help of the site map.

☐   Visit groups, introduce yourselves.

☐   Give each project two Cineplex Odeon Good Communicator Award forms.

☐   Individually, interview each group (15 min max). Bell will ring after 15 minutes

☐   Individually, record your marks on your own Result Summary Sheet

☐   Return to headquarters to confer with your partner (no discussions in front of students.) Do the arithmetic (totals and averages)

☐   Together rank the top 4 projects (no ties for first!) on the Result Summary Page and copy ranks to your second Result Summary Page. On both complete the "Medals Required" table at the bottom of the page.

☐   Write comments on the Project Feedback Forms (1 per *student*).

☐   Exchange one Result Summary Page. at the main desk in the **QRSTF Committee Room** for medals (see next).

☐   Using the Medals Required table as your reference, request silver and bronze medals for 2nd and 3rd place students. Obtain extra ribbons if needed.

☐   Complete the Judges Feedback to QRSTF Committee Form

☐   **Both** judges return to the students and congratulate them on their efforts.

☐   Hand each student a Participation Certificate and a Project Feedback Form and discuss your comments.

☐   Award the ribbons (1st, 2nd, 3rd and Honourable Mention). Present the 2nd place students with silver medals and the 3rd place students with bronze.

☐   Tell the 1st place student(s) they will receive their medal(s) at the award ceremony in CSS Auditorium starting at 3:30 p.m.

☐   Return to Headquarters and hand in name tags, paperwork, pencils and envelopes. *The QRSTF Committee is grateful for your help. Thank You.*

Judge's Schedule - Day of the Fair

8:00-8:30 Check in at the entrance to the Auditorium and collect your Judge's Envelope (if you are the first partner to arrive). Find your assigned seat. Meet your partner(s) and review materials. Coffee, tea and pastries available. Review the First Round Judge's Checklist. Special Awards Judges will organize themselves to find a project that meets their criteria. They need to make sure each project on their list gets reviewed and signed off

8:30 Chief Judge's Briefing

9:00-9:10 Meet with students and hand out the Good Communicator Awards - 1 per student.

9:10 to 10:40 Interview Students. First round judges will individually interview each project (so they all get at least 20 minutes of air time and a chance to explain their project more than once). **Move when you hear the bell!**

10:40 to 11:00 Complete the Result Summary Sheets and Medal Count Table. **Turn in Results! Retrieve medals and Ribbons.**

11:00 to 11:30 Complete the Project Feeback Forms and the QRSTF Evaluation Form. Refer to your notes on the project summary form.

11:30 to 12:00 Hand out Participation Certificates, placements (ribbons and medals) and debrief students using the Project Feedback forms.

12:00-12:30 Cafeteria is open. Public viewing begins. Pizza for judges. Turn in all materials and the evaluation form.

12:30 to 2:30 Best in grade, Best in Division, Canada Wide Judging, and Special Award judging continue. Results to be turned in by 2:30.

3:30 to 5:00 Award's Ceremony in the Auditorium. Judges are welcome.

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Judging Envelope Contents

Exterior

❖ Judging Group Number

❖ Judges Names and Assigned Seats

Interior

❖ Judge's Checklist (light red)

❖ Project Summaries

❖ Site Map

❖ Cineplex Odeon Good Communicator Award forms (1/student)

❖ Two "Result Summary Sheets / "Medal Required" on one side of the page and the Project Judging Rubric on the reverse.

❖ Project List Reporting Sheet (orange)- special awards

❖ Participant Certificates

❖ Judge's Feedback to QRSTF Committee Form

❖ Ribbons: 2 reds (1st place), 2 blue (2nd place), 2 white (3rd place) 2 yellow (Honourable Mention)

❖ Pencils – 2

❖ QRSTF Judges Folders

- 6 Project Feedback forms (12 total between 2 judges)

Being Supportive – Tips For Judges

Since you are a judge, most students instinctively think of you as an intimidating figure. The more you can dispel this image, the more likely you are to help the student be less nervous, and get a better discussion. Again, simple things can make a difference:

* Make eye contact with the student;

* If the student is short and you are tall, stoop, bend, or squat down to lower your eye level (if your knees won't allow this, ask to judge the Senior category);

* Tip your head to the side a little to indicate interest (this is a universal nonverbal form of communication; even your dog does it);

* If you wear glasses, look at the student through them, not over the top of the frames;

* Whenever a student shows a good idea, a clever way to get expensive results with inexpensive equipment, or anything you can complement, be sure to use a compliment;

* Use a tone of voice that indicates interest or inquisitiveness, not skepticism or contempt.

To assure the perception of fairness, you also need to make sure that one student doesn't monopolize your time. Some have a well-rehearsed pitch that may prevent you from having a chance to interact with the student. You have to find some way to break the pattern, and again, your tool is questioning. Politely interrupt with a question, usually in the form of "I'm sorry, I didn't quite catch the relationship between that adjustment and this result," or even some of the "any student can answer" questions, like "How many times did you run the

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experiment with each configuration?" and "How many experiment runs are represented by each data point?" The idea is not to stop the student from talking, but to get the student to interrupt the tape recording and think about what is being communicated to you. (http://www.usc.edu/CSSF/Judges/GoodJudge.html)

Interview Questions – some good examples

Your best tool in judging is your ability to ask questions. Be sensitive to what the student knows. You can always ask questions that the student can answer, and keep a conversation going for ten minutes. There are some questions all students should be able to answer, including variations on:

* How did you come up with the idea for this project?

* What did you learn from your background search?

* How long did it take you to build the apparatus?

* How did you build the apparatus?

* How much time (many days) did it take to run the experiments (grow the plants) (collect each data point)?

* How many times did you run the experiment with each configuration?

* How many experiment runs are represented by each data point on the chart?

* Did you take all data (run the experiment) under the same conditions, e.g., at the same temperature (time of day) (lighting conditions)?

* How does your apparatus (equipment) (instrument) work?

* What do you mean by (terminology or jargon used by the student)?

* Do you think there is an application in industry for this knowledge (technique)?

* Were there any books that helped you do your analysis (build your apparatus)?

* When did you start this project? or, How much of the work did you do this year? (some students bring last year's winning project back, with only a few enhancements)

* What is the next experiment to do in continuing this study?

* Are there any areas that we not have covered which you feel are important?

* Do you have any questions for me?

(Note: these are only suggestions to keep the dialog going. You may find other questions to be more useful in specific interviews.)

One type of question to avoid is "Why didn't you do...?" Probing questions are useful to stimulate the thought processes of the student. A solution or extension to the work presented may be obvious to you with all of your years of experience, but the student may not understand why you're asking such a question. If you ask a question of this type, be sure to imply the correct intent, as in "Could you have done...?" or "What do you think would have happened if you had done...?" When phrased this way the question is an invitation for the student to think about the experiment in a different way, and can turn the question into a positive experience.

(http://www.usc.edu/CSSF/Judges/GoodJudge.html)

JUDGING FAQ

Q. How do I sign up to judge?

It's easy, just fill out the registration form on-line. (www.qrstf.ca) Please provide all information requested so we can be in touch.

Q. Are there any requirements to be a judge?

If you wish to be a judge at the QRSTF you must:
1. be at least 19 years old or attending a post-secondary institution
2. have a love of science
3. be free all morning or the day of the fair

Q. How do I know I have been accepted as a judge?

Space permitting, all people are accepted as judges until the day of the fair. You will get an e-mail confirming your registration immediately after registering.

Q. What do I do if I can't judge in the morning of fair day?

Please email the Chief Judge, Chris Spencer - cspencer.qrstf@gmail.com or text or phone him at 613-919-8013

Judging/Fair Day

Q. How does my company become a sponsor?

Please contact us and we will help you through the process of sponsoring an award (qrstfawards@gmail.com or qrstf@live.com)

Q. What day/time/location is the fair?

The Quinte Regional Science and Technology Fair is April 5, 2025 at Centennial Secondary School. Judges arrive at 8 am.

Q. I'm a first-time judge; how do I get a judging handbook?

To get a copy of the handbook for judges please go to our website and download it from the judging section of the website.

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Q. My child is in the fair, can I still judge?

Yes. If you arrive in the morning and find that you are judging your child's project, inform us and we will switch you to a new team.

Q. I would like to do more than just judge, where do I get more information on volunteering?

Please contact us through our website or contact us at qrstf@live.com

Q. I am a first-time judge, should I judge elementary or secondary?

We like to recommend you start at the elementary level for at least one year. Elementary projects are generally not as involved as those at the secondary level and don't require in depth knowledge of a subject. Judges at the secondary level must have adequate knowledge of a subject so that they can ask more complex questions about project results.

Q. I would like to judge with my friend, what should I do?

If you have a particular person you wish to judge with, please contact us and we will try our best. When we build the judging teams, we attempt to partner new judges with experienced ones.

Q. I can't be a judge this year but would like to be contacted in future, what do I do?

Please contact us to let us know of your interest in judging for future years and we will add you to our data base.

Q. How can I find out how the students I judged did?

Visit our website after the fair http://www.qrstf.ca to see the results

Q. Do I have to attend the Judging Seminar?

Because of changes this year we strongly recommend all judges attend a Judging Seminar. It will be available online if you miss it. The "Judge's Role" and 4 forms associated with it should be studied – they are an integral part of this handbook.

Q. How can I find out how the students I judged did?

Visit our website after the fair http://www.qrstf.ca to see the results.

Q This is my first time, what do I need to know? And where can I find this information?

What you need to know is in this Judge's Handbook:
* First, you must have an understanding of the scientific method;
* Second, you must understand our judging forms and know what information meets the criteria set out in those forms;
* Third you must know how to fill out all the judging forms and when we need them on the morning of the fair.
* You will be teamed up with an experienced judge who will help you through the process.

Where you can find this information:

All these topics are covered in our yearly Judging Seminar. The seminar highlights the events of the judging day, goes through the scientific method, mock judges a project, and explains all the judging forms. The seminar is 1 hour long and at that time we will ensure all new judges have access to this judging handbook. The handbook summarizes all the information presented in the seminar, but does not act as a replacement for the seminar. If you can't make it to the seminar, contact us at qrstf@live.com and we can send you a link to download and print off a copy. http://www.qrstf.ca
You will be contacted when it is.

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The Quinte Regional Science and Technology Fair runs completely on volunteers. We appreciate the time you have given to our fair, and to the youth of our community. It is only with volunteers such as yourself that we are able to go beyond the books and classroom walls to show students that science is all around us in the "real world" and that there are opportunities in the field. We hope that you will take part in next year's science fair. See you then.