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## 2012 Peel Region Science Fair

Louise Arbour S.S.

April 14 & 15



Peel Region  
Science Fair

# 2012 PEEL REGION SCIENCE FAIR TEACHER GUIDE

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ENGAGING AND SUPPORTING YOUNG SCIENTISTS IN PEEL.

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Welcome!

Dear Science Fair Contact

The Peel Region Science Fair (PRSF) is a unique opportunity to promote project based science for the youth of today. This science exhibition is one of nearly 100 fairs across Canada and 27 across Ontario that celebrates the work of young scientists and recognizes excellence in their research and innovation.

This package contains information you need to register your projects for the fair. Please note that the **registration deadline is Friday April 1, 2012**. The deadline cannot be extended. Early registrations will be accepted. Registration opens **Friday Feb 1, 2012**.

Each school is able to enter 6 student projects per division (junior, intermediate, or senior) and **must have at least one judge from the school participate at the 2012 Peel Region Science Fair. Registration can be competed online from** Judges will be able to declare their affiliation with a particular school and/or the name a teacher already registered as judge from the school.

Students who participated in last year's Peel Region Science Fair will receive an invitation to participate this year. These student alumni must have their projects approved by an appropriate supervisor (teacher or mentor). The alumni's projects may be included, by your discretion, as an addition to your school team of 6 projects per division.



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### Science Displays

Peel Fair participants may select from a wide variety of materials, including pre-constructed corrugated cardboard and foam-core board. *EM Plastics & Electric Products* (430 Norfinch Dr., Toronto, ON, M3N 1Y4, (416) 665-6111) is a supplier of foam core boards.

Students are expected to attach all information securely to the backboard. Students selected for the Canada-Wide Science Fair will be required to redo their display to meet national science fair safety regulations.

The project should also include the following:

- 50-word abstract
- A 1-page summary

The 50-word abstract is used at the awards ceremony to describe award-winning projects to the audience. The judges use the 1-page summary to get an overview of the project before meeting the students.

#### **You are requested to do the following:**

Each student must registration online form per exhibit. In the case of a group project both parental signatures are required.

Ensure that registration is completed online by **Friday, April 1, 2012**.

Bring an adult to accompany the student(s) during setup. Supervision by the organizing committee will be limited to the exhibit hall.

The Peel Region Science Fair committee wishes to extend its sincere appreciation for your support. We wish your school and your students the greatest success. If you have any questions about registration, do not hesitate to contact Anthony Corvinelli, regional coordinator, at [anthony.corvinelli@dpcdsb.org](mailto:anthony.corvinelli@dpcdsb.org). He can also refer any other inquiries to the appropriate contact person.



### Project Classification

#### Division

There are no more divisions in the Peel Region Science Fair. This corresponds with changes made to the Canada Wide Science Fair for 2011. All projects will be judged for medals against all others in their category.

#### Category

There are 3 categories of project based on the student's school grade. Junior (Grade 7 & 8), Intermediate (Grade 9 & 10) and Senior (Grade 11-12). For projects completed by two students, the category is that of the highest-grade member.

#### Type

There are 3 types of projects that help judges characterize the nature of the work: **Experiment**, **Innovation** and **Study**. All three types are equivalent, but differ somewhat in the way they are conducted and evaluated.

The following may help clarify the differences:

- **Experiment**  
Involves the testing of a specific hypothesis with the control of significant variables. Judging emphasis is on the experimental design and analysis of the data.
- **Innovation**  
Involves the development and evaluation of new devices, models, techniques or approaches, usually in technology, engineering or computers. Judging emphasis is on the design process, application of scientific and engineering principles or human benefit
- **Study**  
Involves the collection and analysis of data from sources other than the student's own work to reveal evidence of a fact, situation, or pattern. Judging emphasis is on insightful analysis.

Judges at the Science Fair will be looking at a combination of written information and the student presentation. Successful students will be able to demonstrate depth and breadth of knowledge for the scope of their project. The project should exhibit qualities of excellence and creativity.



### Safety Regulations

1. Backboards may be constructed using a variety of materials. Fire retardant materials are preferred, but corrugated cardboard, foam-core board, etc. will be accepted. Students selected to represent Peel at the Canada-Wide Science Fair will be required to prepare a board according to strict fire regulations specified by YSF Canada.
2. The exhibit must be sturdy, self-supporting and fit within the following dimensions: height = 3.5 m, width = 1.2 m (side to side), and depth = 0.8 m (front to back).
3. All portions of your visual presentation must be in full contact with the backboard (i.e., no loose pages or corners). It is a good idea to bring a glue stick for quick repairs! Extensions to the backboard (e.g., for a title) are permitted, but must fit within the required space.
4. Students are not required or expected to perform any experiments for the judges. They are interested in the results and the student's explanation. Thus, students do not need to bring the equipment or materials used in their project. Photographs are more convenient and effectively show what was done.
5. If a student must bring materials for his/her presentation, substitutes are required for all dangerous, toxic, corrosive, flammable, or radioisotope materials. Coloured water, salt, sugar, and baking soda are some substitutes that can represent these chemicals. When labelling these substitute materials for display, write the chemical name on the container and the word "simulated."
6. All electrical devices, including extension cords and student-built devices, must be CSA-approved before being connected to AC outlets. All plugs must have 3 prongs (3-wire conductor including a ground).
7. **No living organisms (including plants, animals, fungi, protozoa and bacteria) may be displayed.** Use photographs to show results. Experimentation with vertebrates (including humans and pets) is strictly controlled in Canada and must not involve any harmful physical or emotional effects.
8. Experimentation involving hazardous materials must be carried out under controlled laboratory conditions and with a qualified supervisor.

#### Please Note:

This is a summary of the safety regulations. Please consult <http://www.ysf-fsj.ca/Members/pdirectory4.aspx> for the detailed rules as specified by Youth Science Canada.



**Overall Evaluation**

	<b>A. EXPERIMENT</b>	<b>B. INNOVATION</b>	<b>C. STUDY</b>	<b>Type</b>
	An investigation undertaken to test a scientific hypothesis experimentally. The variables, if identified, are controlled to some extent	The development and evaluation of innovative devices, models or techniques or approaches in technology, engineering or computers (hardware or software).	A collection and analysis of data to reveal evidence of a fact or a situation of scientific interest. It could include a study of cause and effect or theoretical investigations of scientific data.	
				<b>Check</b>
Level 1	Duplicate a known experiment to confirm the hypothesis. The hypothesis is totally predictable.	Build models (devices) to duplicate existing technology.	Study existing printed material related to the basic issue.	
Level 2	Extend a known experiment through modification of procedures, data gathering, and application.	Make improvements to or demonstrate new applications for existing technological systems or equipment and justify them.	Study material collected through a compilation of existing data and through personal observations. Display attempts to address a specific issue.	
Level 3	Devise and carry out an original experiment. Identify and control some of the significant variables. Carry out an analysis using graphs or simple statistics.	Design and build innovative technology or provide adaptations to existing technology that will have human benefit and/or economic applications.	Carry out a study based on observations and literary research illustrating various options for dealing with a relevant issue. Include appropriate analysis (arithmetic, statistical, or graphical) of some significant variable(s).	
Level 4	Devise and carry out original experimental research, which attempts to control or investigate most significant variables. Include statistical analysis in the treatment of data.	Integrate several technologies, inventions or designs and construct an innovative technological system that will have human and/or commercial benefit.	Correlate information from a variety of significant sources, which may illustrate cause and effect or original solutions to current problems through synthesis. Identify significant variable(s) with an in-depth statistical analysis of data.	



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## Evaluation – Project Marking Sheet:

<b>SCIENTIFIC THOUGHT AND KNOWLEDGE (Value 60%)</b>	1 = Poor 5 = Average 10 = Excellent										
Is there a viable commercial application or significant human benefit?	1	2	3	4	5	6	7	8	9	10	Total
Does the student understand the scientific or engineering principles, laws, or theories related to the project at a level appropriate to the project?	1	2	3	4	5	6	7	8	9	10	
Is there a well-defined objective or purpose given for the project?	1	2	3	4	5	6	7	8	9	10	
Does the design of the investigation effectively address the problem identified?	1	2	3	4	5	6	7	8	9	10	
Does the student demonstrate refinement/improvement to the design?	1	2	3	4	5	6	7	8	9	10	
Are the significant variables recognised and controlled?	1	2	3	4	5	6	7	8	9	10	
Are observations clearly and logically organised?	1	2	3	4	5	6	7	8	9	10	
Did the student gather data from suitable sources?	1	2	3	4	5	6	7	8	9	10	
Has the student amassed an appropriate and relevant data sample?	1	2	3	4	5	6	7	8	9	10	
Is there strong evidence of a fact, situation or pattern of scientific interest?	1	2	3	4	5	6	7	8	9	10	
Is the conclusion valid based on the data collected?	1	2	3	4	5	6	7	8	9	10	
Does the student have clear ideas for further research or applications?	1	2	3	4	5	6	7	8	9	10	
<b>ORIGINALITY or CREATIVE ABILITY (Value 15%)</b>	1 = Poor 5 = Average 10 = Excellent										
Does the project demonstrate originality at a level appropriate to the student?	1	2	3	4	5	6	7	8	9	10	Total
Does the project show resourcefulness and/or creativity in design?	1	2	3	4	5	6	7	8	9	10	
Does the investigation of the phenomenon or the design process, incorporate a novel approach?	1	2	3	4	5	6	7	8	9	10	
Is the data obtained, analysed or interpreted in an original way?	1	2	3	4	5	6	7	8	9	10	
<b>DISPLAY (Value 15%)</b>	1 = Poor 5 = Average 10 = Excellent										
Does the display use a clear and logical approach to explaining itself?	1	2	3	4	5	6	7	8	9	10	Total
Does the exhibit make appropriate use of various media? (Equipment and gadgets that are simply decorative will be ignored and may be counted against the exhibit).	1	2	3	4	5	6	7	8	9	10	
Are charts, diagrams, graphs etc. used in a meaningful way, which supports the presentation?	1	2	3	4	5	6	7	8	9	10	
Does the exhibit demonstrate good workmanship? (I.e., Does everything work as it should?)	1	2	3	4	5	6	7	8	9	10	
<b>PRESENTATION (Value 10%)</b>	1 = Poor 5 = Average 10 = Excellent										
Does the student communicate his/her knowledge and understanding?	1	2	3	4	5	6	7	8	9	10	Total
Does the student demonstrate that he/she has completed the project as independently as could be expected for his/her age/grade? (Adult guidance, advice, and supervision of hazardous work is appropriate, but excessive adult involvement counts against the exhibit).	1	2	3	4	5	6	7	8	9	10	



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### Schedules of Events

#### **Saturday, April 14, 2012**

9:00 am - 12:00 pm: Students arrive to set up their projects

9:00 am - 12:00 pm: Safety checks / Pictures

12:00 - 1:00 pm: Judges preview - **No Students at their exhibits**

12:00 - 2:00pm: Students & parents leave for lunch

1:00 - 2:00 pm: Judges lunch & briefing

2:00 - 5:00 pm: Judging - All Students at their projects

NOTE: The exhibit hall will be locked after judging.

#### **Sunday, April 15, 2012**

1:00 - 2:00 pm: Public viewing – all students at projects

2:15 - 3:45 pm: Awards ceremony (Dress appropriately)

3:45-4:15 pm: Students take their projects home

#### **Sunday, April 15, 2012 @ 4:30 pm**

Canada Wide Science Fair Team Meeting / Registration



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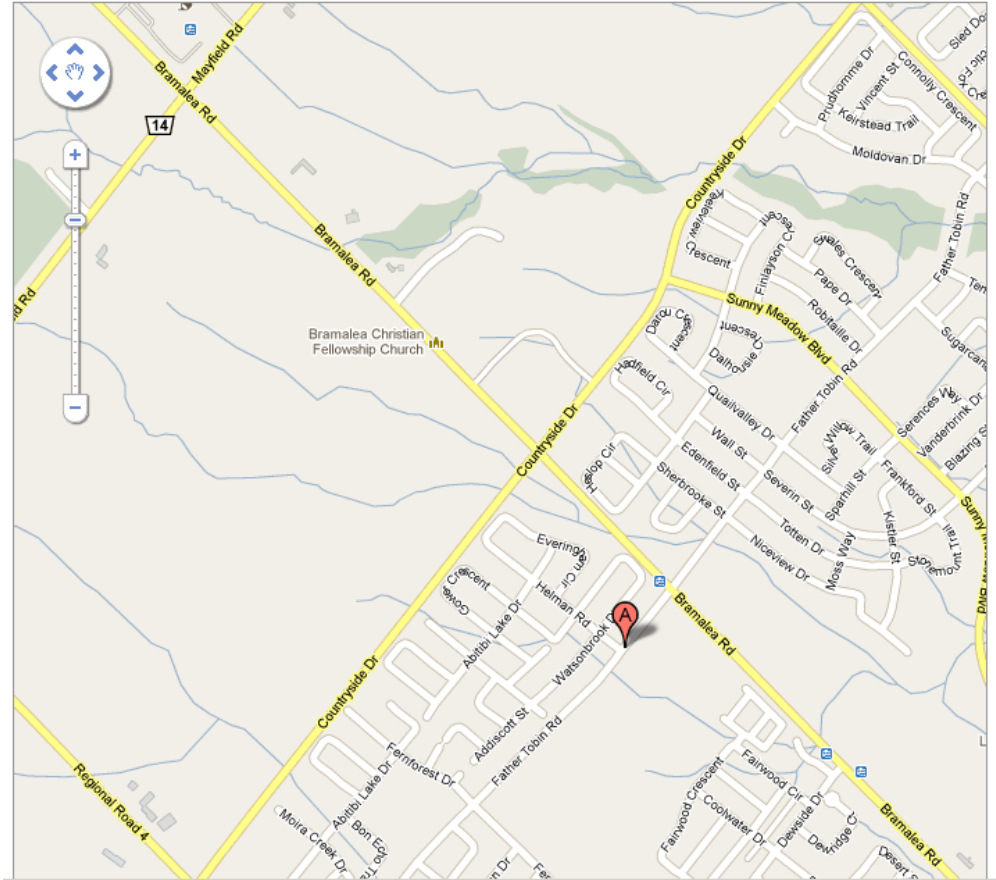
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### Directions: Louise Arbour S.S.

Directions:



\* Louise Arbour S.S. is West of the Bramalea Rd between Countryside Dr and Sandalwood Pkwy E (410 & Sandalwood area).

### Address:

365 Father Tobin Rd, Brampton, ON L6R 0R4



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### Judges Itinerary

The **Peel Regional Science Fair** will be held at the Louise Arbour S.S. in Brampton on **April 14 & 15** (details below). Many schools have registered from the Public and Separate school boards and private schools in the Region of Peel. We are looking for judges to evaluate students and their projects. Students are competing for monetary prizes, medals and certificates of achievement. The best projects from our region will be travelling to Charlottetown, PEI to compete at the Canada Wide Science fair.

Judging at a regional level is an excellent opportunity to work with students who are interested in the field of science. This is an excellent professional development experience as you will be able to evaluate student projects with your peers as well as people in industry. Lunch is provided. Interested judging volunteers please fill out the online registration using the link at the bottom of this page. Please respond before **April 1, 2012**.

**Date: Saturday, April 14, 2012**

#### Time:

12:00 - 1:00 pm Registration and judge's preview of assigned projects - no students present

1:00 - 2:00 pm Judges lunch and briefing

2:00 - 5:00 pm Judging of assigned exhibits with students present

Note: Judges marks are compiled and awards will be determined based on these marks. The selection of the Canada Wide Science Fair Team is chosen from the Gold Medal winners.

### Judge Registration

Please fill out the online registration form at [www.peelscience.ca](http://www.peelscience.ca) by

**April 1, 2012**. Early registrations will be accepted. Registration opens **February 1, 2012**.



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