North Bay Regional Science Fair
Project guidelines

The purpose of this document is to provide general project guidelines for participants entering projects in the North Bay Regional Science Fair**. Note that winning projects moving on to the Canada Wide Science Fair (CWSF) must satisfy all Rules and Regulations pertaining to the CWSF (some of which may not be requirements for the regional fair)**.

Detailed Youth Science Foundation (YSF) policies that govern the CWSF can be found at www.ysf.ca/resources-policy.html

The project display regulations that follow are general in nature and should cover the majority of projects found at the regional level. This document does **NOT** completely address the following special issues which are governed by detailed YSF guidelines:

- **Use of Firearms**
- **Use of Hazardous Materials (ex. harmful chemicals, chemical reactions or explosives)**
- **Use of Hazardous Equipment (ex. High voltages, harmful machinery, dangerous heat sources, pressure vessels)**
- **Projects involving bio-engineering, biotechnological investigation or biological experimentation – Refer to section 7.**
- **Projects involving the use of human participants in research - Refer to section 8**
- **Projects involving the use of Animals (vertebrate or invertebrate) - Refer to section 8**

ALL PROJECTS INVOLVING THE PARTICIPATION OF HUMANS OR THE USE OF ANIMALS, WHERE THERE IS NON-TRIVIAL RISK, REQUIRE APPROVAL **BEFORE EXPERIMENTATION IS STARTED**.

In some cases specific forms need to be submitted and pre-approval of the project is required **BEFORE** experimentation begins, in order to ensure that YSF requirements have been met. In these cases **failure to obtain proper approval** could result in a project **not** being allowed entry into the regional and/or **national fair**.

Contact Information:

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NBRSF Rules and Regulations:

1 Display dimensions

Backboards, title boards, presentation and prop material and all display equipment must fit entirely within the following dimensions:
i) 1.2 m wide, 0.8m deep and 3.5 m high (measured from the floor)
ii) No portion of the display shall project into any aisle

2 Backboard and Display Materials

NBRSF recognizes that corrugated cardboard backboards are commonly used at the Regional Science Fair. However, please note that these are **not** acceptable at CWSF should those students be selected to attend CWSF. Please refer to the attached "Backboard policy for Projects attending Canada Wide Science Fair" that will apply to projects selected to attend the CWSF.

2.1 It is preferable that backboards and title boards be constructed of the following materials:
i) Wood products and dimensional lumber at least 6 mm (0.25 inch) thick - Includes fibreboard, hardboard, masonite, particleboard, plywood
ii) Metal
iii) Plexiglas/Acrylic

2.2 Papers presented on the exhibit table must be secured in a binder, Duo-tang, presentation folder, plastic sleeve or other appropriate enclosure.

3 Fire Safety

3.1 Operation of an open flame, candle, torch or any other heating device is not permitted.
3.2 Smoking is not permitted in the exhibit area.
3.3 It is preferable that packing material (loose paper, foam, etc.) not be stored under tables, however, any materials kept under project tables shall be kept in an organized fashion, confined to a backpack or box and kept clear of extension cords and/or power bars.

4 Electrical Safety

4.1 Electrical cords shall have a 3-wire conductor with ground and must be CSA approved and in good repair.
4.2 Power bars, lighting and other electrical devices shall be CSA approved.
4.3 Dry cells (Alkaline, NiCad, NiMH, LiIon, etc.) and sealed lead-acid batteries (gel cells) may be used. Wet cell batteries (car, motorcycle, boat, etc. lead acid batteries) are not permitted.
4.4 Any modification to an electrical device negates the CSA approval. Electrical devices constructed by entrants must comply with the following requirements to be approved for display.
i) Electrical devices must be protected by a non-combustible enclosure.
ii) An insulating grommet, or some other suitable insulating material, is required at the point where electrical service enters an enclosure.
iii) Electrical devices shall use as low a voltage as possible.
iv) The electric current must be limited so as not to cause any danger or discomfort if the terminals are touched.
v) A pilot light should be used to indicate when power is on. If the main power for the device is supplied by a plug bar with a power on indicator light this will be acceptable.

As they cannot be CSA approved, these devices may only be connected and operated during judging.

5 Structural and Mechanical Safety

5.1 Exhibits must be sturdy, self-supporting and sufficiently stable to prevent accidental tipping.
5.2 Sharp edges or corners of prisms, mirrors, enclosures and glass or metal plates that may be contacted by the public must be removed or protected to prevent injury.
5.3 Dangerous moving parts, such as belts, gears, pulleys and blades, must be provided with a guard to prevent access to the moving parts.
5.4 Special requirements pertain to projects involving boilers and/or pressure vessels. Contact the NBRSF safety coordinator if considering a related project. Pre approval may be necessary.
5.5 Compressed gas cylinders shall not be displayed unless they are uncharged (i.e., empty).
5.6 Moving exhibits (e.g., radio-controlled vehicles, robots) shall be restricted to the regulation display space. The NBRSF may, at its discretion, provide an area to safely demonstrate projects that require more than the regulation display space. Please contact the NBRSF Safety Coordinator if you will require additional space to demonstrate your project.

6 Chemical Safety

6.1 The following materials shall not be displayed:
i) Flammable, toxic or dangerous chemicals
ii) Prescription drugs and over-the-counter medications
6.2 Photographs or empty packages of prohibited materials may be displayed.
6.3 The display of chemicals is prohibited; however, other substances can be used to simulate chemicals for display purposes. For example:
i) Table salt can be used to simulate many chemicals, such as ammonium nitrate.
ii) Water can represent alcohol, ether and many other liquids.
iii) Molasses can be used to simulate petroleum products.
6.4 When chemicals are simulated, they should be identified with the name of the substance they represent, preceded by the word “simulated”.
6.5 The total quantity of liquids displayed at a project shall not exceed 1 liter. Photographs and/or video should be used to demonstrate processes requiring larger quantities of liquid.

7 Biohazards

The NBRSF reserves the right to disallow the display of any substance that it suspects could pose a potential health risk. It is highly recommended that students do **NOT** display any biological substances. It is preferable to use photographs of any biological substances to document and present experimental procedures and results. **Projects will not be penalized in any way for using photographs and simulated substances in place of actual experimental material.**

7.1 Display of the following materials will be allowed if they are displayed within a non-breakable (ex. Plastic) container the top of which has been taped shut to prevent the container from opening. If it is unclear whether the substance could pose a hazard, the NBRSF may ask for a letter from the supervising teacher identifying the substance and qualifying that it is non-hazardous.
i) Plants or plant tissue
ii) Soil containing organic material
iii) Cultures – it is preferable that photographs or simulated cultures are used.

7.2 Display of the following materials is prohibited:
i) Biological toxins
ii) Cell or tissue samples including blood and blood products, except on sealed microscope slides, which may be displayed

7.3 Projects involving recombinant DNA, animal viruses and investigation of live tissue should refer to the YSF policy document 4.2.2, **Recombinant DNA and Biotechnological Safety,** and contact the NBRSF Safety Coordinator.

8 Human Subjects, Animals and Animal Parts

ALL PROJECTS INVOLVING THE PARTICIPATION OF HUMANS OR THE USE OF ANIMALS, WHERE THERE IS NON-TRIVIAL RISK, REQUIRE APPROVAL BEFORE EXPERIMENTATION IS STARTED. As well, YSF has detailed requirements pertaining to the use of vertebrate animals or animal parts (organs, tissues, plasma, etc.) in science fair experiments. Review YSF policy at www.ysf.ca/resources-policy.html or contact the NBRSF Safety coordinator for more information about any items listed below.

Failure to obtain proper approval could result in a project not being allowed entry into the regional and/or national fair.

8.1 The project display may include pictures of participants if prior permission has been obtained.

8.2 Projects dealing with forensic science topics must preserve the anonymity of any human victims, and project displays must avoid sensational or gratuitous, macabre images.

8.3 The only parts of vertebrate animals that may be displayed are those that are either naturally shed by an animal or parts properly prepared and preserved. For example, porcupine quills (safely contained), shed snake skin, feathers, tanned pelts and hides, antlers, hair samples, skeletons and skeletal parts are permissible, while cell and tissue samples are not, as indicated in 7.2 ii).

8.4 Use of invertebrate animals is generally acceptable however similar ethical issues pertain to all living animals and consideration should be given to the scientific and educational value of study being undertaken. The NBRSF follows ethics guidelines that are consistent with YSF ethics policies and reserves the right, at its discretion, to disallow a project involving experimentation on invertebrates that is senseless or of questionable scientific or educational value.

8.5 Live animals (microorganisms, invertebrate and vertebrate) shall not be displayed.

8.6 Photographs of animal parts or organs may be used on the display and in the Project Report; however, participants must be aware that others may find some photographs offensive. If photography is deemed inappropriate, the NBRSF may ask that it be removed or replaced.

9 Firearms, Hazardous Materials and Equipment

9.1 Firearms (even if appropriately locked), ammunition, dangerous goods or explosives shall not be displayed. The manner in which such materials were used in a project may be conveyed through text, photos, video, computers or simulation.

9.2 Images of humans or animals that have been injured by the use of firearms or explosives shall not be displayed. Such images are deemed unsuitable for general public viewing and do not contribute to the scientific value of a project.

9.3 X-ray or hazardous radiation-producing equipment may be displayed but must not be operated at any time.

9.4 Radioisotopes or compounds containing radioisotopes at activities above normal background shall not be displayed.

Note: This policy applies only to those students chosen to attend the Canada Wide Science Fair.

North Bay Regional Science Fair
Backboard policy for Projects attending Canada Wide Science Fair
issued April 22, 2004

1. All participants from the North Bay Regional Science Fair (NBRSF) chosen to attend the Canada Wide Science Fair (CWSF) shall use the folding backboards provided by the committee. Except as noted below in #9.

2. The backboards meet airline regulations for checked baggage and shall be transported as part of the student's checked baggage allowance on the flight to the CWSF.

3. The backboards are provided to the students for use at the CWSF only and shall be returned in good condition within two weeks of the completion of the fair.

4. The backboards are provided painted in gloss black enamel. The backboards shall not be painted any different colour. However, if the black finish is damaged upon removal of the display materials it shall be properly refinished.

5. All paper materials to be displayed on the backboard shall be laminated. The preferred system would be for the students to laminate 8 panels 15-3/4" x 32". The latter also provides for the ability to modify the background colour if the students so choose.

6. If for display purposes you wish a photo or other component to be raised from the surface a duplicate copy must be included in the flat lamination. The raised portion can then be accomplished using a piece of wood at least 6 mm (0.25 inch) thick, Sintra, InteFoam, Intecell, Coroplast Firewall F.R.B., or Plexiglas/acrylic. However, for anything other than wood a seperate sample must be brought to the CWSF of the product that bears a factory-attached UL-94 label.

7. All laminated materials shall be attached to the backboards with inexpensive two-sided carpet tape on all edges such that no air can get behind the laminated item.

8. A duplicate set of display materials shall be packed in the student's carry-on baggage for use in event that the displays get lost by the airline.

9. If a student has a previously prepared backboard that meets the CWSF safety regulations, meets all airline regulations for checked baggage and meets criteria 5 and 6 above, then the committee will allow the student to take their own backboard.

10. Backboards will be provided to the students at least two weeks prior to the CWSF departure date.

11. One week prior to the CWSF departure date, a mandatory meeting will be held for the students to show their backboards and completed project panels (including notebook or logbook) to the Chair of NBRSF and the two chaperones for approval and a local safety review. (This is a CWSF rule).