# Science Fair – 2020
# The 59th Vancouver Island REGIONAL SCIENCE FAIR

This document is intended to provide teachers, students and parents with all of the information necessary to prepare and participate in the 2020 Vancouver Island Regional Science Fair. **It is important that you read all of the material in this document prior to beginning your project** - violations of the rules and regulations could possibly lead to your project being disqualified. This document will change slightly from year to year so it is important that you download the current year's document each year you intend to participate.

The Vancouver Island Regional Science Fair is one of 13 Youth Science Fair of Canada sanctioned fairs held each spring in British Columbia. It is organized by a group of volunteers that comprise the Society for the Advancement of Young Scientists (SAYS) and is held in the Elliott Building at the University of Victoria. The object of the fair is to foster scientific inquiry among young people and to provide young scientists an opportunity to demonstrate their findings. Students from southern to mid-Vancouver Island areas are invited to attend. Approximately 80 to 150 students participate each year from grades 4 through 12. There are approximately 80 judges from the scientific community around Victoria (including scientists, engineers, professors, graduate students, lab instructors, and science teachers) that volunteer their time to judge the students. Each student will see 3 to 4 judges during the judging. The overall top students are selected to advance to the **Canada Wide Science Fair**. It is the objective of the organizers and the judges that the students should enjoy and learn from every stage of doing their project and that through participating in the fair all students are successful regardless of the awards they may achieve.

Students should attempt to begin their projects (study, experiment or innovation) in the summer or fall prior to the spring fair (leaving it until early spring will likely be too late). Teachers and students should read the guidelines in this document prior to beginning the project to be sure that they are following the fair regulations. The students or their school on their behalf will be required to pay an entrance fee of **$25.00 per exhibit**. Students will be required to produce a summary report (no more than 5 pages in length) as well as an exhibit explaining their project that will be displayed at the fair (guidelines for each of these can be found in this document).

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For more information and updates on the fair please visit our web site:
**http://www.virsf.ca**

# Fair Dates - 2020

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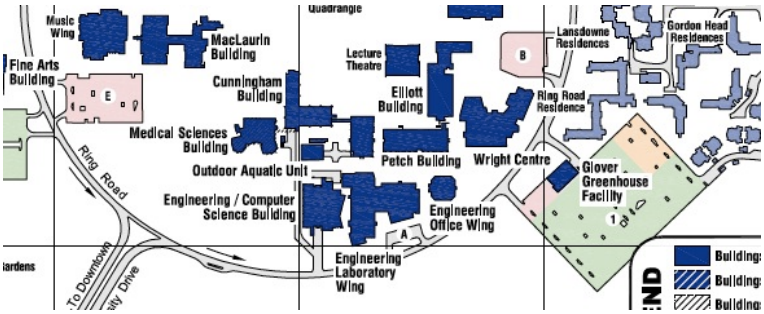
| Thursday, **Feb 27**, 2020 4.30 pm | **Deadline for On-line Registration**. This includes student information, project title, etc.<br>*No project applications will be accepted after this deadline for registration – **NO EXCEPTIONS*** |
| Thursday, **March 12**, 2020 4.30 pm | **Due date of registration package**. This includes your registration form, permissions and declaration form, two (2) copies of your summary report (plus email a PDF copy to rmmarx@uvic.ca ) and the $25 registration fee.<br>*No project will be approved if the registration package is received after this date – **NO EXCEPTIONS.*** |

The Fair will be run in the lobby of the **Elliott Lecture Wing** (red block on map below), **April 5 - 6**, at the **University of Victoria**. Best drop-off point: Parking Lot **B**. Best place to park: Parking Lot **1**.

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| **Sunday, April 5, 2020** | 8:00 - 9:30 | **Exhibit Setup**. (Your exhibit is set-up by 9:30 am) |
| | 9:45 - 10:00 | **Welcome** to Parents and Students – Wright Centre Room B150 |
| | 10:00 – 11:45 | **Judging – Part I**. Each entrant will see three or more judges. |
| | 12:00 – 1:00 | **Break.** Entrants are encouraged to look at other Science Fair exhibits |
| | 1:00 – 3:00 | **Judging – Part II**. Each entrant will see three or more judges. Judging for Specialty Awards |
| | 1:00 – 4:30 | **Public Viewing**. Entrants must be at their exhibits. |
| | 3:30 – 4:30 | **Judging – Part III**. Follow-up judging of selected exhibits.<br>Judging for Specialty Awards |
| **Monday, April 6, 2020** | 9:00 - 10:00 | **Special Events** for participants – Wright Centre Room B150 |
| | 10:00 - 12:30 | **School tours** and public viewing. |
| | 12:30 – 1:15 | **Awards Preparation:** Student lunch<br>Proceed to MacLaurin Building after 1:15. |
| | 1:30 - 3:00 | **Awards ceremony** in room A144 of the MacLaurin building. |
| | 3:30 | **Overall Winners** meet with SAYS officials to receive CWSF forms |
| | 4:00 | Exhibits **dismantled** by 4:00pm. |

**Parents and Teachers**: Only entrants and judges are permitted in the building during the judging. In order to ensure that the participants are judged fairly, everyone else must leave the building.

**Parents:** Students will be required to supply their own **lunches** each day they are on site. Vending machines are also available within the building for snacks.

**Students:** During the judging and at times during public viewing there may be periods when you will be waiting. It is a good idea to bring a book to read or something to work on during this time.

# Safety Regulations

Teacher sponsors are responsible for ensuring the safety of the exhibits and the appropriateness of the experimentation that is conducted by the student. The following is a summary of pertinent rules and regulations regarding science fair project exhibits. The VIRSF committee has the complete authority to request that the exhibit not be activated during the fair, and if necessary may demand the withdrawal of an entry from the fair.

**Fire Safety**
Fire hazardous materials shall not be displayed with the exhibit. No open flames or other heating devices are allowed at the exhibit.

**Chemical Safety**
If projects involved chemicals that may be harmful if spilled or tampered with (including prescription drugs or over-the-counter medication), then the display should use harmless substitutes in sealed containers or photographs of the material for display purposes only. Simulated chemicals can be used for display purposes such as table salt to represent a drug, water to represent alcohol, or molasses to simulate a petroleum product. In such cases they should be preceded by the word "simulated" with the actual contents indicated. *Again, exhibitors do not have to actually do their projects for the judges; they only have to report on it.*

**Electrical Safety**
• All electrical live parts must be safely contained.
• All homemade devices need proper grounding with a three-prong plug.
• X-ray equipment or any other equipment capable of emitting high energy radiation should not be operated.
• Projects involving voltages above 10kV should be considered to pose a potential hazard, and can not be activated during the fair.
• Lasers may only be operated during judging if requested by a judge. Lasers may not be operated at any other time during the fair.

**Animal Experimentation**
• Live vertebrate animals (mammals, birds, fish, reptiles etc.) **will not be displayed** in the Fair.
• The only parts of vertebrate animals that may be presented are those that are naturally shed or parts that are properly preserved. Examples are snake skin, hair samples, and skeletons.
• The results of experiments conducted on living vertebrates may be displayed, providing the animal care form of the registration is completed and the teacher sponsor recognizes that he/she is solely responsible for ensuring all humanitarian considerations have been applied during the work.
• No experiments deleterious to the health or physical integrity of the animals may be carried out. Chick embryo studies that involve external intervention with drugs or other chemicals may not be made.
• Detailed copies of the animal care rules may be obtained from the Fair Chairperson, or by contacting your local chapter of the SPCA for general humane treatment guidelines.

**Microorganisms / Bio-Hazards / Drugs**
The following hazardous biological materials may not be displayed:
• Radioisotopes at activities above normal.
• Biological toxins
• Microorganism cultures
• Cells or tissues infected with viruses
• Cells or tissues including blood, except on sealed microscope slides which can be displayed.
• Human body fluids (blood, urine, saliva, etc.)
• Open containers of any organic matter (i.e. food)
• Illegal or street drugs are prohibited

**Human Subjects**
If your exhibit involves the use of volunteer human subjects in any manner (collection of information, physical testing, questionnaires, etc.) then **you must obtain their prior permission**, explaining fully what you will expect of them and how you will use the results of the tests. You must also present the results in such a way that the individual's privacy is guaranteed. No experiments, which may be deleterious to the health or physical integrity of the subjects, may be carried out.

*If your project involves **Animal Experimentation** or **Human Subjects** – you are **strongly advised** to check the Ethics Pages (http://www.ethics.youthscience.ca/node/835) on the Youth Science Canada site.*

# Written Report

**Two copies** of the summary report are to be included with the Regional Science Fair registration forms. Please secure reports with a single staple; *do not* enclose reports in folders.

**Report Requirements**

A written summary of the project intended to present a brief overview of the project and not be comprehensive.

- Must be written by the student
- Cannot exceed five (5) pages plus a cover page. *Reports in excess of this limit will be penalized.*
- Paper size = 22 × 28 cm size (approx 8.5 × 11 in), double-spaced, 12 pt. font, typewritten on one side only (or the handwritten equivalent thereof) including all graphs, diagrams, etc.

Use a simple format including:

- **NO COVER PAGE** (This is a change from previous instructions)
  Please – no duotangs or other covers. A staple (or paperclip) is sufficient to fasten your report.
  Please number all your pages
- **First Page:** At the top – include the project title, student name(s) and grade(s), and school name
- **Pages 2-5:** In the footer – include project title, student name(s) and grade(s), and school name

  CONTENT
- **INTRODUCTION** (stating the aims and objectives of the work)
- **PROCEDURE** (a summary of the significant materials and methods used in the study)
- **RESULTS** (a summary of the results/observations)
- **CONCLUSIONS** (a summary of the conclusions)
- **ACKNOWLEDGEMENTS** (acknowledging help received and references)

*There is no need to include tables, graphs and raw data in the report. These items should be with the project.*

# Project Exhibit

**Backboard Building and Design**
The backboard is the main way that you communicate your project to viewers. It should be interesting, attractive and informative, clearly conveying your project and results.

The maximum **backboard dimensions** are:

**1.2 m wide** (120 cm / 3' 11")
**0.8 m deep** (80 cm / 2' 7")
**2.0 m high** (200 cm / 6' 6")
[or 3.5 meters total height (350 cm / 11' 5") from floor]

*Your display does not have to use the table provided. Students whose board sizes are larger than the above dimensions **may be disqualified**.*

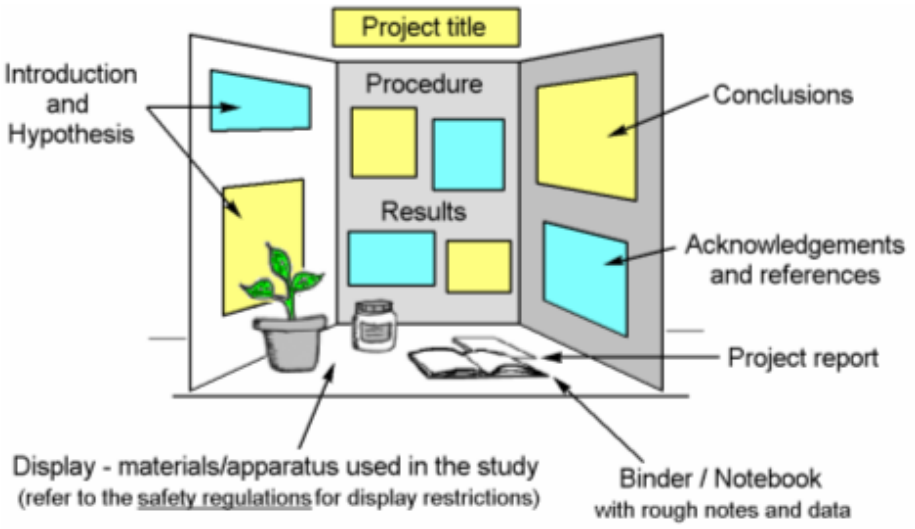
**On the Backboard**

- Headings should stand out.
- All text should be clearly written and legible from 1.5 to 2 metres away.

- Graphs, charts, and diagrams need to be labeled and clearly drawn.
- In the display, include some apparatus so you can demonstrate key components of the experiment to judges and viewers.
- Also include any data books you used, your project report, and sources used in your arguments such as scientific papers and books.

**Example of a Project Exhibit**

Your exhibit does not have to look exactly like this (e.g. you may not want a separate title board) but you should include the key parts indicated and it should have a clear and logical flow.




**Backboard and Title Board Material (Fire Safety)**

Backboards and title boards must be constructed of the following materials:

1. Corrugated Cardboard - Corrugated cardboard backboards (such as those available at art supply stores) will be allowed at the Vancouver Island Regional Science Fair. However, students chosen to go the Canada Wide Science Fair must have a backboard constructed of the material(s) listed below.
2. Wood products and lumber at least 6mm (0.25 inch) thick (includes plywood, fiberboard, hardboard, Masonite, particleboard and other Class III or C materials).
3. Metal
4. Plexiglass/ Acrylic
5. Sintra, Intecell, Intefoam (not foam board) - These are trade names for PVC plastic foam board up to 12 mm (0.5 inch) thick, which are chemical resistant and fire retardant.
6. Flame-Rated Corrugated Products - These are made of factory-treated, fire-retardant corrugated cardboard. Must display certification mark of "WH (Warnock Hersey) Listed Fire Retardant Paper Product" (UL-94 equivalent).
7. Any material that meets UL-94 standard bearing factory-attached label - ie. Coroplast Firewall F.R.B. - Fire Resistant Board.

***Do not use the following to construct your backboard or title board:*** *Foam Board, Styrofoam and paper products such as Art Board, Plastic, Coroplast (except Firewall F.R.B.).*

Backboards can be painted with any common paint.

**Display Material (Fire Safety)**

1. Presentation information including text, graphics, photographs and other data on the backboard must be printed on **bond (laser, inkjet, or standard copier)**, **photographic** or **laminated paper (i.e. construction paper)**.
2. **Construction Paper, Bristol board** and **papers** listed above (under 1) may be used to outline or border presentation information, or to add decorative elements to the backboard.

3. Display material (listed above) should be attached to the backboard with an adhesive so it makes a solid contact over the complete surface.
4. Anything raised 2mm above the surface of the backboard must be constructed of an approved backboard material.

# Entrance Categories

There are four grade divisions in the Regional Fair:

**Elementary**: Grades 4 and 5
**Intermediate**: Grades 6 and 7
**Junior**: Grades 8 and 9
**Senior**: Grades 10,11 and 12

There are six **exhibition categories** in the Vancouver Island Regional Science Fair:

**Engineering and Computer Sciences** - The design and fabrication of useful devices or the investigation of properties of materials. Software or hardware development and application.
**Life Sciences** - Aspects of life or lifestyle of non-human organism including biology, zoology and botany.
**Health Sciences** - Biomedical and/or clinical aspect of human life or lifestyle and its translation into improved health for humans, or more effective health services/products. Related to human aging, genetics, cancer research, psychology, etc. Projects involving animal research that have a direct application to humans are included in this division.
**Biotechnology** - the application of knowledge of biological systems to solve a problem, create a product or provide a service in one of three subject fields: crop development (agriculture, horticulture, silviculture-forestry), animal science (animals involved as pets, in agriculture, aquaculture, genetics), genomics and microbials.
**Earth & Environmental Science** - Planetary processes, relationships between organisms or between an organism and its environment. Topics including ecology, geology, mineralogy, oceanography, limnology, climatology, geography, pollution, resource management.
**Physical and Mathematical Sciences** - Physics, chemistry, or mathematics. May also include astronomy.

There are three **project types** (see the judging guidelines on the website for each of these):

**Experiment** - Traditionally the most common type of project. Involves scientific experiment to test a specific hypothesis in which variables are controlled.
**Innovation** - Involves the development and evaluation of new devices, models, techniques or approaches in fields such as technology, engineering, or computers (software and hardware).
**Study** - Involves the collection and analysis of data from other sources to reveal evidence of a fact, situation, or a pattern of scientific interest.

*Note:* Both single-student and dual-student projects are acceptable. Participants must be aware, however, that Canada Wide Science Fair regulations permit only seven students to be sent to represent this region. The Canada Wide Science Fair rules REQUIRE the participation of BOTH students. Should a dual project be ranked among the top exhibits, this would mean that less than the normal number of seven projects would be sent. We encourage that all projects submitted at the Grade seven level and up be single projects rather than dual projects.

# Registration

Registration in 2020 will be online at http://web.uvic.ca/~virsf/reg.php. It involves filling out and submitting an online form. Registration will be available from about January 31, 2020.

In addition to filling out the online form, you will also need to mail the organizers the following:

1. Two (2) copies of the written summary report PLUS Email a PDF copy to rmmarx@uvic.ca
   NOTE: The PDF file name must begin with the student's "*lastname_firstname*"
2. Signed permission and declarations form printed from the registration website above.
3. Registration Fee (**$25.00 per exhibit** - all grades)

**NOTE:** **Thursday, March 12, 2020 4.30 pm** is the **Due date of the registration package.**
This is just prior to the School Spring Break.

**Mail to:** Science Fair
c/o University of Victoria Chemistry Office
PO Box 3065,
Victoria, BC V8W 3V6

**Courier to:** Science Fair
c/o University of Victoria Chemistry Office
Elliott Building Room 301
Finnerty Road
Victoria, BC V8P 5C2

8 January 2020