

Science Fair – 2024

The 63rd Vancouver Island REGIONAL SCIENCE FAIR



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Introduction

This document is intended to provide teachers, students and parents with all of the information necessary to prepare and participate in the 2024 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 to have the most recent version.**

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 at the University of Victoria. The object of the fair is to foster scientific inquiry 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 - 12. There are approximately 80 judges from the scientific community (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.

For more information and updates on the fair please visit our web site:

<http://www.virsf.ca>

Important Fair Dates – 2024

February 6 – Project Registration Opens

February 16 – Deadline for applying for a *Request for Ethics Ruling*

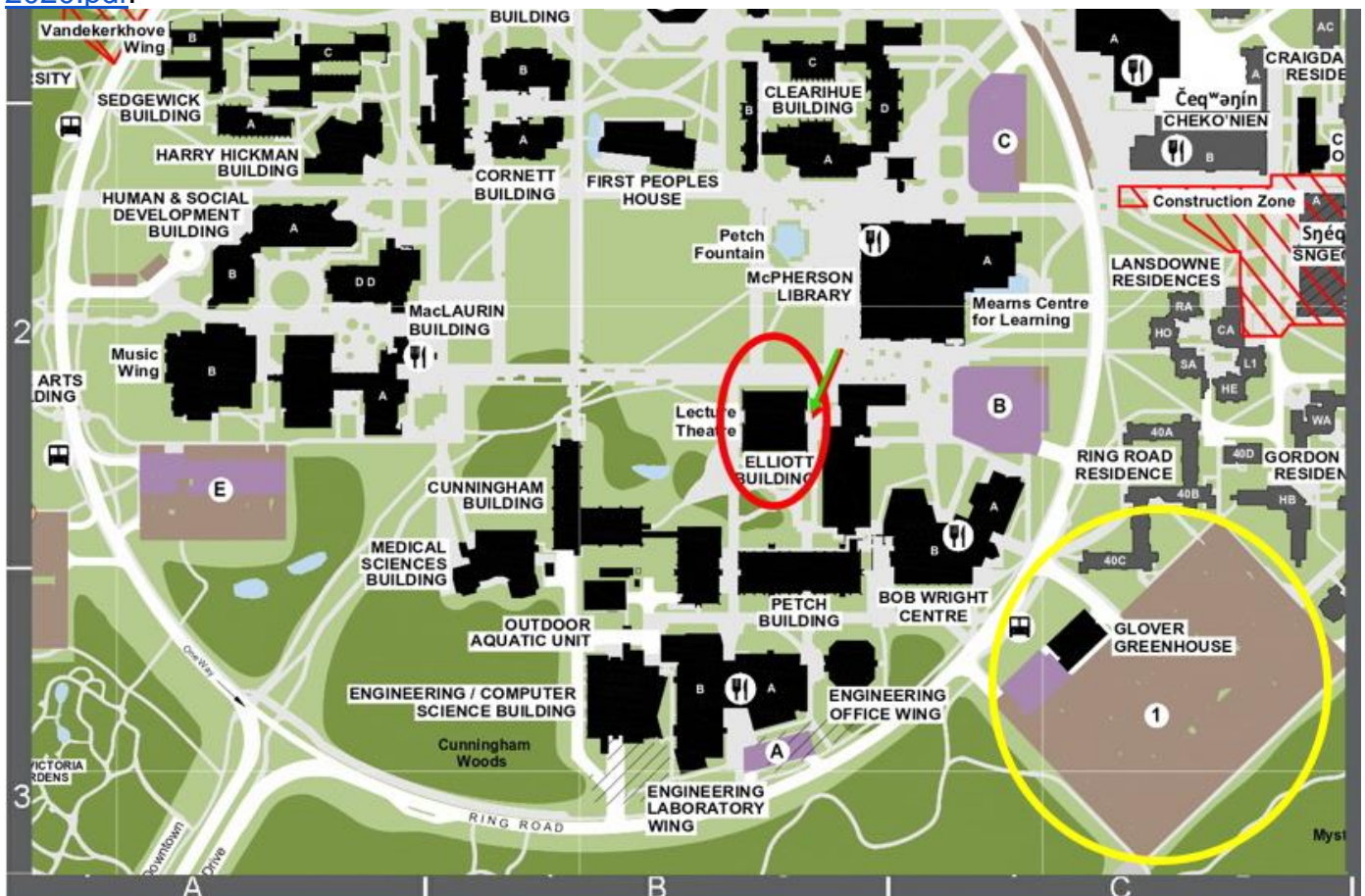
March 7 – Deadline for Registration. No project applications will be accepted after the deadline.
NO EXCEPTIONS

April 4 – Deadline for Fee Payment and Submission of complete Project Package. The Project Package includes one (1) copy of your Project Board summary (email a PDF copy to rmmarx@uvic.ca), signature form, and the \$26 registration fee. *No project will be approved if the registration package is received after this date – **NO EXCEPTIONS***

April 28 – Science Fair located in the Elliott Lecture Wing at the University of Victoria.
– Students present their projects to Judges.

April 29 – Science Fair open to public April 28, 1 pm – 4 pm, April 29 10 pm – 12:30 pm.
– Awards Ceremony in the MacLaurin Building at the University of Victoria.

The Fair will be run in the Elliott Lecture Wing (red circle on map), **April 28-29**, at the **University of Victoria**. Closest parking is in lot 1 (yellow circle). Please refer to the University of Victoria Parking Map for better detail. <https://www.uvic.ca/security/assets/docs/parking-map-2020.pdf>.



Science Fair Schedule

Sunday, April 28, 2024	8:00 - 9:00	Exhibit Setup. (Set-up by 8:30 am – you MUST stay for Safety Check)
	9:45 - 10:00	Welcome to Parents and Students – Elliott Room 168
	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. All entrants will see additional judges. Judging for Specialty Awards
	1:00 – 4:00	Public Viewing. Entrants must be at their exhibits.
	3:00 – 4:00	Judging – Part III. Follow-up judging of selected exhibits. Judging for Specialty Awards
	Monday, April 29, 2024	9:00 - 10:00 Special Events for participants – Chemistry Show in Elliott Room 168
	10:00 - 12:30	School tours and public viewing.
	12:30 – 1:15	Awards Preparation: Student lunch time 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. 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. Bring a book to read or something to work on during this time.

Registration Fee: The students or their school on their behalf are required to pay an entrance fee of **\$26.00 per exhibit**. Follow the instructions on the VIRSF website in order to pay.

Canada Wide Science Fair: In 2024 Canada Wide Science Fair will be in Ottawa May 25 – June 1. The registration deadline is April 30. Overall winners of the VIRSF who are nominated to go to the CWSF **and their parents** must remain after the Award Ceremony to complete the registration for the CWSF. Students must indicate if they are able to attend the CWSF on their VIRSF registration application.

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. Voltages 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** (<https://mystemspace.ca/start-a-project/safety-and-ethics/>) on the Youth Science Canada site.

SAFETY & ETHICS

Follow the ethics guidelines for your project. Before starting a project, all students should be familiar with the Safety and Ethics guidelines. Note: In the PDF there are some links that do not work (a Microsoft problem). Use the hard links shown.

You will find the 2 pages related to ethics on our website useful:

Safety & Ethics: https://www.virsf.ca/?page_id=204

Useful Links/Ethics: https://www.virsf.ca/?page_id=770

The following are found on the *Useful Links/Ethics* page

If your project involves human participants EVERY participant must consent. Use these forms

(1) Consent Form for human participants - [Editable](#) [Blank Form](#) [Example Form](#)

For projects involving **Animal Experimentation, Microorganisms or Human Subjects** you must make a

(2) [Request for Ethics Ruling](#) (editable form) on the *Useful Links/Ethics* page

Email ruling requests to the Fair Chair: rmmarx@uvic.ca

You must request the Ethics review by February 16, 2024

The following are useful external websites for safety and ethics guidelines at Science Fairs in Canada.

- mySTEMspace website: [Safety & Ethics](#)
- Science Fair Foundation of BC website: [Guide to Science Fair Projects](#)
- ^a Youth Science Canada website: [Archived ethics pages](#)

Written Report (Project Board) – to be submitted by email

One PDF copy of the summary report per exhibit is to be included with the Regional Science Fair registration forms. The PDF must follow the name format “*lastname-firstname report.pdf*”.

Report Requirements

The written summary of the project intended to present an overview of the project and not be comprehensive. Look at the [Project Board page](#) on the VIRSF website (under *Students* menu item).

- Must be written by the student
- Should not exceed five (5) pages. *Reports in excess of this limit may be penalized.*
- Paper size = 22 × 28 cm size (approx 8.5 × 11 in), double-spaced, 12 pt. font, typewritten on one side only including all graphs, diagrams, etc. Save as a PDF file.

Use a simple format including:

- **COVER PAGE** – include Project Title, Student Name(s), School Name. Please number all your pages in the footer
- **First Page:** **At the top** – include the project title only
- **Pages 2-5:** **In the footer** – include project title and page number only

CONTENT

- **TITLE PAGE/ABSTRACT** (state the project aims / objectives, summary) (100 words)
- **WHY:** (purpose, hypothesis and background information) (250 words)
- **HOW:** (How you performed your experiment or developed your solution) (300 words)
- **WHAT:** (results and conclusions) (500 words)
- **SO WHAT:** (why your results are important and what they mean) (250 words)
- **WHAT’S NEXT:** (how can you extend your project) (100 words)

You should include some tables, graphs and data in the project board.

Tables and graphs should be with the project and used appropriately on the physical Project Exhibit. Raw data should be in the notes you kept for 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")

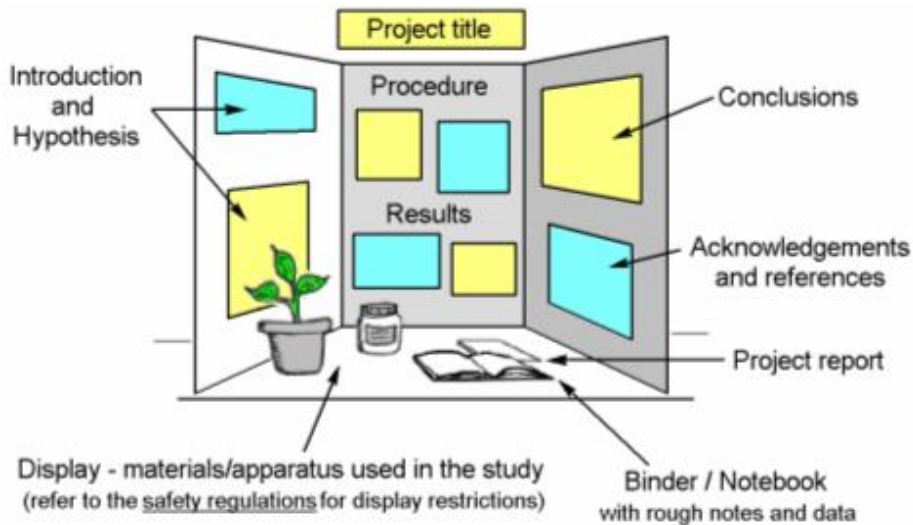
2.0 m high (200 cm / 6' 6")

[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.***

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.



On the Backboard

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

Poor Poster Example

Major Topics Covered

The concept of Electric Flux includes Gauss' Law and its relationship with electric flux and charge in a volume. There is an equivalence of Gauss' and Coulomb's Laws

18pt

- Electric fields in and near conductors involve application of symmetry principles. We will study (a) Lines of charge, (b) Flat conducting and non-conducting surfaces and (c) Spherical and cylindrical surfaces.

16pt

Font size is too small
Blocks of text are hard to read and identify the important points

Good Poster Example

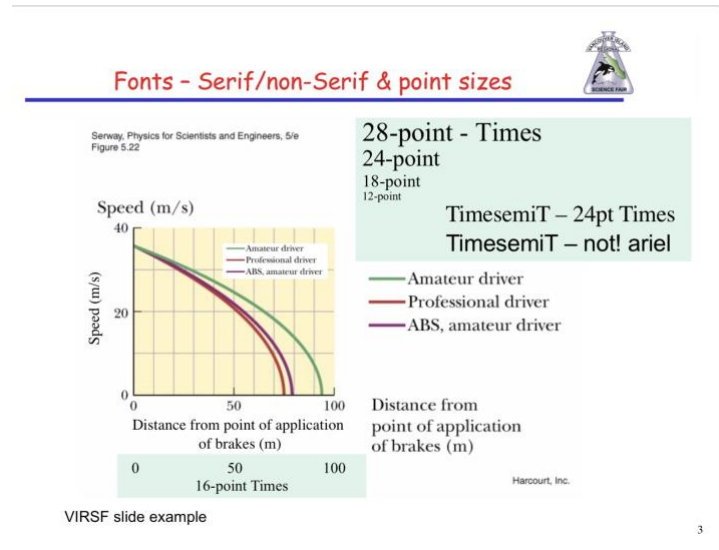
Major Topics Covered

- The concept of Electric Flux
- Gauss' Law and its relationship with electric flux and charge in a volume
 - Equivalence of Gauss' and Coulomb's Laws
- Electric fields in and near conductors
 - Application of symmetry principles
 - Lines of charge
 - Flat conducting and non-conducting surfaces
 - Spherical and cylindrical surfaces

A mix of 24pt and 28pt fonts
Readable & Important points clearly identified

The figure below shows some options for displaying a figure. Look at the style features to separate the graph from the background, the number of ticks and labels and the text sizes. The original Curve descriptions are off to the right side and axis labels are to the right and above the graph. A different option for displaying the labels/descriptions is shown. The axis information is still clear but arguably the curve labels are a bit too small. If you include a Figure Caption, make it in a larger font size than the axis labels. On this figure 18-20 point would be OK.

To show how font size displays at different sizes on a page, examples from 12-point to 28-point are shown. Also, you can see the difference between the Times font (serif) and Arial font (sans-serif) are shown. Plus, there is a reminder in there to always check your spelling. (*Serif fonts have little embellishments at the tips of the letters*).



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 and Fee Payment

Registration in 2023 will be online. Details can be found on the [Student Registration](#) page. It involves filling out and submitting an online form. Registration will be available from about January 31, 2020.

Once you have filled out the online form including the required signatures, you will also need to email the Registration package to the organizers. The full Registration Package must contain the following:

1. One (1) PDF copy of the written Project Board Emailed to rmmarx@uvic.ca
NOTE: The PDF file name must begin with the student's "*lastname_firstname*"
2. Signed permission form as a PDF printed from the registration website.
3. Registration Fee (**\$26.00 per exhibit** - all grades)
 - payment online using the Home Page DONATE Now button or (VIRSF CanadaHelps)
 - Put the student's *lastname-firstname* in the *Write a message to us ...* box

All documents must be submitted in PDF format and mailed to rmmarx@uvic.ca

NOTE: **April 4, 2024 at 11:59 pm** is the **due date of the registration package**.
This is just prior to the School Spring Break.

If there are any issues with the fee and commuting to the 2024 Vancouver Island Regional Science Fair, please contact Dr. Rossi Marx rmmarx@uvic.ca. Please detail those concerns and a decision will be made to best accommodate if possible.