Frontenac, Lennox and Addington
Science Fair

Safety and Your Virtual Science Fair Project

FLASF expects that all projects submitted to the fair will be carried out in a safe manner. Participants must become familiar with every aspect of their project that relates to health, ethics and safety. Even though the fair is virtual in nature, this responsibility cannot be ignored.

As a guide, some general questions should be considered by participants. Specific and detailed information can be found in the references / links provided in this document.

In particular, ask yourself:

- Can I identify any aspect of my project that could cause harm?
- Do I have the knowledge required to prepare any potentially harmful aspects of my research? If not, whose help can I access?
- What safety equipment will I need? Where will I get it?
- Are there appropriate adult supervisors?
- Do I have an appropriate workspace to create my project with the necessary supervision for the location? Home? School? University? Hospital? Carefully plan.

If there is any doubt, consult the Ethics and Safety Committees of the Regional Science Fair.

Safety Coordinator: safety@flasf.on.ca
Ethics Coordinator: ethics@flasf.on.ca

Planning and Carrying out your Experiments

Experiments carried out using flammable, explosive, poisonous or corrosive materials as well as drugs, prescription drugs, medicines or biological materials and dangerous equipment such as firearms or pressure vessels should be properly supervised by an adult who understands the hazards involved. If you plan to use any of these you must follow Youth Science Canada (YSC) policies.

Human and animal testing

ALL experiments involving humans (including family or fellow students) and animals must follow YSC policies and you have to complete certain forms and submit them with your registration. Click on the **Ethics** link for more information and forms.

https://youthscience.ca/node/8445/
scroll down to **Ethical Projects - Humans and Animals**

Preparing your project presentation

Your project display at the science fair is intended to show what you did, what you found out, and what it means. The judges evaluate the work you have already done. Therefore, you do not need to demonstrate exactly what you did. You are encouraged to use diagrams, models, photos, short videos, etc to illustrate what you have done.

Avoiding spills of Liquid and Powder Samples

You must avoid spilling liquid and solid samples since this creates slipping and other hazards. Therefore the following rules apply.

- Liquids and powders must be in sealed containers except when necessary to demonstrate something to a judge.
- Containers should be unbreakable and as small as possible. Liquid containers should not exceed 1.5 liters.
- Your display must not include any apparatus that explodes, erupts, pumps liquids, solids or gases under pressure or otherwise operates in a way that can cause spills.

Chemicals

While the following chemicals are prohibited from the physical fair, this list provides a guideline to issue requiring special attention even for project development in a virtual fair::

- Flammable, explosive, poisonous or corrosive materials
- Drugs or medicines
- Biological fluids (eg blood, etc)
- Biological toxins
- Radio-isotopes or compounds containing radio-isotopes at activities above normal background.
- Any materials requiring special protective equipment for handling (such as masks, gloves, eye protection) as specified in MSDS or WHMIS documents.

See for example:

EHSO - Environment, Health and Safety Online:
http://www.ehso.com/msds-sds.php

Chemical Safety Software:
https://chemicalsafety.com/sds-search/

Other chemicals/materials must be displayed in such a way as to prevent accidental spills.

Plants & Animals

Live organisms (either plant or animal) must not be displayed, even in sealed containers. This includes

- bacteria,
- moulds,
- fungi,
- other microorganisms, and
- animals (vertebrate and invertebrate).

Green plants may be displayed provided (a) they are displayed in a safe manner with no danger of spills of plant or growth media and (b) the plant material and growing media comply with chemical safety requirements and liquid handling requirements.

HINT: Use photographs to illustrate the project. These are often better illustrations than the samples themselves.

Electrical

- 120 VAC equipment, including electrical power bars, supplies and cords and other 120 VAC equipment must be in good condition, and CSA approved. No modifications to 120 VAC equipment that would cancel the CSA approval are permitted. No exposed (non-insulated) 120 VAC conductors are permitted.
- "Home-made" 120 VAC equipment (for example wired using junction boxes, wired-in switches or similar devices) and any other non-compliant equipment can be displayed but must not be connected at any time to the 120 VAC supply.
- Home-made battery powered electrical apparatus operating at 12 Volts or less are permitted and may be operated.
- Only sealed type batteries may be used.

Other restrictions

- You must not use flames of any sort in your display.
- You must not use heat sources of any kind in your project display. This includes heat lamps, hot air guns and hair dryers except when operated "cold".
- No pressurized tanks, canisters or gas cylinders are permitted in the display area.
- Only ANSI 'Class 1' unmodified Lasers or laser diodes can be operated.
- Air/Hydraulic pressure systems must be non-operational and open to the atmosphere.

This link will lead you to a page that gives detailed information on the following topics https://youthscience.ca/node/8445/and scroll down to safety.

Biosafety Practices

Boilers and Pressure Vessels

Chemistry Safety

Dangerous and Explosive Materials

Firearms and Projectiles

Safe Use of Lasers
and
Lasers

Microorganisms Safety Guide

Model Rocket Safety

Pesticides

Recombinant DNA and Biotechnological Safety

Contact Us:

If you have any questions about Science Fair safety policies or regulations, ask the safety coordinator at safety@flasf.on.ca or the ethics coordinator at ethics@flasf.on.ca.