Hydro-Québec

SCIENCE FAIR 60e

HOW TO GET A START ON YOUR SCIENCE FAIR PROJECT !

L'INDISPENSABLE

SECONDARY AND CEGEP

STUDENT HANDBOOK

A program of

RÉSEAU TECHNOSCIENCE
Together for a new scientific generation

Presenting partner

Hydro Québec

TABLE DES MATIÈRES

This is YOUR Student Handbook. It's YOUR very own guide to setting up your Science Fair project to help you get off on the right foot.

1. AM I ELIGIBLE TO PARTICIPATE IN THE SCIENCE FAIR?

You can ask your teacher to talk about the competition in class and explain how you can participate in the Science Fair.

- To compete, you must be 12 to 20 years of age and enrolled at a secondary school or college (CEGEP).
- Projects can be submitted individually or in teams of two.
- Please read the competition rules. They explain how to proceed and what you can and cannot do.

2. WHY SUBMIT A SCIENCE PROJECT?

Does science fascinate you? Are you drawn to a particular branch of science or technology? Want to learn more? If so, the Science Fair competition is for you!

Do you feel like being part of something **EXTRAORDINARY**? Why not **DARE SCIENCE** and **ENTER** the Hydro-Québec **SCIENCE FAIR**?

"The Science Fair is the foundation upon which I built my career in science. It's where I discovered my passion for scientific research and exploration … a passion that continues to inspire me. Today, as a university professor and head judge for the Super Expo-sciences Hydro-Québec, Québec final, I strive to spark a similar interest and passion in others."

Simon Girard, member of the Science Fair Alumni Community (supported by Merck), professor at the Université du Québec à Chicoutimi (UQAC) and head judge for the Super Expo-sciences Hydro-Québec, Québec Final.

"At the Science Fair, you'll discover many new perspectives in science: new facets of chemistry that you've not yet encountered or new ways to apply physics to everyday life."

Blanche Mongeon, Secondary 5 student, Montreal

"Throughout the various stages of the Science Fair, I learned about complex issues and ideas and how to better explain them to others."

Simarjit Bilkhu, Secondary 5 student, Laval

Our new mentoring system!

Would you like support in your Science Fair project? Your school does not have all the resources to support you in your scientific project?

Sign up for the S.O.S. Mentor, you will have access to many professionals in different scientific fields! You could be paired with one of them. Your mentor can accompany you in the lab, in person, by email, phone or video conference!

Go register now, to access the mentor list.

Maybe you will be inspired for a project idea!

mentorat.technoscience.ca

3. WHAT KIND OF SUPPORT CAN I GET ...

FROM MY TEACHER?

As you begin to think about and design your Science Fair project, your teacher will predominantly act as a guide – but on various levels. He or she will talk about various aspects of the Science Fair in class, help you pick a project and assist you in structuring your project successfully.

Your teacher plays an important supporting role. He or she …

- Dares science with you!
- Organizes activities in class to help you kick off your project.
- Assists you at all stages of the competition.
- Explains the importance of academic integrity.
- Emphasizes the importance of ethics in the fields of science and technology.
- Supports you in your scientific research efforts.
- Works with you to choose your scientific supervisor or your mentor.
- Shares information about where to find available tools on technoscience.ca
- Gets involved in organizing or planning in order to hold the local final.
- Coaches you as you prepare your presentation for the local final.

FROM MY SCIENTIFIC SUPERVISOR?

According to Science Fair regulations and definitions, a Scientific Supervisor is a person who currently works within a recognized institution in a science-based position (e.g. researcher, teacher, lab technician) that directly relates to your chosen project topic. The institution doesn't need to be a large international laboratory – your Scientific Supervisor might be your school's lab technician, for example.

A Scientific Supervisor takes responsibility (under the auspices of the recognized institution) for providing you with any necessary explanations and for ensuring full compliance with the competition's code of ethics and safety regulations throughout your project.

FROM MY MENTOR?

A mentor is an experienced science professional or individual who volunteers his or her time to stimulate a participant's interest in science.

MY FAMILY, FRIENDS AND OTHER PEOPLE?

Members of your family, friends, acquaintances and other third parties can assist you in your project. In your written report, don't forget to officially record any outside assistance you receive from a third party.

Do not forget to mention in your written report the help you received.

4. WHAT IS MY PROJECT IDEA? HOW DO I CHOOSE?

Classroom activities may spark your interest in an idea for your Science Fair project. But you can do other things – by yourself or with others – to come up with an idea.

Make a list of:

- things that generally interest you.
- your favourite activities, your favourite sports, which fields of science you enjoy most.
- recent events that may have left an impression on you.
- everyday problems and challenges you face or have faced.

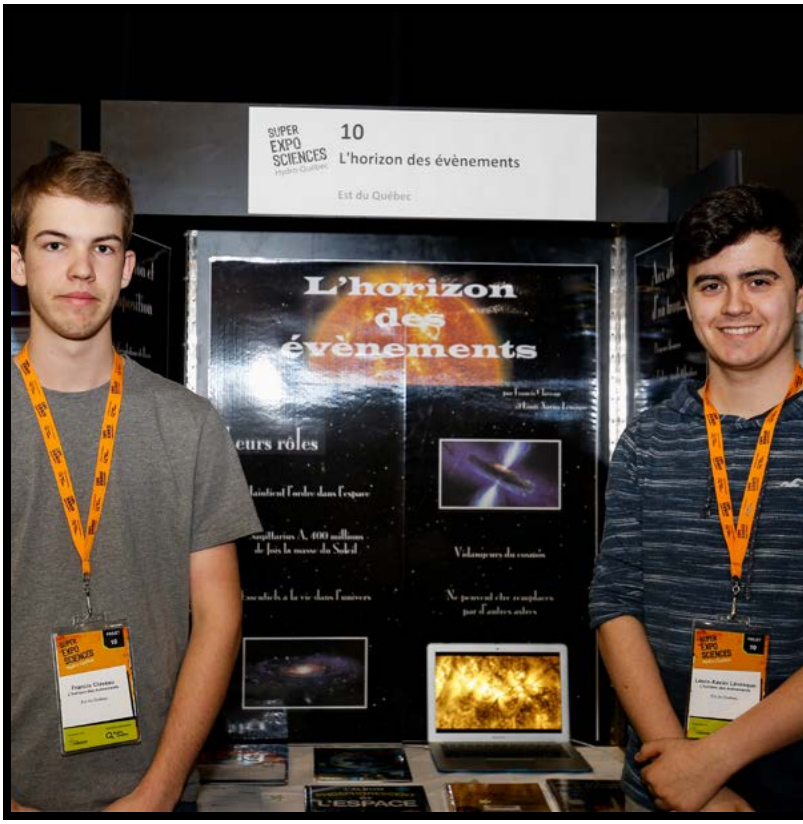
These exercises will stimulate your creativity and inventive nature as they get you thinking about things. These exercises prompt you to ask questions. Big ideas often pop up from simply discussing day-to-day life.

Register for online mentoring on the Réseau Technoscience website under the section Expo-sciences under the Mentoring-Registration tab. A mentor can help you answer technical questions about your subject matter, give advice on protocols or provide a laboratory space and qualified supervision for experiments! Different forms of mentorship are available such as email support, phone support or in-person support.

EXPERIMENT

SCIENCE FAIR PROJECT IDEAS PRESENTED IN 2016 AND 2017.

Are the hydroelectricity consumption rates promised by household appliance manufacturers accurate?	Engineering, computer science and robotics applications
Does music affect the rate at which plants grow?	Environment and ecosystems
How to improve boat's energy consumption	Pure sciences
How do computer, mobile telephone and television screens affect children?	Social sciences and social networks
How do acidophilic bacteria proliferation in different environments?	Biological and heath sciences



SCIENCE FAIR PROJECT IDEAS PRESENTED IN 2016 AND 2017.

A comparative study of automobile prototypes: solar-powered versus electric, hydrogen-fueled vehicles.	Engineering, computer science and robotics applications
How does the disappearance of species affect ecosystems?	Environment and ecosystems
Enquiry into the side effects and dangers of consuming aspartame.	Biological and heath sciences
Demystifying quantum physics	Pure sciences
Criminal profiling: methods used by crime scene investigators.	Social sciences and social networks

SCIENCE FAIR PROJECT IDEAS PRESENTED IN 2016 AND 2017.

Design for a new 100% electric motor prototype.	Engineering, computer science and robotics applications
Explain chemistry in easy-to-understand language in an illustrated children's book.	Pure sciences
Design a simple, low-cost haemodialysis machine to analyze blood	Biological and health sciences
Create a software program to generate a 3-D model of a planetary nebula	Pure sciences
Invent a "neuro hat" that detects drowsiness so drivers don't fall asleep at the wheel.	Engineering, computer science and robotics applications
Design a stick for diabetics to measure glucose levels in saliva. (developed but not yet tested on humans)	Biological and health sciences

5. ACADEMIC INTEGRITY - RULES - ETHICS

RULES

Being part of a Science Fair is all about learning how to adopt proper scientific methods – just like a professional. When researching and investigating, scientists follow rules, standards and respect time-honoured practices. To get off on the right foot and avoid pitfalls, it is crucial to read the rules and regulations carefully.

Science Fair regulations are updated annually and serve two main purposes. Firstly, they ensure the safety of all participants and any visitors at public events. Secondly, they also highlight the importance of ethics in the field of scientific research. You can be disqualified from the competition if you neglect to follow the regulations and code of ethics.

Depending on the type of project you choose to build, you will be required to complete various forms.

You must fill out **Form A** if you plan to work with a recognized institution.

You must also fill out Form A if you plan to use humans as research subjects in your project. Note that **you cannot begin** your research until the Réseau Technoscience's Provincial Ethics Committee **approves** your project.

5. ACADEMIC INTEGRITY - RULES - ETHICS

ETHICS AND SCIENCE

In the fields of science and technology, researchers must adopt an approach that respects a set of commonly-accepted ethical, legal and social standards.

Principles governing ethics reflect society's moral and legal values, hence many of these rules and norms constantly evolve. However, some of them are constants which do not change over time. When carrying out experiments, scientific research and disclosing results, you (the researcher) must ensure that your approach fits with rigorous standards and respects the need for transparency. An ethical researcher never plagiarizes someone else's work. He or she cites all information sources correctly and thoroughly.

ACADEMIC INTEGRITY

For the Science Fair, you can only submit work which results directly from your own research and investigative efforts. Naturally, you want your project to be judged in a competition that is fair and honest. The academic integrity of all participants is essential.

In many respects, it is your responsibility to ensure the highest standards of academic integrity are upheld. Although your research results belong to you as the individual conducting this research, you are obliged to recognize and make mention of any and all assistance you received from other individuals and third parties. You must also cite every information source used in all written reports and documents. A bibliography is a requirement.

5. ACADEMIC INTEGRITY - RULES - ETHICS

PLAGIARISM

Plagiarism is using someone else's ideas or words - a family member, friend or professional scientist - and presenting them as new and original – as your own – without crediting the original or existing source. For Science Fair projects, this may include scientific results, conclusions, design, concepts, wording and all forms of written, oral and visual communications.

Most cases of plagiarism can be avoided if you cite sources for work done or analyses made by someone else, such as a family member or a well-known scientist.

In sum, plagiarism is defined as follows:

- The fabrication or falsification of facts in any part of your project at any time.
- The forging of someone's signature.
- Submitting a project into the competition that you have based on one that was previously presented at a Science Fair final (regional, Québec final or Canada-Wide Science Fair levels) without providing proper documentation referencing that project.
- Updating or revising an older, pre-existing project (by the same or another student) without mentioning or providing proof of the previous project. In order to avoid plagiarism in such instances, a form must be filled out when a project is resubmitted to the competition. Written reports from all past years must also be submitted with the new project upon registering for the regional finals.
- The incorrect citing or omission of references. For more information, read the Guide to Writing Reports and Bibliographies on the Science Fair website.

6. PROJECT CATEGORIES

NEW CATEGORIES

All Science Fair projects are presented according to a classification defined by the Science Fair program.

Since the 2018-2019 edition, there are five classifications.

For each classification, a non-exhaustive list was drawn to guide you in identifying the classification best representing your project's field of expertise.

- Biological and Health Sciences
  - Living organisms
  - Nature and properties of living organisms
  - Biomedical sciences
  - Human biology and physiology
  - Microbiology and immunology
  - Pharmaceutical sciences and drug development
  - Genetics
  - Biotechnology
- Pure Sciences
  - Physics
  - Mathematics and statistics
  - Chemistry and chemical engineering
  - Astronomy
  - Geology and geomorphology
  - Geography

6. PROJECT CATEGORIES

- Environment and ecosystems
  - Environmental resources
  - Ecosystems
  - Habitat biodiversity
  - Natural resources and sustainable development (e.g.: agribusiness, energy, etc.)
  - Energy sources and forms
- Engineering, Computer Science, Robotics Applications
  - Computer engineering and software
  - Mechanical engineering
  - Electrical engineering
  - Civil engineering
  - Aerospace engineering
  - Building engineering
  - Industrial engineering
  - Construction engineering
  - Software development
  - Electronic and computer system development
  - WEB development
  - Programming
  - Computer security
  - Video games
  - Artificial intelligence
  - Robotics (design, manufacture and use of robots)
- Social Sciences and Social Networks
  - Sociology
  - Culture
  - Information and communications technologies (e.g. social media)
  - Human behaviour (psychology, psychoeducation, industrial relations, etc.)
  - Demographics
  - Education and behavioral studies

EXPERIMENT MEANS...

7. CHOOSE YOUR TYPE OF PROJECT

EXPERIMENT, DESIGN OR STUDY

EXPERIMENT MEANS...

- Discover new ways of doing things or new ways of improving on what already exists.
- Try to prove/disprove an idea or seek a better understanding of why something happens.
- Apply rigorous scientific techniques to deepen your understanding of a particular subject.

An experiment can use alternative or complementary techniques to validate or invalidate the results of another researcher.

An experiment is judged on various levels: on its originality, on the relevance of the question or issue raised, and on the appropriateness of any research approaches and science practices. For judges, the initial results of an experiment are less important than scientific precision and rigour.

EXPERIMENTING, INNOVATING AND PROVING

It is important not to confuse these three key terms. When carrying out an experiment, there is no obligation to innovate or confirm your hypothesis. When a scientist asks a question, it may sometimes require years of experiments. Often, as a scientist you achieve success by carrying out a series of isolated experiments or a combination of crossover experiments or cross-referenced experiments. In addition, it is worth remembering that experiments do not always lead to a clear result or a definitive answer.

A TECHNICAL GUIDE TO HELP YOU EXPERIMENT!

Complementary documentation is available to support your science journey. The downloadable document Quand Experimenter Rime avec Expo-Sciences (available in French only) outlines the various steps to follow as you develop a scientific approach and conduct your research.

The various sections to help you, such as:

1. The Logbook: An Indispensable Tool
2. Gathering Information
3. Developing Experiment/ Research Protocols
4. Analysis and Layout of Results
5. Analysis and Layout of Results
6. Sharing Experiment Results

EXPERIMENT MEANS...

CHOSE YOUR TOPIC AND AN APPROPRIATE METHOD

Your project title must be no longer than 30 characters (spaces included). It may simply reflect your project's subject matter or be a catchy, funny or poetic title. The choice is yours. But once you make your choice, your project title cannot be changed: it stays the same for all subsequent finals and all other levels of the competition.

The document When experimenting rhymes with Science Fair explain each of the following steps in detail. It's in your interest to examine and read the whole document thoroughly.

1. ASK YOUR QUESTION

- Observe a phenomenon. Ask a simple question about it.
- Describe the observed phenomenon.
- Identify which factors seem to impact this phenomenon.
- Determine which behaviours are linked or interrelated.

State your hypothesis

An hypothesis is an idea, a proposition or a suggestion about the nature of an unexplained phenomenon. It serves as the starting point for a series of actions designed to test and verify it.

2. DEVELOP YOUR EXPERIMENT/RESEARCH PROTOCOLS

You must list all the stages involved in your research and experiment. It's important to include any steps or actions you plan to undertake and a fully detailed description of your intended Science Fair project.

State your hypothesis, objectives and provide a list of what, when, why, how, and with whom you intend to carry out your experiment or research.

This may include:

- your intended timeline
- the data you wish to collect
- how you intend to collect your data
- any support you might seek from a mentor, laboratory or any other sources
- experiment setting and conditions (location, temperature/climate, surrounding chemicals, and so on)
- materials and apparatus (tools, microscopes, software, and so on)
- describe how you intend to isolate the behaviour of each single factor to more accurately study its occurrence.

In short, upon reading your protocol, we should be able to see each and every step involved in your Expo-sciences project from A to Z.

3. TIPS ON HANDLING EXPERIMENTS AND MATERIALS

- When collecting data, have the surrounding conditions been considered? Might the researcher cause any bias at any point throughout the process?
- Have all possible behaviours been considered in order to control variables?

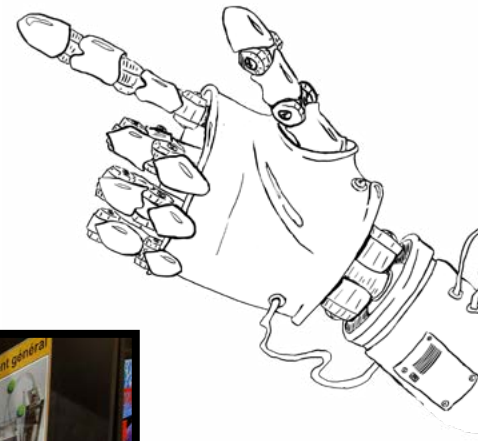
EXPERIMENT MEANS...

ANALYSIS AND PRESENTATION OF RESULTS

- Has the original hypothesis been proven?
- How are results being used to shed light on the phenomenon studied? How can they be applied to formulate a new hypothesis?
- Can the results be presented using graphs, tables, illustrations and other visual elements so general trends and behaviours are more easily understood?
- Are your results presented in a clear and detailed fashion?
- What factors might have limited your experiment? What might the source of any errors be?

Based on your chosen experiment subject, and in accordance with Science Fair regulations, you may be required to work with a recognized institution. To be sure, please read the regulations carefully.

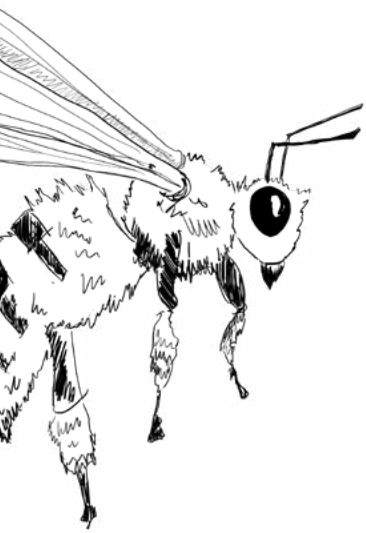
The regulations state that a recognized institution is an organization, such as a research centre, public or private laboratory, hospital, university or other educational institute, whose mandate is to practice or promote research, teaching or technology-transfers. The Science Fair recognizes only those institutions which conform to its regulations and code of ethics.



EXPERIMENT PROJECTS INVOLVING ANIMALS, BIOLOGICAL AND/OR CHEMICAL MATTER

An experiment project using animals must be conducted at a recognized institution.

Canadian law forbids any form of cruelty toward animals. If you want to experiment on animals, you must be supervised by qualified personnel affiliated with or working for a recognized institution. You must also conduct your experiment in accordance with Science Fair regulations.



Before working with animals, you must explore the possibility of using an alternative research approach or method, such as computer simulations, or cell or tissue cultures.

The death of any animals during research for Science Fair projects is forbidden by Science Fair regulations. The use of animals or animal parts is only allowed if the animals or animal parts are also being used in research conducted by the recognized institution that is supervising your project.

EXPERIMENTS REQUIRING THE PARTICIPATION OF HUMAN SUBJECTS

Any project involving the use of humans as subjects (including the exhibitor himself or herself) must conform to three core principles:

- Respect for human subjects
- Well-being of human subjects
- Treating human subjects with dignity and fairness

Please read all Science Fair regulations carefully. Any proposed project envisaging the use of human beings for research purposes **MUST** be approved by the Réseau Technoscience's Provincial Ethics Committee **BEFORE** any research can begin.

DESIGN MEANS...

DESIGN MEANS:

"Imagination ignites inspiration". Design is about responding to a need to invent a new product or service, or to improve an existing one, and which is applicable to the fields of technology, engineering, computer science and health.

You can:

Develop, build and implement a technique, model, method, device, product or software program.

And/or

Improve the capacity or functionalities of an existing machine, product or software program.

The choice is yours but in either case, you must first identify a specific need, then propose a project that focuses on transformation, creation or invention to fulfill the need.

Scientific process and analysis are fundamental to your design project, but you will also be judged on your design's originality, innovative nature and performance. You may submit a prototype that still requires further enhancements or might benefit from improvements, as long as you clearly identify and explain your opportunities for enhancement to the judges and general public.

DESIGN MEANS...

CHOSE A TOPIC AND AN APPROPRIATE METHOD

Your project title must be no longer than 30 characters (spaces included). It may simply reflect your project's subject matter or be a catchy, funny or poetic title. The choice is yours. But once you make your choice, your project title cannot be changed: it stays the same for all subsequent finals and all other levels of the competition.

1. IDENTIFY THE ISSUE

- What does the machine, product or software you plan on making actually do?
- What is the purpose of the machine, product or software? How is it useful?
- What need do you want it to fulfill? What goals do you seek to achieve?
- What problems or pitfalls do you expect to face?

2. IDENTIFY THE DEVELOPMENT AND DESIGN STAGES

- How will the machine, product or software be designed? (Make a blueprint or schema, or layout a concept.)
- What materials are required to design and operate it?
- Where do you obtain working parts or how can you produce them?
- What, if any, are the innovative aspects of the machine, product or software you want to design? List them.
- Do you need third party support to build your machine or product or create your software? If so, be sure to give them credit in your written report.
- Have you scheduled enough time for the testing phase?

3. MEASURING THE PERFORMANCE OF YOUR MACHINE, PRODUCT OR SOFTWARE

- Record all performance and output-related data/observations in a laboratory logbook.
- Use tables and graphs to illustrate your test results.
- These tables and graphs will be displayed at your exhibitor stand during the competition; they will help the public and judges better understand your work.
- Compare your expected results with your actual results.

4. ANALYZE AND EVALUATE ANY POSSIBLE IMPROVEMENTS TO YOUR PROTOTYPE

- Did the machine, product or software fulfill your initial objectives? And if so, to what extent?
- What might be done to improve the prototype's overall efficiency and performance?
- What modifications could be made to the machine, product or software to improve or transform its operating capacity?

A STUDY IS...

WHAT IS A STUDY?

- It is a review of the most reliable sources of information available with an aim to further your understanding of a particular topic; then presenting this scientific and technical knowledge in an understandable way to the general public.
- It is questioning and challenging the scientific approaches cited in the information you read.
- It is proving that the scientific concepts studied have been adequately understood.

In your research, you should consult a variety of information sources, such as books, scientific publications and journals, reports, documentaries and websites. It is best to review the most recent information available. It is important to ALWAYS consider reliability of your information sources.

Once this is done, it's up to you to analyze your information and draw your own conclusions.

You should provide statistics to back up your analysis.

CHOSE A TOPIC AND AN APPROPRIATE METHOD

1. CHOICE OF TOPIC/SUBJECT

Your project title must be no longer than 30 characters (spaces included). It may simply reflect your project's subject matter or be a catchy, funny or poetic title. The choice is yours. But once you make your choice, your project title cannot be changed: it stays the same for all subsequent finals and all other levels of the competition.

- Define your research topic concisely and precisely.
- Establish clear research objectives.
- Examine the topic from all possible angles and perspectives so you've understood it thoroughly.
- Do as much research as possible.
- Analyze all data and other information collected.
- Stick to your stated research objectives.

2. IDENTIFY YOUR INFORMATION SOURCES

- Accurately identify all information sources. Include a detailed bibliography.
- Go with reliable sources: check recent sources, consult scientific magazines and journals, and interview specialists.
- Find pertinent information on your topic (e.g. data, statistics)
- Be rigorous in your use of sources.

A STUDY IS...

3. MAKE YOUR RESEARCH AVAILABLE TO OTHERS

- Describe the scientific approaches and concepts involved
- Explain the supporting theory behind the subject; use examples, photographs and statistics, data comparisons, highlight significant findings and show other relevant information.

What new avenues of research do you foresee for your topic?

- What questions remain unanswered?
- What scientific issues are involved?
- What are the latest findings on the subject?
- Clearly identify your information sources with detailed references.

If you plan to survey individuals or groups of people on their attitudes, beliefs or habits, your "study" will now become an "experiment" so you **MUST** now be approved by the Réseau Technoscience's Provincial Ethics Committee **BEFORE** work on the survey can begin.

8. LOGBOOK

WHAT IS THE LOGBOOK?

For the purpose of the Science Fair, the logbook includes your laboratory workbook.

In your logbook, you should write down all the information you collect as you develop your project. Your logbook serves as supporting document; a written record of all the steps and actions you take before, during and after your research and investigations are completed.

Your logbook is a practical tool for recording events and details as you work on your project. In it, you should note all project-related activity: what you did, the time and date when you did it and why. Entries should include information about your experimental protocols, your thought processes and your hypotheses.

For experiment and design projects, your logbook should also include information about your laboratory experience, including materials used and processes followed, as well as your observations and impressions, and your research conclusions. You should also put statistical information contained in tables and graphs into your logbook.

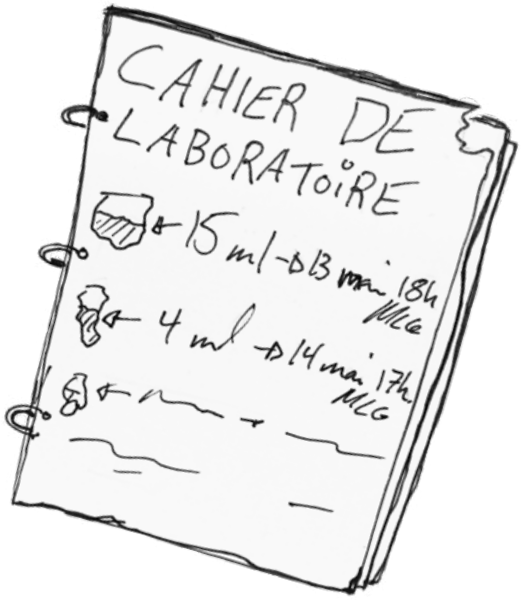
WRITING YOUR LOGBOOK

Enter all project information into your Science Fair logbook. **Do not remove any pages** from it. Do not erase anything from it; although you can cross out information, if need be. If you use more than one logbook, please number them sequentially.

Your logbook is the account of your day-to-day project activity. Keep it handy at all times. And don't worry if there are traces of food or drink on some pages. Pages may get rained on or soiled by mud while performing, say, a mineralogical analysis.

Your logbook is not going to be as neat as your final draft of your report. But its pages must nonetheless be attached, numbered and dated, and signed by you at the end of each period of time dedicated to your project.

As a record of your project, your logbook provides insight … think of it as a kind of X-ray. Visitors and judges will want to see it. It must remain accessible to all and visible on your exhibition stand at all times.



9. ORAL PRESENTATION

When you participate in the Science Fair, not only do you conduct research and experiments, you also share your information and findings with judges and visitors at the event. The public presentation at your booth is an important aspect of the competition. It gives you the opportunity to communicate your outcomes in readily understandable language so as to inform the public.

You should present your work in an interesting and enthusiastic manner.

THE PUBLIC

At the Science Fair, you are required to present your experiment, design or study project to individuals and groups of visitors, including adults, teachers and students - from yours and other schools - and sometimes even young children. You must be well-prepared. You want to convey your project information and findings in a coherent and easy-to-understand manner. Preparation and practice are essential.

TIME GUIDELINES

During the judging period of the Regional Finals and the Quebec Final, exhibitors will present their project to 5 different judges (20 minutes per judge). You will be expected to present your work for 15 minutes, leaving the judge 5 minutes for follow-up questions at the end.

At the Canada Wide Science Fair, judging time may be shorter than 20 minutes per judge. At that point, you will be given sufficient time to prepare accordingly.

For the general public, it is worthwhile to prepare several longer and shorter versions of your presentation (2 minutes, 5 minutes, 7 minutes) as not all visitors will be able to invest the same amount of time as judges do. Be sure you know how much time the visitor has on hand so you can adapt your presentation. Naturally, a visitor with 5 minutes won't be looking for the same depth of information as someone who has twenty minutes or so.

BE ATTENTIVE TO YOUR AUDIENCE

When presenting your project, watch and listen for signs of interest from your audience. If, for example, visitors indicate they are familiar with your subject matter, you can shorten the time spent explaining basic or introductory information. If your audience seems lost or confused, however, try adapting your explanations by using non-technical language and terms. If your visitors are rushed or have little time, do not talk fast but edit or shorten your material and include only the most relevant or significant information.

PREPARATION

It is important to prepare your oral presentation ahead of time. Even if you know your subject matter by heart, you must practice. You must also target your presentation to suit different audiences. Science Fair visitors listening to you will vary in number, interest and background, as will the length of time you have to talk to them.

For projects prepared in two-person teams, each team member must be able to explain and present the project individually but both team members should participate in the presentation.

QUESTIONS

To increase audience interest and feedback, ask visitors simple questions about your project and its subject matter.

MAKE YOURSELF UNDERSTOOD

While it's important to know your subject matter and how to present it coherently, it's just as important to speak clearly. Don't forget to articulate when you talk. Speak in a conversational, friendly manner.

What's the best way to make science accessible?

- Use simple everyday wording as much as possible
- Avoid using too much technical jargon or spending too much time defining it
- As you go, check that your visitor is following along ok

SCIENCE PROFESSIONALS AND JUDGES

During judging periods, you will have the opportunity to discuss your project and share your knowledge and insights with science professionals.

They are all working on a volunteer basis, investing their valuable time and believe in you! There is no reason to feel intimidated, they have chosen to be involved in the science fair due to a passion for science, to encourage you and are excited to meet the next generation of science professionals!

10. VISUAL PRESENTATION

PRESENT YOUR SCIENCE FAIR PROJECT

WHAT TO PUT ON YOUR DISPLAY ?

Origin of the project

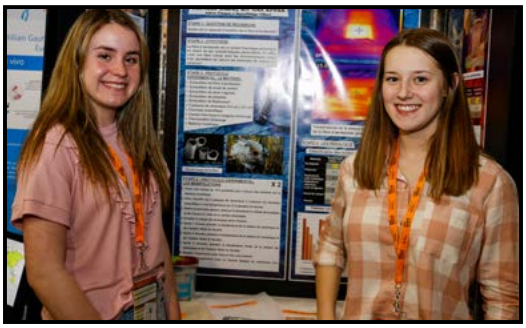
- Objective of the project
- Hypothesis of the project

Project development

- Specific explanations on the subject
- Observations and results of research and experiments
- Protocol used
- Development of operating principles
- Construction steps
- Tables, images and graphics

Conclusion

- Results analysis
- Comparisons between the results and those provided for in the initial hypothesis
- Reviews, comments and suggestions for new avenues on the subject



The posters and material on display at your stand must be visually appealing and clearly identify your project and its subject matter.

In addition to photographs, charts and diagrams, illustrations and summaries, you can showcase your design prototype(s), the materials, equipment and tools used in your project, statistics and simplified overviews.

10. VISUAL PRESENTATION

Your logbook, as well as your workbook annexes, must be available for visitors to consult at your booth.

You should also keep a copy of your written report handy to show to visitors.

Further details and official norms on poster and display dimensions can be found on the Réseau Technoscience website in the Expo-sciences section under Tools and Rules.

11. WRITTEN REPORT - BIBLIOGRAPHY

To help you prepare your written report and your bibliography, you should read the Writing Guide for each type of project – experiment, design, study – that can be found on the Réseau Technoscience website.

12. AFTER THE QUEBEC LOCAL FINALS, WHAT ARE THE NEXT LEVELS I CAN COMPETE IN AT THE RÉSEAU TECHNOSCIENCE SCIENCE FAIR COMPETITION?

LOCAL FINALS

A Local Final is organised by a particular school or school board when enough teams/ individuals wish to present in a given territory. The purpose of a local final is generally to select the best science projects to subsequently enter in the Regional Final.

The great adventure and purpose behind the Expo-sciences Science Fairs is all about getting a chance to present your project publicly!

REGIONAL FINALS

The Hydro-Québec's regional science fair take place annually at the end of March and beginning of April. The regional finals highlight the work of science students at the secondary school and CEGEP levels. They are held over a two- or three-day period with, in some cases, additional time for the welcoming ceremonies and the set-up and dismantling of student booths.

The Hydro-Québec's Science Fair gives students like you an opportunity to view other projects in the competition. You'll also have an opportunity to meet your peers – other young scientists – and science professionals, and to make other contacts. The competition gives you and thousands of students like you an opportunity to express your interests in and passion for scientific investigation. It is a learning experience that will benefit you at school and later in life.

The success of a project does not necessarily depend on the amount of money spent nor the academic grades of those behind it.

The winning projects at each regional final are grouped together to form a regional delegation at the Quebec provincial final.

A list of all regional projects is available on the Réseau Technoscience website.

SUPER EXPO-SCIENCES HYDRO-QUÉBEC - QUEBEC FINAL

The Quebec final takes place annually in April. It features the winning Science Fair projects from the 12 regional, province-wide finals.

The Quebec final attracts a large audience and provides another opportunity for student participants to meet and build relationships with other students and experienced science professionals. It is a unique experience for everyone involved.

CANADIAN FINAL

The Canada Wide Science Fair final takes place annually in mid-May and is attended by more than 500 exhibitors from across the country.

The winning projects at Super Expo-sciences Hydro-Québec - Québec Final form a delegation to represent Quebec at the Canadian final.

INTERNATIONAL FINALS

The Réseau Technoscience has developed and maintains relationships with a variety of international organizations in order to offer Quebec students an opportunity to exhibit their science projects internationally. The projects chosen for international competitions are selected at the Super Expo-sciences Hydro-Québec - Québec Final.

Registration fees apply to the Regional Final, Quebec Final, Canadian and International Finals.
Your regional Réseau Technoscience member organisation can provide further information on applicable fees.

For further details on anything related to finals, visit the Réseau Technoscience website.

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