The Science Fair Indispensable Guide

The ideal reference tool!

The ***Science Fair Indispensable Guide*** is the ideal reference tool for all your Science Fair projects. Whether you are a student who wants to participate in the Science Fair or a teacher who will coach students in developing their project, you will find all the essential information in this document to make your project idea take shape.

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1. Role of the *teacher* in coaching Science Fair projects

Teachers can participate in the Science Fair educational project in many ways: from simply providing information to including the project in the course content—there are many possibilities and a teacher's assistance always makes a difference.

Teachers *can :*

- Talk about the Science Fair in class;
- Help students find their *project idea*;
- Read and adapt the proposed *schedule*;
- Explain the scientific method;
- Justify the use of the *laboratory notebook* ("logbook");
- Coach young people who wish to do a project; support and motivate them during their tasks by meeting with them, asking them questions and providing follow-up;
- Offering logistical support for preparing posters and revising the written report;
- Including the development of a Science Fair project in the course contents;
- Accompanying students to the Regional Final, where appropriate.

NOTE :

Teachers who wish to act as a chaperon at the Super Expo-sciences Bell, Québec Final, must submit an application to their regional *Conseil du loisir scientifique (CLS)*.

The *CDLS-CLS Network* is the organizer of the Science Fairs across Québec. The CLS can provide you with necessary support. Do not hesitate to ask for assistance!

2. Choosing a *topic*

Finding a project idea can be the most difficult step because the student does not always know where to begin. Indeed, how to get off on the right foot?

Here are a few suggestions.

In class, the teacher can ask students to:

- Talk about their general interests;
- Specify their favourite activities or sports or the science or technology discipline that interests them the most;
- Discuss problems or situations in daily life that they have had to deal with recently.

These exercises stimulate students' ability to invent and create: how can a given problem be solved? How can a living environment be improved? How can certain activities be enhanced? What is important is to encourage students to ask questions: the right idea often becomes apparent during this type of discussion.

Once the student has found a topic, he or she must decide on a ***type of project:*** ***Experimentation,*** ***Design*** or ***Study***? The teacher can help students identify the various choices.

For students who still do not have an idea, the teacher can suggest that they consult ***1,001 ideas***, thousands of projects! and that they ***watch interviews with former exhibitors.***

It is important to frequently consult the ***practical tools*** section of the Science Fair website, which will be updated on a regular basis.

3. Project Categories

There are many disciplines in the field of science and technologies.
Within the framework of the Science Fairs, these disciplines are broken down into ***seven project categories.***

Project Categories and definitions

Life sciences

Sciences that focus on an aspect or way of life of a non-human organism. They include botany as well as the psychology and kinesiology of non-human organisms.

Health sciences

Sciences that examine a biomedical or clinical aspect of human life or lifestyles, or of health services and products for human beings.

Physical sciences and mathematics

- ***Physical Sciences***

  Physical sciences seek to formulate the laws that apply to our world and to try and understand the essence of basic concepts: matter, time, movement, forces, energy, heat, sound and light.

- ***Mathematics***

  Mathematics is a deductive science that deals with quantity and order, the study of abstract elements (e.g., numbers, geometrical objects, functions) and the relationships between them. Mathematics introduces unifying notions: it is a language for the sciences.

Project Categories and definitions *(continued)*

Engineering and computer sciences

- ***Engineering***

  Engineering involves the knowledge and techniques concerning the design, implementation and applications of processes, devices and machines particular to a specific field.

- ***Computer sciences***

  Computer sciences include all techniques for collecting, sorting, storing, transmitting and handling data using computer programs or software.

Earth and environmental sciences

Sciences that study, in time and space, all living and non-living factors likely to impact organisms and their environments.

Biotechnologies

The use of biological processes, mainly with micro-organisms, to produce goods and services. The effectiveness of biotechnology is rooted in the key techniques produced by the combined advances in biochemistry, chemistry, engineering, genetics, mathematics, microbiology and physics.

Human sciences

Sciences that study various aspects of human life.

Does it seem that the project does not fit into one of these categories? Or does it correspond to more than one category? Are there no *resource persons* available to give you advice? Remember, do not hesitate to contact the *Conseil du loisir scientifique* in your region.

4. Rules

Read the ***Rules*** to get off to a good start and to avoid various pitfalls!

When one decides to participate in a Science Fair, one becomes a genuine scientist. In deciding to explore a subject any seasoned or novice scientist has to conduct the necessary research in accordance with very precise rules and guidelines.

The rules are updated annually. Their enforcement aims above all at ensuring the safety of the public and exhibitors, and raise the latter's awareness of the importance of ethics in the field of scientific research. Any violation of the rule can bring about the disqualification of the team!

5. Resource persons

Students who wish to do a Science Fair project should never hesitate to ask for support and advice from

...resource persons such as:

- Teachers in their school;
- Laboratory technicians;
- Parents and friends;
- Cégep and university professors working in their field of research;
- Professionals working in the field associated with the topic studied;
- Scientists who are working on the same topic or who have worked on it in the past;
- Qualified professionals in recognized institutions, depending on the type of project.

6. Ethics in science and at the *Science Fair*

The Canadian Oxford Dictionary defines the word “ethics” as the “the science of morals in human conduct; moral philosophy.” In science and technology, it refers to all of the moral, legal and societal rules of conduct that a researcher must apply in his or her scientific method. Given that it reflects the values and moral and legal principles of the society, ethics are constantly changing. However, there are some principles that do not change. During the experimental and publication-of-results process, a researcher must always ensure that his or her work is conducted in a thorough and transparent manner.

In short, researchers must adhere to a code of ethics at every step in their work in order to guarantee ***academic integrity***, an essential aspect of any scientific process.

7. Academic integrity

For each Science Fair, students must present work that is the result of their own efforts. Naturally, they want to participate in a fair and honest competition where cheating is not tolerated. They must be able to count on the academic integrity of all the exhibitors.

The students must assume a large share of the responsibility for protecting and promoting the highest standards with respect to academic integrity. Although research "belongs" to the researcher, he or she is obliged to recognize any assistance received from any persons and to provide all the appropriate references in each document or written report.

Any breach of these rules concerning academic integrity virtually always results in the disqualification of a Science Fair project.

Plagiarism, the falsification of data and other types of fraud

- ***Plagiarist:*** *A person who takes or copies someone else's work*
- ***To plagiarize:*** *To take and use (writings, inventions, etc. of another person) as one's own*

For example, presenting someone else's work—whether he or she is a family member or a recognized scientist—as one's own, without recognizing the source, is plagiarism. Here, the word "work" refers to scientific results, the conceptual development of a topic and the formulation or reformulation of a problem.

Plagiarism is not the only threat to integrity. Other examples include:

- The fabrication or falsification of data either during the work or at the project verification stage;
- The forgery of signatures;
- The inclusion of a project that is derived from a project that was already presented in a Science Fair Regional, Québec or Canadian Final without documentation being provided regarding the former project;
- The continuation or revision of a former project, carried out by the student (or by another student), without documentation being provided regarding the former project.

Form 3.6 A - Projects Entered for a Second Year must be filled out and submitted with the written report for both project years.

Consult the *Written presentation of the project* section to correctly cite all references.

8. Types of project: *Experimentation*

To experiment means to discover new ways of doing things and improve existing approaches. Experiments are conducted to prove ideas or to help better understand the workings of the physical world. Experimentation allows one to deepen one's knowledge of a subject using a precise and thorough scientific method.

An experimentation project may also seek to validate (or invalidate) other researchers' results using an alternative or complementary scientific method.

An experimentation project will be judged on its originality, the pertinence of the hypothesis that is being tested, and the thoroughness of the scientific approach. What this means is that the initial results of the experiment are not very important.

Experimentation and *innovation*

It is important not to confuse the two words. In experimentation, there is no requirement to innovate right from the start. Some theories proposed by scientists to try to answer questions have required years of experimentation before tangible results, much less a definitive answer, could be found. Often, the answers are found by combining results from several distinct experiments.

How can you be sure that your project is really an example of an experimentation project: In experimentation, there is a lot of "manipulation"!

A. Finding an Experimentation project idea

Here are a few tips to help a student find an idea:

- Identify the student's areas of interest (it is much more motivating to work on a topic that we are passionate about);
- Find daily life problems or situations the student would like to learn more about;
- Consult the idea suggestions proposed in *1,001 ideas, thousands of projects!*

  Exhibitors talk about their experiment

B. Choosing a topic and the proper scientific method

1. Ask a question

- Observe a phenomenon.
- Ask a simple question.
- Describe the phenomenon that you are observing in simple terms.
- Determine what factors seem to be influencing the phenomenon.
- Determine which behaviours seem interrelated.

2. Formulate a hypothesis

- The hypothesis is an idea, a proposition or a suggestion about the origin of an unexplained phenomenon. It is the starting point of a series of actions aiming to test or verify it.

3. Identify the variables

- How can the behaviour of a single factor be isolated in order to study its influence?
- Under what conditions will the experiment be conducted (e.g., place, temperature, chemical environment, etc.)?
- What equipment is needed (e.g., tools, microscopes, software, etc.)?

4. Conduct the experiment

- Under what conditions are the data being gathered?
- Is the experimenter influencing the results?
- Have all possible behaviours been considered to control the variables?

B. Choosing a topic and the proper scientific method *(continued)*

5. Analyze and present the results

- What are the limits of the experiment?
- What are the sources of error?
- Has the initial hypothesis been validated?
- How can the results be used to better understand the phenomenon and formulate a new hypothesis?
- How can the results be presented clearly so that the trends and general behaviours are easily understood (e.g., graphs, tables, diagrams, etc.)?
- Are the results presented clearly and in detail?

C. Contribution from a recognized institution

- Depending on the experimentation topic selected, and in accordance with ***Section 3.8*** of the Science Fair ***Rules***, an exhibitor may require guidance from a recognized institution. Read the rules carefully to determine whether a project falls into this category.

- What is a ***recognized institution***? It is "a public or private research laboratory or centre, a university, a hospital or any educational institution that adheres to a recognized experiment protocol."

D. Experimentation and animals

Canadian law prohibits any form of cruelty to animals. For that reason, any exhibitor who wishes to conduct an experiment involving animals must be supervised by the qualified staff of a recognized institution.

However, before deciding to work with animals, the exhibitor must assess the possibility of using an alternative solution. The scientific community now prefers alternative methods of research, such as computer models, cell or tissue cultures, etc.

It is important to note that the rules prohibit the sacrificing of animals for the sole purpose of fulfilling the requirements of a Science Fair project. The use of animals, or animal parts, is only permitted when the animals, or animal parts, are already being shared based on the needs of the host institution.

Where appropriate, ***Form 3.8 A*** must be filled out by a representative of the recognized institution and presented with the written report.

E. Projects Requiring Participation of Human Subjects

Any project requiring human participants must be approved by the Science Fair Rules Application Committee.

It is essential to know that any experiment requiring human participants present risks that the experimenter or the human participant tend to underestimate. These risks can be physical or psychological.

An experiment in which a participant is required to perform a physical effort to which he or she is unaccustomed or a project designed to have an impact on the participant's quality of sleep can lead to various consequences, some of which may be serious.

In addition, aptitude tests can be troubling for some individuals who are below the group average. Therefore, any project requiring human participants must be in compliance with strict ethics and safety codes. For this reason, the rules described below must be thoroughly adhered to for any project presenting these risks.

These projects are divided into two categories: low-risk projects and high-risk projects (read the rules for more information).

In either case, as soon as human subjects are involved, an ***Approval Form (6.11 A or 6.12 A)*** must be filled out by the exhibitor and his or her "respondent" (qualified professional). Exhibitors must first write an experimental protocol and a respondent must then fill out the approval form.

The experimental protocol and approval form will then be submitted to the Rules Application Committee of the CDLS-CLS Network partners for final authorization before experimentation begins. After that time, no modifications of any kind will be permitted to the experimental protocol without authorization from the Rules Application Committee.

Subjects participating in the experiment, and their parents if the subjects are minors, must fill out the ***Free Consent Form 6.10.3 A.***

All Science Fair projects requiring human participants that do not meet these requirements will be subject to disqualification.

F. Laboratory notebook: the X-ray of the project

After choosing a topic, exhibitors in this category must use a laboratory notebook in which they must record all information gathered while carrying out the project. The laboratory notebook will become the official record of the project, the essential reference of the method followed before, during and after the work.

This practical tool is the official record of the objectives, hypotheses, observations, results, interpretations and conclusions — **all** entered the moment they are made!

In addition to the oral presentation and written report, the laboratory notebook will be evaluated by the judges—it provides them with a way to evaluate the scientific method used during the experiment.

The laboratory notebook should include, for example:

- A chronology of the major steps in the approach;
- The links between each step;
- The schedule;
- An identification of the student's original ideas;
- The results;
- The successes;
- As well as ... the problems encountered!

Everything must be recorded in the notebook—no pages or information may be removed (they may be crossed out, if necessary).

The laboratory notebook belongs to the exhibitor and can come in a variety of formats: course book, notepad, etc., depending on the student's tastes and imagination. This is a project "logbook," a record of the learning procedure, day-in and day-out, on good days and bad! It is not unusual to find the notebook with pages soiled by ketchup stains or, for example, mud from the last mineralogical analysis.

Although the book certainly does not need to resemble the final report, it must contain pages that are **bound, numbered** and **dated**, and it must be **signed at the end of each period devoted to your Science Fair project.**

The laboratory notebook is to the researcher what the logbook is to the navigator. It constitutes an advantage for exhibitors, as it is the official record of the project. Visitors and judges always enjoy looking at the contents. It is the X-ray of your project!
The Laboratory Notebook must be available at your booth at all times.

G. Project title

The project title must contain a maximum of 35 characters (including spaces). It can refer to the topic of the project or be catchy, funny or literary—it is up to the exhibitor. The title chosen for a Regional Final will be used at all other levels of the competition.

H. ***Written report***

See Section 11 of the *Indispensable Guide.*

I. ***Oral presentation*** *(for the general public and judges)*

See section 12 of the *Indispensable Guide.*

J. ***Visual presentation***

See Section 13 of the *Indispensable Guide.*

9. Type of project: *Design*

Designing is "creating through imagination." It means creating or improving upon inventions to meet specific needs and to serve fields such as technology, engineering, information systems or health care.

There are two Design project options:

- Designing and producing a technique, mock-up, method, device, product or software application;
- Improving the capabilities and functions of an existing device, software application or product.

There are many choices! In both options, the idea is to clearly identify a specific need and to then create, transform and invent ways of meeting that need.

Although the scientific method and the analysis of the results are essential for a Design project, the original and innovative aspect of the design is also very important. The invention's performance is also essential and will be evaluated by the judges. Even if the prototype requires further improvements, it can still be exhibited at the Science Fair... however, the possible improvements must be explained to the audience and judges.

Young exhibitors talk about their Design project.

A. Finding a Design project idea

Here are a few tips to help an exhibitor find an idea:

- Identify the student's areas of interest (it is much more motivating to work on a topic that we are passionate about);
- Find daily life problems or situations for which the student would like to find solutions or improvements;
- Consult the idea suggestions proposed in *1,001 ideas, thousands of projects.*

B. Choosing a topic and the proper scientific method

1. Defining the issue

- What are the functions of the device, software or product?
- What is the device, software or product intended to be used for?
- What needs are to be met by the device, software or product?
- What are the project's objectives?
- What are the constraints and expected obstacles?

2. Identifying the design and development steps

- How is the device, software or product designed? (Make a plan or a diagram or formulate a concept)
- What equipment was required to build and operate it?
- How can the parts be acquired or built (from the simplest to the most complex)?
- Are there any innovative aspects to the device, software or product? If so, what are they?
- If another person or an institution helped to design or produce the device, software or product, this must be clearly indicated in the written report.
- Has enough time been calculated for the trial period?

B. Choosing a topic and the proper scientific method *(continued)*

3. Performance of the device, software or product

- Record all the observations regarding the invention's performance.
- Present the test results with the aid of tables and graphs. The work will be exhibited at the booth so that the judges and visitors can see and read about everything that has been done.
- Compare the final results with the anticipated results.

4. Evaluating and analyzing the prototype for improvement purposes

- Does your device, software or product perform the function(s) for which you designed it? To what degree?
- How would you suggest improving the efficiency and performance of the prototype?
- What modifications could be made to your device, software or product to enhance or change its function(s)?

It is strongly recommended that all exhibitors use a ***laboratory notebook.*** This tool can be very useful as the judges can use it to verify the various steps involved in the project.

C. Project title

The project title must contain a maximum of 35 characters (including spaces). It can refer to the topic of the project or be catchy, funny or literary—it is up to the exhibitor. The title chosen for a Regional Final will be used at all other levels of the competition.

D. *Written report*

See Section 11 of the *Indispensable Guide.*

E. *Oral presentation* *(for the general public and judges)*

See Section 12 of the *Indispensable Guide.*

F. *Visual presentation*

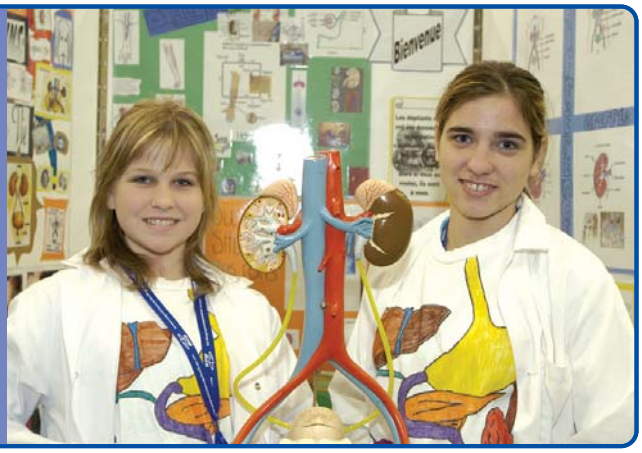
See Section 13 of the *Indispensable Guide.*

10. Type of project: *Study*

In this category, exhibitors will study a subject in depth, relying on many different sources of information, and then present the technical and scientific concepts in a language that the general public can understand.

As a young scientist, you must:

- Make a critical assessment of the scientific methods cited by the various information sources consulted;
- Be able to prove that you have properly understood the scientific concepts studied.



To ensure that your Study project is a success, the key is to thoroughly research the topic by consulting a variety of information sources: books, scientific publications, articles, documentaries, websites, and so on. You must then carry out an analysis and draw conclusions.

The trickiest aspect of the Study project is to synthesize all of the information you have gathered and present it in a detailed but clear manner.

Attention :

It is important to always assess the reliability of the sources used.

A. Finding a Study project idea

Here are a few tips to help an exhibitor find an idea:

- Identify the student's areas of interest (it is much more motivating to work on a topic that we are passionate about);
- Find a topic the student would like to learn more about;
- Find inspiration in daily life;
- Consult the idea suggestions proposed in *1,001 ideas, thousands of projects.*

B. Choosing a topic and the proper scientific method

1. Choosing a topic

- Define the research topic.
- Clearly establish the research objectives.
- Present all angles of the topic to ensure a better understanding of it.
- Be as thorough as possible in your research.
- Analyze the information gathered.
- Stick scrupulously to the original research objectives.

2. Identifying the information sources

- Clearly identify the information sources, providing complete references.
- Favour current sources, scientific journals and meetings with specialists.
- Be extremely thorough in the use of sources.

3. Explaining the knowledge

- Demonstrate the scientific concepts involved.
- Illustrate the theory with examples, photographs, statistics, comparison of data, key facts about the topic, etc.
- Suggest future areas of research concerning the topic
  - What questions remain unanswered?
  - What are the related scientific issues?
  - What is the status of the most recent discoveries in the field?

C. Projects requiring human participants

If a Study project includes a survey on the attitudes, beliefs or skills of a human participant, the project is considered to carry a low risk for the participant. To ensure that appropriate ethical codes are followed, in general, the person supervising the student simply needs to fill out ***Approval Form 6.12 A.***

Remember!

Studies of this kind do not all present low risks! Exhibitors must read Section 6 of the *Rules* carefully.

Even though the ***laboratory notebook*** is not mandatory for Study projects, we strongly recommend that exhibitors use one and allow visitors to consult it at the booth. The document, which represents an official record of the research conducted, is not only a future record of the project—it is also a very important tool during the research process.

D. Project title

The project title must contain a maximum of 35 characters (including spaces). It can refer to the topic of the project or be catchy, funny or literary—it is up to the exhibitor. The title chosen for a Regional Final will be used at all other levels of the competition.

E. *Written report*

See Section 11 of the *Indispensable Guide*.

F. *Oral presentation* *(for the general public and judges)*

See Section 12 of the *Indispensable Guide*.

G. *Visual presentation*

See Section 13 of the *Indispensable Guide*.

11. Written Presentation of *the Project*

The written presentation is a mandatory element to ensure the success of the project and it will be assessed by the judges.

Section 5 of the ***Rules*** outlines the standards that exhibitors must adhere to when presenting their written reports at the Regional and Québec Finals. The written presentation must contain five-page maximum.

All written reports must contain the following:

- Official cover page
- Table of contents
- Introduction
- Development or results and analysis
- Conclusion
- Bibliography

The official cover page, table of contents and bibliography do not count toward the five-page maximum for the written report. All required forms must be included in the report.

A. Official cover page

The *cover page* is mandatory. You must fill out the page completely and it cannot be modified. The project summary included on this page must be identical to the summary on the entry form.

B. Table of Contents

This page should include all the elements that will be discussed in the written presentation.

C. Introduction

A few lines (6 to 8) stating your project objectives and the main aspects of the work accomplished.

D. Development or results and analysis

This is the core of your written report, so it must be written with care. In it, you explain the results of your experiment, the details of your design or the information contained in your research.

E. Conclusion

A few lines (6 to 8) summarizing the main aspects of the project, the circumstances under which you worked, and possible future developments regarding the topic of your presentation.

F. Bibliography

A Science Fair project cannot be carried out without research. Regardless of the project, exhibitors must indicate their sources. The information regarding the reference tools used to conduct the research must be included in the bibliography.

The bibliography is therefore mandatory, as are the footnotes found throughout the written report (or in any document that will be made available to the judges and visitors). Quotation marks must be used for all quotations, but remember that although all research projects must include quotations, they cannot be an integral part of the report! To avoid plagiarism, exhibitors must use their own words to explain the notions they wish to demonstrate. This will make the project easier to present, given that a clearly designed project is always easier to explain.

Read the section on *academic integrity* carefully.

F. Bibliography *(continued)*

Here are some examples of methods used to cite references:

Books:

AUTHOR'S LAST NAME, first name, year of publication. Title of the book, publishing location: publisher, number of pages.

E.g. POMERLEAU, René, 1980. Flore des champignons du Québec. Montréal: Éditions La Presse, 652 p.

Articles:

AUTHOR'S LAST NAME, first name. "Title of article." Title of Magazine or Journal, volume, number, publication date, starting and ending pages of the article in question.

E.g. KINNARD, Nathalie. "Savants et spiritualité." Découvrir, Vol. 27, No. 3, May-June 2006, p. 34–41.

Websites:

AUTHOR'S LAST NAME, first name (where appropriate) or NAME OF ORGANIZATION. "Title of Article." (where appropriate) website address, month, year, section (where appropriate).

POIRIER, Marthe. "A Dazzling Project!" www.cdls.qc.ca, June 2002, Section 3.

Appendices

Appendices include data that complement the information contained in your written report, and that make your project easier to understand. They can be placed in a binder so that they are easy to consult. They must be available only at your booth and not at the end of the written report.

A few examples of appendices include graphs, diagrams and a detailed list of the material used in your experiment.

Your laboratory notebook must be at your booth and available for evaluation by the judges.

12. Oral Presentation of *the Project*

A. The preparation

Participating in a Science Fair is not only conducting an experiment or research—it is also sharing information and discoveries with the audience and the judges. The public presentation of the project is an important step, because it is the moment when the exhibitors present their knowledge in a language that the general public will understand. Exhibitors must therefore present their work in a dynamic way.

Many people may visit a booth they find intriguing but they may be shy about talking to the exhibitor. It is therefore up to the exhibitor to establish the initial contact. However, other visitors will come up to the booth directly to ask for information on an issue that they are already interested in. Exhibitors must therefore be prepared for either possibility.

B. Some advice

The audience

During Science Fairs, exhibitors must present their projects to many different people: adults, students, students from other schools, teachers and even much younger children. They must therefore be well prepared and explain the project clearly, whether it is an Experimentation, Design or Study project.

B. Some advice *(continued)*

The scientists – the judges

During the evaluation periods, the exhibitors will have the chance to talk about their project with scientists who come to assess their knowledge. The exhibitors must adapt their presentation accordingly, knowing also that time is limited.

Find out how much time the visitor has

It can also be useful to know how much time the visitor has to listen to the presentation. The exhibitor will not be able to provide the same amount of information if the visitor has five minutes compared with 20 minutes or more.

Be attentive

The exhibitor must be attentive to any signs that visitors show—if they already seem to be familiar with the topic, the basic information can be reduced. However, if the listener seems somewhat lost, the explanations must be adapted accordingly. If the visitor seems to be in a hurry, it is better to provide very pertinent information rather than rushing through the explanations!

Preparation

It is very important to prepare the presentation. Even when we know a topic inside and out, we do not always have the same audience in front of us or the same amount of time to explain the project. For a project conducted with a partner, each person must be able to give a complete explanation of the project and both individuals must participate in the presentation.

Questions

Asking a visitor simple questions about the topic presented can be a good way to spark and maintain his or her interest.

Make yourself understood

Naturally, being understood means using a language that people will understand but it always means...speaking clearly!

13. Visual Presentation of *the Project*

The visual presentation of your booth will be appraised by the judges, and it must be in compliance with the ***Rules***. A picture is worth a thousand words. The visual presentation of your booth plays an important part in attracting people's attention to your project.

Not only does your booth have to be appealing, but the information you present must also be useful. The information must be displayed in such a way that the visitor and the judges are able to follow the exhibitor's presentation easily and even understand the topic simply by looking at the pictures and reading the documentation.

The booth

The booth must be dynamic and must be an accurate reflection of the topic. Aside from photos, graphs, illustrations and information summaries, the prototype of a Design project or the accessories used to carry out an Experimentation project could be displayed.

Project: Experimentation	Project: Design	Project: Study
		

14. Schedule

The following schedule was conceived to help the teacher planning his/her students' participation in a Science Fair. It is based on the participation in a Regional Final in March.

Period	Project steps
	Experimentation – Design - Study
September	▶ Visit the Science Fair website to obtain new documentation. ▶ Modify the course contents to include the Science Fair projects.
October	▶ If you have not yet received the information in the mail, contact the CLS in your region to ensure that you are on the mailing lists. ▶ Read the information available on the Science Fair website regarding participation, project classification, project categories, types of projects and the rules. ▶ Print and read the Indispensable Guide thoroughly. ▶ Present the Science Fair project in class (the project can be carried out on personal time or be integrated into the course contents). ▶ Encourage your students to come up with project ideas. Consult the section titled Finding a project idea on the website. ▶ Once the students have found an idea, ask them to look in dictionaries and specialized books for the meaning of the words associated with the project to ensure that they master the vocabulary. ▶ Because they feel passionate about the topic, some students will choose projects that require many hours of preparation.

Period	Project steps
	Experimentation – Design - Study
November - December	▶ Plan a group meeting with all interested students (explain the rules, project categories and types of projects; present the scientific method, etc.). ▶ Ask each team to research documentation on the project they have chosen. ▶ Meet with each team to discuss the feasibility of their project. ▶ Assist the team in finding resource people and organizations. ▶ Meet with the students regularly: five minutes is long enough if everything is going well; in other cases, ask the student to make an appointment.
December	▶ Some regions have a pre-registration period. ▶ Ask for a Local Science Fair participation certificate at the CLS in your region.
January	▶ At the mid-point: ask students for a 5-minute explanation of their progress and objectives. ▶ Provide a continual follow-up of the students. ▶ Hold a Local Science Fair, if wanted.
End of January - early February	▶ A few weeks before the event, set aside time for all the participants to practice. The initial practice session can be carried out among the participants. Then a few students and teachers can be invited to attend the last practices, which can take place during a Local Science Fair. ▶ Complete the entry forms for the Regional Final.
February	▶ Reread and make comments on the written reports. ▶ Send in the entry forms for the Regional Final.
March	▶ Provide support to the exhibitors (where appropriate) who participate in a Regional Final. ▶ Visit the Science Fair in your region. ▶ Encourage the young exhibitors.
April	▶ Provide support to the exhibitors (where appropriate) who participate in the Super Expo-sciences Bell, Québec Final.
May	▶ Provide support to exhibitors (where appropriate) who participate in the Canadian Final.

15. Checklist

A short checklist for teachers—to ensure that you have all the information you need on every step of the process and on time.

	Checklist	✓
1.	Visit the following section on the website: Finding a project idea.	☐
2.	Read and print out the following section: Project Categories and Types of Project.	☐
3.	Read and print out the Rules.	☐
4.	Print the entire Science Fairs' *Indispensable Guide*. Refer to the Table of Contents to consult the necessary sections.	☐
5.	**Fill out the required forms:**	
	Official and mandatory cover page for the Regional Finals and the Québec Final;	☐
	Form 3.6 A - Projects Entered for a Second Year.	☐
	Free Consent Form 6.10.3 A – Projects Requiring Participation of Human Subjects (Low- and High-Risk).	☐
	Approval Form 6.11 A – High-Risk Projects	☐
	Approval Form 6.12 A – Low-Risk Projects	☐
	Form 3.8 A – Contribution from a Recognized Institution	
6.	Ask for the participation certificates for a Local Science Fair from the CLS in your region.	☐
7.	Fill out the entry form for the Regional Final.	☐
8.	Read the judging criteria and assessment grids for the Regional Finals and the Super Expo-sciences Bell, Québec Final.	☐
9.	Keep the CDLS-CLS Network contact information handy.	☐