

# SCIENCE



**HELPFUL HINTS**

# PROJECT CLASSIFICATIONS

There are two types of projects:

- Experimental
- Non-experimental

## Experimental

The data is obtained from an experiment you do. You will be investigating a question using the scientific method. In this type of project you will be dealing with variables -- all the different things you can think of changing. eg: Which bread moulds most quickly?

## Non-Experimental

This may take several forms:

- Study or Display: You obtain data from many sources but do not actually do experimental work. This type of project could include posters, charts and pictures. eg: Study of air pollution
- Model or demonstration: You build a model or demonstrate a scientific principle. You tell how something works or why it happens. eg: demonstration of why an airplane flies or how a series circuit works
- Observation or data collection: You observe and record information on everyday events. You must keep records of your observations. Drawings, photographs, tape recordings, and video tapes are good ways to record observations. eg: Why birds live in my area or are all mammal hairs alike?
- Collections: A display of something you have gathered. You must present some things you have learned by researching your collection. eg: pine cone, rock or seed collection

**NB: If you are doing a non-experimental project, it still must have scientific content. You must show that you learned something about the world around you.**

**NB: Grade 4 & 5 science projects must be in French!**

# SUGGESTED SCIENCE FAIR PROCEDURES

A science project is a great learning experience for all students. Students integrate many of their skills together such as reading, writing, speaking, mathematics, research and critical thinking. Students should incorporate five scientific skills together into their project research, experimentation, observations, analysis & evaluation and application.

## **STEP 1 - Select a problem**

Choose a topic that interests you and stick with it.

- Do you have a specific topic of interest? What comes into your mind if you are asked to create a question beginning with How? or What?
- Do you have an area of interest? Research this area and think of a smaller topic. eg: Rocks is too large of a topic! break it down to types of rocks or how rocks are used in tools.
- Think of a problem in our society and try to solve it.
- Invent something or make a model of something
- Look through science books until something appeals to you. Our school library offers a wide variety.

Ideas for science projects:

- What things can you identify by smell only?
- How are different kinds of seeds spread?
- How does a pinhole camera work?
- Can plants grow through a maze?
- How can you build a flashlight?
- How long does it take food to grow mold?
- Why is it hard to breath with asthma?
- What are optical illusions?
- What are some simple machines used in the home?

## **STEP 2 - Start a journal or logbook -- You will get marks for this!**

- Record information from books, magazines, interviews, computer or television in the journal. Record the source.
- Maintain detailed records of your experiments including dates, observations, and what you do to the project.
- Maintain tables or charts in your logbook. Keep all your rough copies.

## **STEP 3 - Plan your project**

- Start your project in enough time to allow yourself time to complete all aspects of it.
- Set up a time line: (example)
  - 1) Hand- in registration form and discuss plans with your teacher
  - 2) Have all research materials and information for the project ready for use
  - 3) Have all of your research and experiments completed
  - 4) Prepare the backboard
  - 5) Have your presentation ready and be ready to answer questions.

## STEP 4 - Do the experiment or research

- Look for information in your school and public library; contact places for information; set up an interview with a knowledgeable person. Keep all your notes in your logbook.
- Experiment to find possible solutions to your problem. Make notes, charts, and graphs in your log book about the experiment. Repeat the experiments to make sure your results are accurate!

## STEP 5 - Set up the project

### Write the report ( non-experimental project)

It is recommended that the report and project background be typed. The written report should include:

- title page, table of contents, research question, written information, diagrams, pictures, graphs, charts, tables, glossary (scientific terms used in project), and bibliography

### Report your findings ( experimental project)

Backboards should contain the following headings and information:

- Question (Problème) -- What are you trying to find out?
- Prediction (Prédiction) -- What do you think will happen?
- Materials (Matériaux) -- List the materials you used
- Procedure (Méthode) -- List the steps you used to solve your problem
- Observations (Observation) -- What did you find out or learn from your experiments?
- Conclusions: (Conclusion) -- Why is this information useful?
- Applications: (Application) -- Why is this information useful?
- Acknowledgements (Remerciements) -- List any help you received
- Bibliography -- (Bibliographie) -- List any materials, books or information you used

## STEP 6 - Plan your exhibit

- Remember your backboard is not your project -- it is only the means by which you will tell everyone what you have done
- Build your backboard to the specifications. Be sure to include all of the important information in your display.
- Don't forget to include your logbook, models , display items and other materials.
- **The backboard should not exceed the dimensions of: 1m high, by 2m wide by 1m deep!**