

# N.A. MacEachern's Science Fair Guidelines



## What is Science Fair?

Science Fair is a voluntary, extra curricular event that provides the students of N.A. MacEachern the ability to show off their scientific work in a exposition type of atmosphere. This will be a judged event.

## When is Science Fair?

The Science Fair will be held on **Thursday, April 26th 2018.**

Science Fair participants will set up their projects in the gym the morning of the Science Fair. Parents may assist with the set up. Volunteers will be available if you are unable to assist your child. Students will have the opportunity to view the exhibits with their class during the day.

An evening portion of the Science Fair will be held in the gym. The evening portion of Science Fair is for the entire N.A. MacEachern School community.

## Who Can Participate in the Science Fair?

The Science Fair is open to all students of N.A. MacEachern Public School from Junior Kindergarten to Grade 6.

Students may work on their own or with a partner. If working with a partner, work should be shared equally. **A maximum number of students in a group is 2.** Students may work with friends in **different grades.**

This project should be of interest to the students, to encourage their creativity! Parental assistance is welcome but **please** let your child be the one to create, have fun and explore the magical wonders of science!

## Why Participate in the Science Fair?

Participating in a Science Fair can be a great experience! It provides students with the opportunity to think creatively and use problem solving skills. It can help students achieve a love for science, a strong work ethic and a sense of accomplishment that builds confidence - all helpful traits in later schooling and in life!

## Science Fair Information

Science projects can vary in size, scope, appearance and approach. Most importantly, they provide an opportunity to explore the unknown. Scientists all over the world make new discoveries every day.

The first step in getting started on your project is **choosing a topic**. You must first decide what you want to do your project about. You may work on your own or with a partner. If working with a partner work should be shared equally. **The maximum number of students in a group is 2**. Students may work with friends from any grade.

Make sure you choose a topic you are interested in!

**Here are some Science Fair ideas to help you get started thinking about what you might like to do!**

*Under what colour light do plants grow best?*

*Which yeast is the best for making bread rise?*

*Which type of bread turns mouldy first: store-bought bread or bakery bread?*

*How does the air pressure of a soccer ball affect how far it travels when kicked?*

*Does a no-name stain remover work just as well as a brand name?*

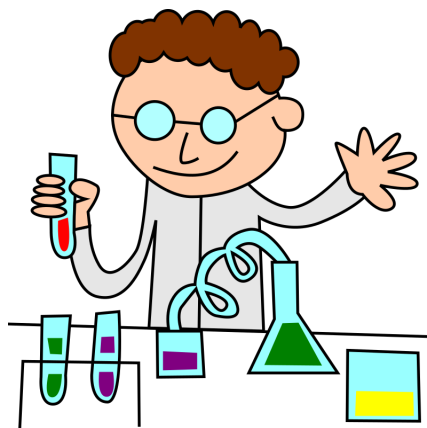
*Which is a better insulator: wool, cotton or down feathers?*

*Which brand of potato chips has the least amount of grease?*

*How does the material of a bandage affect its ability to stick after getting wet?*

*Which kind of gum keeps its flavour longer: sugar free or regular?*

*Which lightens stains better: vinegar or lemon juice?*



## Rules and Safety Guidelines

- Students may work on their own or with a partner. If working with a partner work should be shared equally. **The maximum number of students in a group is 2.** Students may work with friends from **any grade**.
- All work on Science Fair projects is to be completed **at home**. No classroom time will be allotted for Science Fair projects and thus all work is to be completed outside of school hours.
- Science Fair projects must be **safe and portable** and not exceed the size of the display poster board (provided).
- All participants **must** use the display poster board available through N.A. MacEachern's School Council for a small fee to display their project on the day of the Science Fair.
- All participants will be provided a Scientific Journal to record all information about their project. **The Scientific Journal is to be with your display the day of Science Fair.**
- **Always** have an adult supervising the data collection and experiment phase of your science project.
- Tables will be provided for the students to display their presentations in the school gym.
- The following are **NOT** permitted in the gym: live animals, **hazardous** chemicals or **explosive chemical reactions**, live electrical wires, flammable liquids or open flames.

If we have **any** safety concerns regarding your display, experiment or materials used, we reserve the right to exclude it or remove the dangerous component from the science fair.

Please check with Laurel Imeson if you have any questions concerning safety issues.  
laurel\_imeson@msn.com

Here is one example of a layout of a display poster board...



## What makes a great science fair project?

Here are some tips for making sure you have a good project, based on what science fair judges are looking for...

- Judges admire creativity. Try to look at something in a different way or invent a new procedure.
- Clearly explain your purpose, how the science fair project was conducted, your results and your conclusions.
- Find a real-world application for your project. There is almost always a good use for the knowledge you learn through your science experiment.
- Understand the background material related to your project. This can be done through library research, the internet or any other method that allows you to gather information not already known to you. Science fair judges want you to learn from your project, so go looking for facts and studies relating to your idea.
- Repeat your experiment to verify your results (If doing an experiment)
- Have a display poster board that is neat, clear, and free of errors

# Types of Projects

There are three types of projects to choose from for Science Fair: **Experiment, Innovation and Study.**

## Experiment

This is the traditional Science Fair Project using the Scientific Method.

The steps of the Scientific Method are:

1. **QUESTION** - Ask yourself “What do I want to learn about?” or “I wonder what would happen if...?” Write down what you want to find out.
2. **FORM A HYPOTHESIS**- Make a guess to try to answer your question. For example, if you asked... “are certain paper towels better at absorbing spills than others?” A list of possible answers to this might be... thickness is the reason why some paper towels are better than others, or the type of material used to make the paper towel is the reason some are better than others (cotton fibre, recycled paper, etc.) You can do research using books or the internet to learn more about your topic to help you.
3. **EXPERIMENT**- Test your hypothesis by making a plan and conducting an experiment. Use your **Scientific Journal** to make a step-by-step list of what you will do to answer your question (procedure) and to record notes of everything you do and everything that happens during your experiment, **including dates and times** and a list of materials used. Your **Scientific Journal** will become the source from which you derive the final report for your Display Poster Board.
4. **OBSERVE AND RECORD** - Make careful observations and write down what happens. Use **pictures, charts, tables or graphs** to show what happened. Try to explain how and why the results came out as they did. Remember that a clean, neat and tidy display goes a long way in explaining your results. Type or write out your notes on a separate piece of paper to add to your display board. Remember, results are never wrong.
5. **ANALYZE** - Use your information to draw conclusions about your experiment. Was your hypothesis correct? If your hypothesis was not correct, what could be

another possible answer to your question? Share what you learned - for example, I will ask my mom to buy “XYZ” brand of paper towels from now on!

6. **SHARE RESULTS** - Explain your results by presenting your experiment, observations and conclusions at the Science Fair using a **Display Poster Board**. The display poster board is an important tool for the presentation of your science project. It is where you can display photos, pictures, diagrams and graphs to tell your story.

## **Innovation**

Invent something new or improve a device that already exists.

The steps of innovation are:

1. **WRITE YOUR PURPOSE**- What do you want your invention or improvements to do or help with? Write down what problem will it solve.
2. **WRITE THE DESIGN CRITERIA** - Figure out the framework that your invention needs to fit into. Does it need a power source? Are there size limitations? Does it need to be adjustable?
3. **OUTLINE THE PROCEDURE**- In the **Scientific Journal** write step by step how you will develop the device. Explain how you chose your materials and how you used them. **Draw labelled sketches** of possible inventions. **Include all drafts**, not just the final one. Show your thought process.
4. **RECORD AND ANALYZE RESULTS** - In the **Scientific Journal** write your research on your inventions, describe your attempts and any changes you need to make to your initial ideas. **Every time** you try your innovation, record the results, analyze the success/failure, and consider any changes that might need to be made or tried. For each prototype and trial take photographs or video to show how your device did.
5. **CONCLUSIONS AND RECOMMENDATIONS** - Summarize what worked with your invention or what the challenges were that prevented your invention from doing exactly what you were thinking it would. Tell what group of people might benefit most from this invention.

6. **SHARE YOUR INNOVATION** - Explain your results by presenting your innovation, observations, analysis and conclusions at the Science Fair using a **Display Poster Board**. The display poster board is an important tool for the presentation of your science project. It is where you can display photos, pictures, diagrams and graphs to tell your story. If size permits you may want to display your actual invention.

## Study

A study searches out information already available and attempts to put it together to answer a question. For example, many of Albert Einstein's discoveries were studies. When Johannes Kepler figured out the orbits of planets, he was using data from observations made by Tycho Brahe. When carrying out a study, the researcher doesn't control the variables, but makes careful observations and tries to explain phenomena.

1. **DESCRIPTION OF THE PROBLEM OR QUESTION** - Ask yourself "what question do I want to answer?" Write down what you want to find out. For example, with temperatures in more northern places on earth getting warmer is it possible for animals from the south to migrate north?
2. **PREDICTION** - What do you think your research and observations will show? Write what you think the answer might be.
3. **FIND EVIDENCE** - Using different resources such as the internet, books, documentaries gather information about your question. Write your findings in the **Scientific Journal**. You may also need to make your own observations. Write your observations in the **Scientific Journal**. Using the example, you could find out desirable temperature conditions for different kinds of animals and see if in recent years northern climates have matched that criteria. Or you could observe animals locally and see if there is a change?
4. **CONCLUSION** - Using the data you have researched and collected tell what you have found out. Does it support your prediction or not?
5. **SHARE FINDINGS** - Explain your research by presenting your findings, observations and conclusions at the Science Fair using a **Display Poster Board**. The display poster board is an important tool for the presentation of your science project. It is where you can display photos, pictures, diagrams and graphs to tell your story.



## Helpful Resources

### The Library

- Library books are where many students get ideas for Science Fair projects! Your local libraries stock a great selection of books on science fair projects and interesting science topics. Take some time to go to your local library, look for books that interest you, sit down and start exploring!

### The Internet

- The internet makes it easy for you to find information related to science! You will find a wide range of great resources on the internet to help you decide on a topic or help you get an idea of how much information has already been written about your topic. There are many websites that can help you . Here are just a few...

<http://wwsef.uwaterloo.ca/fairinfo.htm> - Waterloo-Wellington Science and Engineering Fair. **If you want to see some neat projects it is being held April 3rd at Bingemans.**

[www.education.com](http://www.education.com) - elementary school science fair project ideas

[www.sciencebuddies.org](http://www.sciencebuddies.org) - hundreds of detailed science fair project ideas

[www.sciencebob.com](http://www.sciencebob.com) - science fair ideas and helpful information

[www.sciencemadesimple.com](http://www.sciencemadesimple.com) - simple answers to common science questions plus science projects

<http://www.sciencefun.org/kidszone/experiments/> - science experiments

**\*Parents** - please be advised that these websites have not been screened or previewed for content. Content is **not** endorsed by N.A. MacEachern Public School.

