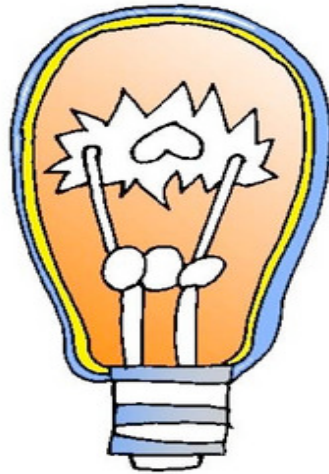


Pasco County Schools

# Young Inventors Fair

A PARENT HANDBOOK





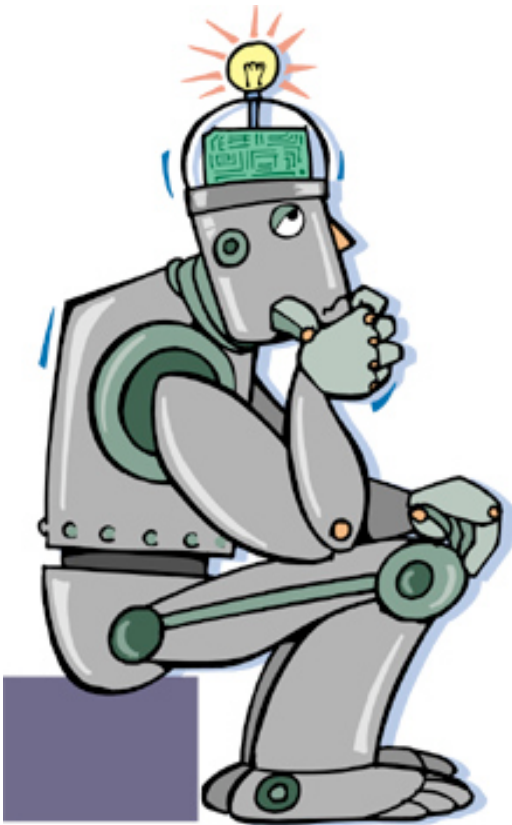
Dear Pasco County Families,

The school is planning an invention convention. We are encouraging students to participate in the fair and are asking you to support this valuable experience. Science projects, like the Invention Convention, will involve research, design and imagination on a topic of individual interest. The educational benefits to the student who completes a project are numerous and include developing skills in writing, oral presentation, creative thinking, problem solving and time management.

Each student will be given instructions and handouts during class for the various steps of his/her project. Your support is key to a successful project. Your child may need you to monitor his/her progress and most importantly provide encouragement. Please do not allow your involvement to extend any further in order to assure equity and promote student learning. Also, be aware that a prize-winning project can be completed for little cost.

This pamphlet highlights reasons for doing a science project, student expectations and some helpful hints for providing encouragement. Please take time to read this information carefully. We hope that the Young Inventors Fair is a wonderful learning experience for your child and will promote a love of learning and science.

# Why An Invention Project?



- Students use the scientific method to solve a problem.
- Students use an open and creative approach to problem solving.
- Students sharpen their writing skills.
- Students develop research skills.
- Students improve time management and organizational skills.
- The judging process provides an invaluable experience for developing poise and quick-answer thinking

**SCIENCE IS FUN!!!**

## **Get in step with the Scientific Method for the Invention Convention!!**

Below is a list of student expectations for the inventors fair:

1. Researching a selected topic
2. Brainstorm ideas for an invention/innovation to solve a problem
3. Completing a patent application
4. Design a plan for building your invention/innovation (hypothesis)
5. Maintaining a scientist's data journal (Project Log)
6. Completing a formal written report that includes the following:  
problem, purpose, background research, plan,  
procedure, materials, results, conclusions and bibliography
7. Making a display of required information



# Glossary

## Topic:

The subject of interest that will be explored. This should be something of student interest and to which he/she can relate.

## Background Research:

Learning about the topic by reading books, newspapers and magazines /journals, by watching TV or videos, or by interviewing knowledgeable people.

## Problem:

The specific problem that is going to be investigated.

State this in the form of a question. What do I want to find out?

## Hypothesis:

An educated guess presuming the outcome of the invention. What will happen? How can I solve the problem? Should be written as an **if..... then.....** statement.

## Experiment/ Design Plan or Procedure:

A test designed to check your hypothesis and to create your new idea.

## Variables:

**Independent:** The one thing in your experiment that you change in order to test your hypothesis. Ex. Number of blades on a turbine

**Dependent:** The factor that may change as a result of testing the independent variable. Ex. Distance it traveled

## Constants:

Everything that you keep the same while testing to ensure results are more valid. Example, same temperature water, same surface....

## Control:

The control group has no changes added. The data collected from the control group is used to compare with the experimental group.

## Conclusion:

A statement about the results of the plan and invention and how the results compared with what you thought would happen.

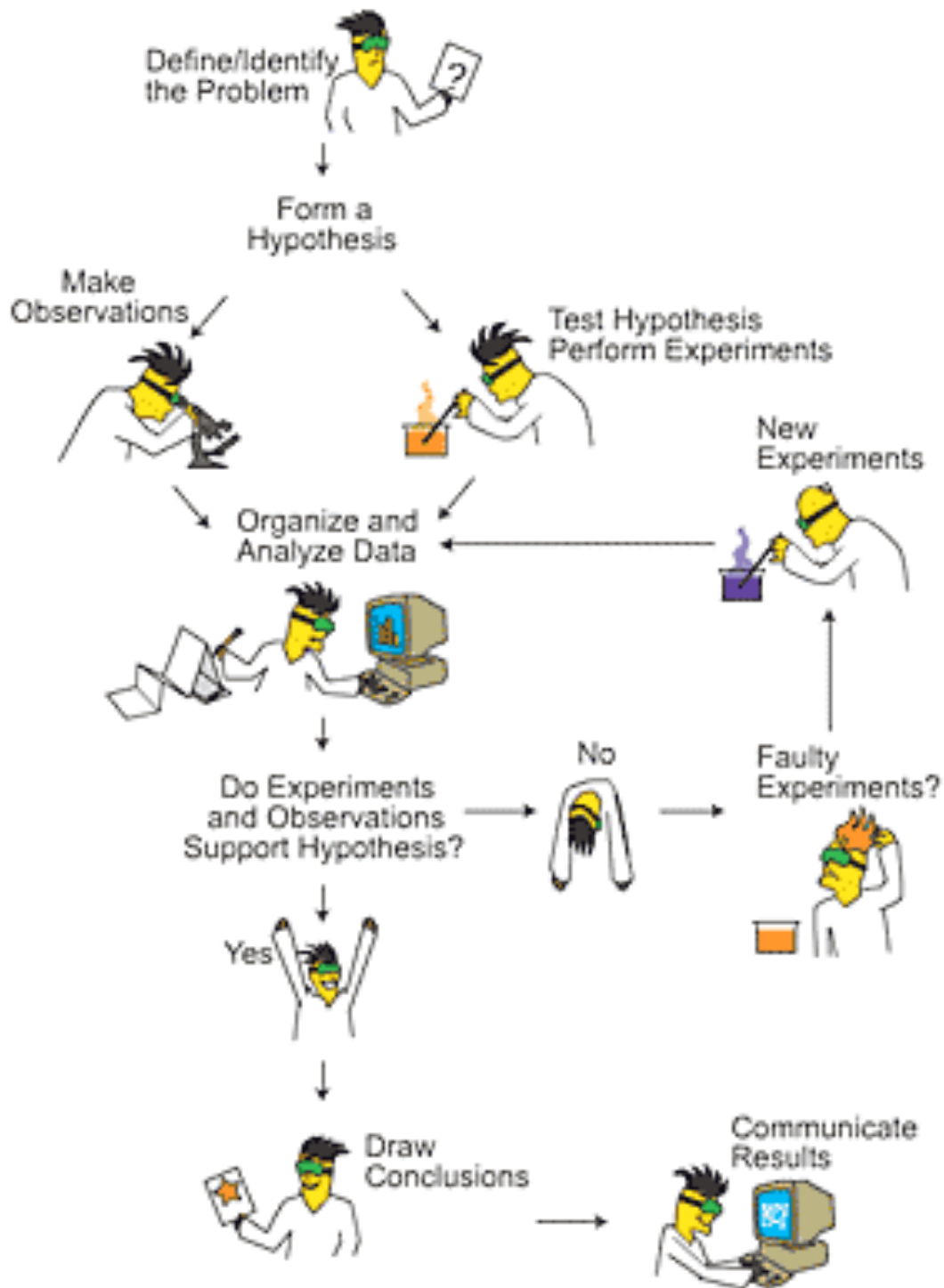
## Abstract:

A very brief condensation of the project. This should summarize the problem, what you did and the results.

## Project Log:

This is a record of all the activities related to your project and should include details of what happened during the process.

# The Scientific Method



## Backboard Display and Safety:

In general, most displays will not have any problem satisfying the items on the safety checklist. However, anything made of glass and containers holding liquids could cause problems.

**BACKBOARD:** The backboard is a display of the project and should address the following items:

- Invention Title
- Problem/need
- Hypothesis
- Materials
- Steps in designing/testing the invention
- Abstract
- Labeled diagram of invention
- Data table and graphs
- Conclusions
- Pictures

The following is a suggested layout for your backboard. You need to make sure that the abstract is in the lower left hand side of the board.

Problem/Need	<b>Invention Title</b>	Data Table
Hypothesis	Steps in Designing/Testing the Invention	Graph
Materials/Equipment	Labeled Diagram of Invention	Conclusion
Abstract	Pictures of Model or the Device in Use	



# PATENT APPLICATION

*What is your invention and what will it do? It can be an adaptation of something that already exists.*

**I WOULD LIKE TO INVENT:**

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*What problem could be solved by using your invention?*

**THE REASON I CHOSE THIS IDEA IS:**

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MY SIGNATURE BELOW INDICATES THIS IS MY IDEA AND I AM APPLYING FOR A PATENT

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STUDENT SIGNATURE AND DATE

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TEACHER SIGNATURE AND DATE

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PARENT SIGNATURE AND DATE

# ABSTRACT

The abstract is a brief summary of your project . Your abstract should answer the following questions:

- 1) What was the problem I was trying to solve or the purpose of my project?
- 2) What was my hypothesis?
- 3) What were my procedures?
- 4) What were my results?

The summary must fit in the space provided on the next page and should be written in paragraph form. An example has been provided below.

## ABSTRACT EXAMPLE:

PROBLEM	<p>My dog, Macy, is always getting swimmer's ear when we go to the beach. The purpose of this invention is to construct a device that will protect dogs from "swimmers ear."</p>
HYPOTHESIS	<p>It was determined that dogs, like humans, get swimmer's ear, which can be very harmful to them. Swimmer's ear can cause ear infections and more. It was hypothesized that a device could be constructed that would easily fit into the dogs' ears, keeping them dry while he swims.</p>
PROCEDURE	<p>The device was constructed from an adjustable plastic headpiece which was part of a normal pair of ear muffs. Then a veterinarian was consulted to determine which material could be put in the dog's ear that would be painless and harmless to the dog when it is inserted or removed. A type of ear plug was used. It was attached to the ear muff device and tried on different dogs under the supervision of the veterinarian. Looking at my data I collected none of the dogs gave any signal that it hurt to insert or remove and none of them developed swimmer's ear when they went swimming.</p>
RESULTS	<p>This invention helps dogs with their owners because the dogs are protected from getting swimmer's ear. This invention will allow the dogs to have fun in the water without their owners having to worry about them getting swimmer's ear.</p>



## What is a Science Project Log?

The logbook or log is a notebook or folder in which you record all of the steps and activities that took place during your project. It is the place where you will record **everything** that you do and read. You will record field measurements there, and you should present this as evidence of your work. Keep it as neat as possible. The things you write in there should all be dated, so that the record is completely clear, and neatness is not so important as clarity. You will use the information in your logbook to complete your report/forms. It needs to be on display with your project during the science fair.

Your log is written as you go. There is no need to make rough notes on bits of paper, so you can copy them into the log when you get home. Real logbooks show where they have been written in during rainstorms, they have mud stains, and that is OK. Look after your log, but do not stress out if it suffers some indignity. And if, for some reason, you have to use loose paper, date it, and paste it into the book.

You should keep notes of any interviews or phone calls you make, phone numbers and e-mail addresses, because you never know when you will need to e-mail a contact again - and computer systems can always turn nasty on you.

So get your book, label it, and start with a list of possible topics, and then move on to a timetable. Have a great time and remember that real science involves researching to find out what is already known, finding out what techniques to go and where to look, getting the equipment that is needed, and so on. You will need to do the same, ***because every science project is real science.***