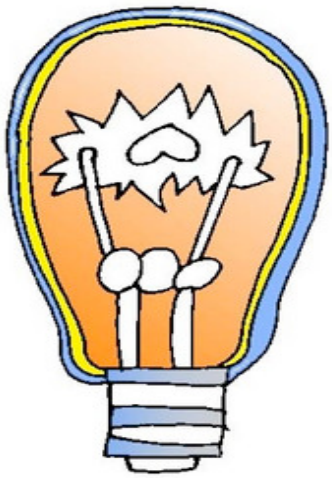
Pasco County Schools

Young Inventors Fair

Student Research Plan



STUDENT NAME AGE (As of 01-01-13)

NAME OF INVENTION:

Helpful Hints:

- Each student MUST turn in the title page and patent application with their invention
- Students must complete a science project log. A student may choose to either complete the research plan pages provided or keep a log book that includes all necessary components of the invention process (please review project log information expectations)
- If working in a team, both members must have their own log

TABLE OF CONTENTS

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:

_____

_____

_____

_____

What problem could be solved by using your invention?

THE REASON I CHOSE THIS IDEA IS:

_____

_____

_____

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

_____

STUDENT SIGNATURE AND DATE

_____

TEACHER SIGNATURE AND DATE

_____

PARENT SIGNATURE AND DATE

PLANNING PAGE

Developing a plan is an important step in solving a problem or designing a new product. Scientists and inventors use a problem solving plan known as the Scientific Method. In the plan you need to work through the following steps:

1) What do I want to find out or develop? (State the Problem)

2) What do I think will happen or how can I solve my problem? (Hypothesis: If…. Then….)

3) How can I test what I think will happen with my new idea? (Design product or experiment)

4) What type of data can I collect? How will I collect and display the data?

5) What will I do with the data and results that I collect?

ORIGINAL SKETCH OF MY INVENTION

Use this page to sketch the way your invention/innovation might look. Show how your ideas might help solve the problem you listed. This is a rough drawing of your idea. Later, you will make a detailed drawing of your invention.

_____

INVENTION/INNOVATION NAME

_____

STUDENT NAME

RESEARCH

Gather information that relates to the topic area of your invention by reading and referring to different resources.

QUESTIONS TO GUIDE YOUR INVESTIGATION:

1. Have you found any evidence that your invention/innovation exists?

2. What area or field might be related to your invention? (Example-Medicine, education, environmental, entertainment, etc.)

3. A person who has conducted research or studied this is_____

because_____.

4. If you started with an invention that has already been made, how is yours different?

5. How might your invention be helpful to others?

6. What topics in science may be involved when using your invention/innovation? (Example-chemistry, physics, biology, earth/space, etc.)

7. What problems did you have in designing your invention/innovation? How did you deal with them?

BIBLIOGRAPHY

LIST THE RESOURCES THAT YOU USED FOR YOUR RESEARCH

MATERIALS TO BUILD MY INVENTION

List the materials you might need to build the actual product you designed. Sometimes building a real invention can be very expensive. Find the cost of the materials you would need if you really built your invention. You might try finding the cost of materials in home supply stores, etc.

Material/Item Needed	# of each item	Cost per Item	Total for Each Item

*Total Cost of Project:_____

WOULD SOMEONE BUY MY INVENTION/INNOVATION? WHY OR WHY NOT?

PROCEDURE I USED TO BUILD and TEST MY MODEL

It is very important that you are very detailed in your plan so that others will understand how to build your model. You may attach additional pages if needed.

THE STEPS I FOLLOWED IN BUILDING MY MODEL WERE:

_____

_____

_____

_____

_____

_____

_____

_____

THE STEPS I FOLLOWED IN TESTING MY MODEL WERE:

_____

_____

_____

_____

_____

_____

GRAPHS AND DATA

In order to show that your idea works, you should test it. The data of your tests and trials should be displayed below. Keep in mind you should attempt at least 5 trials of your invention.

FINAL DETAILED DRAWING OF MY INVENTION/INNOVATION

ALL PARTS MUST BE LABELED.

_____

Invention Name

_____

Student Name

PROJECT SUMMARY/CONCLUSION

Think about the scientific processes you used to create your invention. Answer the questions below to extend your thinking about your invention experience.

1) How has your final drawing changed from the original one? Why?

_____

_____

_____

_____

2) Did the outcome of your invention prove your hypotheses? YES or NO

3) Identify and explain the types of data you used to prove or disprove your hypotheses?

_____

_____

_____

_____

4) What types of problems did you encounter throughout your scientific investigation as you created your invention?

_____

_____

_____

_____

5) If you developed this idea again, what would you do differently?

_____

_____

_____

_____

_____

6) How is the invention you created using the scientific processes relevant to experiences in your real life?

_____

_____

_____

_____

_____

7) What other ideas did you think of while working on this project?

_____

_____

_____

_____

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	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."
HYPOTHESIS	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.
PROCEDURE	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.
RESULTS	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.

Abstract

Please provide a brief summary of your project.

Student Name: _____

Project Title:_____

School:_____

Summary:

Backboard Display Information

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 Hypothesis Materials/Equipment Abstract	**Invention Title** Steps in Designing the Invention Labeled Diagram of Invention Pictures of Model or the Device in Use	Data and Results Tables and Graphs Conclusion

DATE	What YOU Did	COMMENTS

DATE	What YOU Did	COMMENTS