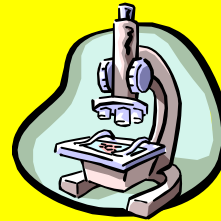




## Piccowaxen Middle School School Science Fair Presentation



**A science project is a well-  
designed investigation that :**

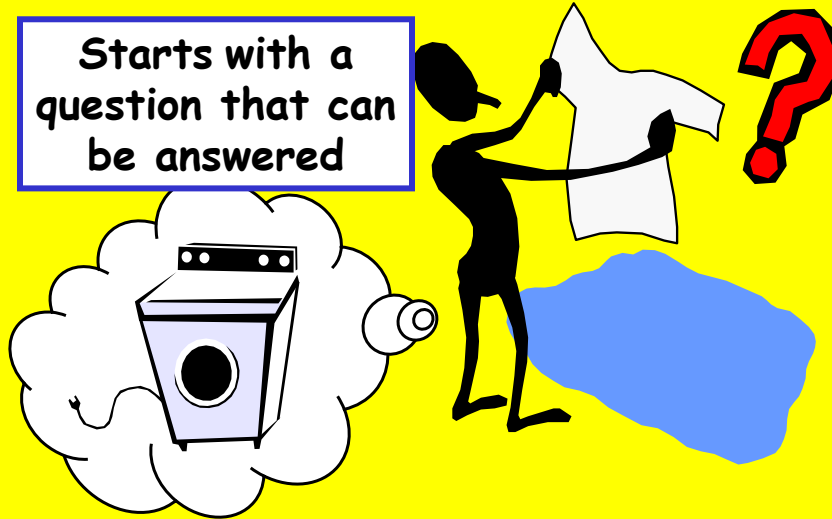
**Follows a scientific procedure**

- ① one variable tested**
- ② all other variables controlled**
- ③ repeated trials**
- ④ adequate sample size**



A science project is a well-designed investigation that :

Starts with a question that can be answered



### Question Frames

Which \_\_\_\_\_  
(verb) \_\_\_\_\_  
\_\_\_\_\_ ?

How does  
the \_\_\_\_\_  
affect  
\_\_\_\_\_ ?

What is the effect  
of \_\_\_\_\_  
on \_\_\_\_\_ ?

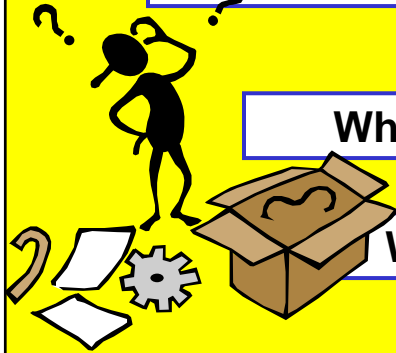
## Simplified Scientific Procedure

What do I want to find out?

What do I do to find out?

What did I find out?

What can I do with what I find out?



## Scientific Procedure

Problem

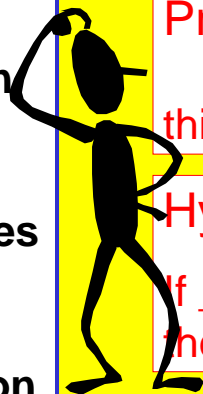
Prediction

Materials

Procedures

Data

Conclusion



Prediction = what will happen

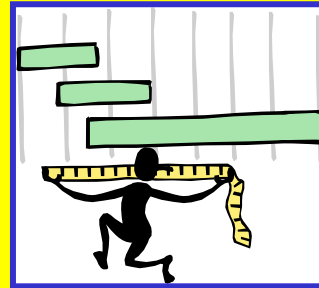
I think \_\_\_\_\_

Hypothesis = why

If \_\_\_\_\_  
then \_\_\_\_\_

**A science project is a well-designed investigation that :**

**Involves collecting, organizing and displaying data**



**A science project is a well-designed investigation that :**

**Involves a written conclusion that is supported by the data collected**



**Prediction/Hypothesis-supported or not supported?**

## Science Project Requirements (Questions & Answers)

### What is a Science Fair Project ?

1. A science fair project is an investigation that follows a step by step plan and explains why something happens.
2. A science fair project is a long term activity which should answer the following questions:
  - a. What do I want to find out? (Question)
  - b. What do I need to do to find out? (Procedure)
  - c. What did I find out? (Conclusion)
3. A science fair project is a student's own responsibility.



## Science Project Requirements (Questions & Answers)

### What a Science Project is not

- ✓ It is not an art project.
- ✓ It is not a written report.
- ✓ It is not a model (No Volcanoes!)
- ✓ It is not a display showing a piece of equipment or machinery.
- ✓ It is not a collection



## Choosing A Project

\* Be sure that the project your child chooses is an *experiment*, not a *demonstration*. An experiment is a problem that can be explored through the Scientific Method. It is an activity that answers the following questions:

1. What did I want to find out?(Question)
2. What did I do to find out?(Procedure)
3. What did I find out?(Conclusion)



## A Common Mistake



- Choosing a project that is a model or demonstration!
- Examples-volcanoes, solar systems, how a light bulb works.
- Models and demonstrations require much effort, but are not experiments!
- Neither models nor demonstrations will be accepted as a science fair project!

## What Makes a Good Project?

1. Your child picks a topic that interests them.
2. The topic can be explored through the Scientific Method.
3. The project can be done with little help from parents.
4. Your child has fun while learning something new.



## Tips for Parents



- **Read the experiment completely before starting:** If you know the experiment well, it will be easier for you to give your child instructions and answer questions.
- **Select a place to work:** The kitchen table is usually the best place for the experiments. It provides space and access to an often needed water supply.
- **Choose a time:** Select a time when you will have the fewest distractions.
- **Collect supplies:** You will have less frustration and more fun if all the materials are ready before you start.

## More Tips



- Do not rush through the experiment: Follow each step carefully for sure and safe results, never skip steps or add your own. Safety is of the utmost importance, and it is a good science technique to teach children to follow instructions when doing a science experiment.
- Have fun! This should be a learning experience and should be a pleasure for both you and your child.

## Types of variables

- Independent variable (AKA manipulated variable): the variable you are changing.
  - Examples: amount of light a plant receives or amount of salt added to water
- Dependent variable (AKA responding variable): the variable you observe for changes.
  - Examples: the height of the plant or the boiling point of the water
- Controlled/constant variables: all other variables in the experiment should remain the same.
  - Examples: amount of soil in each plant, amount of water in each pot

## Do the Experiment

- Follow the steps of the procedure you wrote.
- Remember to test only ONE INDEPENDENT VARIABLE!
- All other variables should remain constant.
- Repeat the experiment to increase accuracy. 6-15 trials is best!

## *Observations*

- "What do I observe?"
- Observations are things you see happening with your project.
- Take observations whenever you are doing the project, even in preparation.



## Tips for a successful project

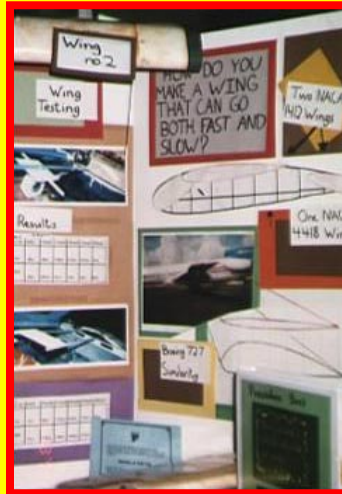
- Know your subject well enough to answer questions about it.
- Keep a log about what you did and when. (JOURNAL IS REQUIRED FOR ALL GRADES THIS YEAR!!)
- Charts, Graphs, and more Graphs!
- Be sure to be able to explain why the project came out how it did.
- Make the display attractive.
- Your title should represent your project well, even if it isn't "short and sweet".



## Success Stories



## Success Stories



	Balsa Wood	Stiffend	Felt	Back Card Base	Poster Board	Foam Craft Sheet
10	3.8 ft.	1.5 ft.	4 ft.	1.9 ft.	1.2 ft.	
11	1.5 ft.	1.8 ft.	1.0 ft.	1.6 ft.	1.4 ft.	
12	2.4 ft.	1.9 ft.	1.4 ft.	2.8 ft.	1.4 ft.	
13	2.8 ft.	1.9 ft.	1.4 ft.	2.2 ft.	1.7 ft.	
14	1.4 ft.	1.9 ft.	1.1 ft.	2.0 ft.	1.5 ft.	
15	2.5 ft.	1.8 ft.	1.4 ft.	2.5 ft.	1.5 ft.	
16	2.4 ft.	2.1 ft.	1.4 ft.	1.6 ft.	1.8 ft.	
17	2.4 ft.	1.5 ft.	1.4 ft.	2.4 ft.	1.5 ft.	
18	2.0 ft.	1.8 ft.	1.3 ft.	2.0 ft.	1.4 ft.	
19	1.8 ft.	1.7 ft.	1.2 ft.	1.9 ft.	1.4 ft.	
Average	2.3 ft.	1.8 ft.	1.2 ft.	2.1 ft.	1.5 ft.	

## Project Ideas on Internet

### Sample Projects

<http://www2.ccboe.com/library/athome/>

-Charles County Online Databases

eLibrary Science

SIRS Discoverer

<http://www.cool-science-projects.com/Science-Fair-Project-Ideas.html>

<http://www.ipl.org/youth/projectguide/>

-Choosing a topic

<http://www.all-science-fair-projects.com/>

<http://www.sciencebuddies.org/>

<http://www.exploratorium.edu/snacks/snacksbysubject.html>

<http://www.rossarts.org/naples/ideas.htm>

<http://school.discoveryeducation.com/sciencefaircentral/scifainstudio/ideas.html>

**Sites-**[Bunsen Bob's Science Hunt](#) - includes tons of science fair project ideas, tips for creating successful projects, information on how judges think, advice for your parents, and so much more!

[California State Science Fair](#) - read about this science fair which has been going on since 1952! You can learn how to enter, get help with your own project, or see a directory of past projects.

[Cyber Fair](#) - see sample fair projects, look through other student's examples, and see the steps involved in judging projects.

[Experimental Science Projects](#) - outlines steps in preparing a project (complete with an ideas list), and suggests the best ways to prepare one at different grade levels.

[Math Ideas for Science Fair Projects](#) - cool ideas for projects you can do that involve the use of math.

[Math Projects for Science Fairs](#) - suggestions for possible projects on topics that could make exciting and interesting projects, from the Canadian Mathematical Society.

[Science Buddies](#) - use the topic selection wizard to help you figure out what science projects interest you most. Once you have a topic, get help doing research, setting up the experiments, and completing them.

[Science Fair Central](#) - includes cool project ideas, a science fair handbook, reviews of students' experiments, and more from Discovery Channel School.

[Science Fair Ideas](#) - get some suggestions on how to choose a topic, do a project, and write up a bibliography.

[Science Fair Project Resource Guide](#) - samples, ideas, magazines, resources, and more. Includes a list of sites that explain the Scientific Method.

[Scientific Method](#) - describes the five steps of the Scientific Method that are helpful when creating a science fair project. Includes examples of wording and sample projects to explain certain steps.

[Super Science Fair Projects](#) - guide to projects, topics, experiments, and tips for successfully completing a science project, including the six steps of the Scientific Method.

[USGS: Science Fair Project Ideas](#) - lots of earthquake science fair project ideas from the USGS!

[What Makes a Good Science Fair Project?](#) - short guide written by a group of experienced judges for the California State Science Fair.

## In Closing

- Pick an experiment that is interesting!!
- Start on your experiment ASAP!!
- Background Research (6<sup>th</sup> Grade-3 sources on note cards, 7<sup>th</sup> grade-3 sources and research paper written, 8<sup>th</sup> grade-4 sources and research paper written)
- Projects due 2/3/2010!!
- Science Fair is 2/17/2010!!