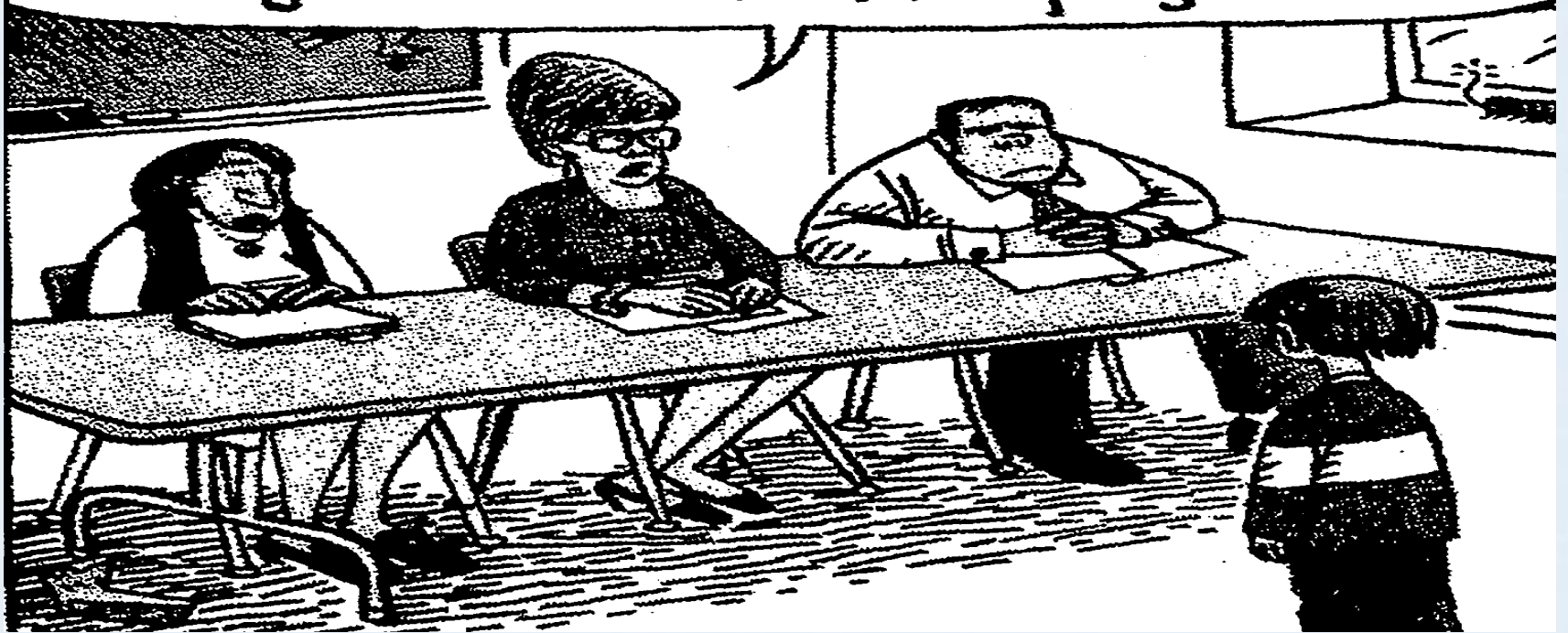


We're taking back your first place ribbon. — We found traces of your parents' DNA all over your science fair project.



Welcome to Science Fair Project
Training Night



Let's Do A



Science Project!

If we just read about Science and **DON'T DO** Science, we will **NOT** have the learning experiences necessary to be successful in Science.

Why are we doing this????

1. Twenty-five percent (25%) of the SSA and County Cycle Assessments require understanding of "the nature of science."

2. Completing a science research project, is a powerful and authentic way for students to internalize this knowledge and to practice the process skills of science.

Effective Student Investigations

Activities that actively involve students in the process skills...



- Observing
- Hypothesizing
- Measuring
- Classifying
- Collecting and Interpreting Data
- Predicting
- Experimenting
- Inferring
- Communicating

Nature of Science Standards Met When Working on a Science Project!

Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

Explain the difference between an experiment and other types of scientific investigation.

Recognize and explain the need for repeated experimental trials.

Identify a control group and explain its importance in an experiment.

Recognize and explain the difference between personal opinion/interpretation and verified observation.

Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.

Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others.

Ways to Support Your Child...A Guide for Parents:

Begin your science project experience with a planning meeting. You and your child will want to review the Science Research Project Inquiry Guide and the Pinellas County Science Fair and Showcase Guide. Both are on the Bauder website.

Some ideas to keep in mind are:

1. This entire process should be *fun*. It is a great opportunity to spend time together doing something of educational value.
2. Budget more time for the project than you think you will need...*then double it.*
3. Topic selection should be at the child's level. Please keep in mind the ultimate project choice should remain with the child. The science book is a good source of science project ideas.

Start With A Diary!



- Remember a science project is the diary!
- The board is simply the display.
- Record all information in the diary.
- The diary will accompany the science fair project when board is turned in.

Research Question

A research question should be phrased properly. It should reflect student understanding of what he/she is testing.

When I change _____, what happens to _____?

Does _____ affect _____?

When I change the height of the ramp, what happens to the distance the marble will roll in centimeters?

Does the height of a ramp affect the distance a marble will roll in centimeters?

Independent Variable

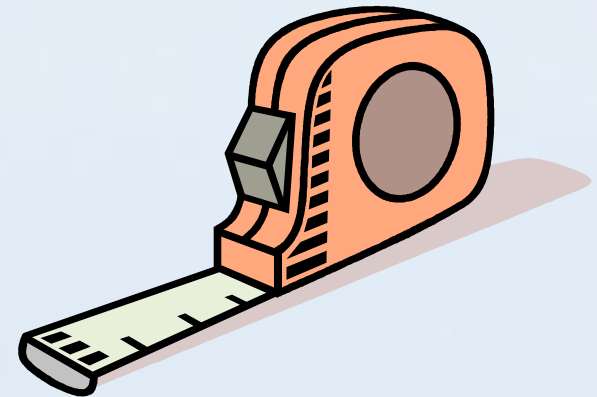
The **one** thing
(or object)
you will
change in the
experiment.



Dependent Variable

What will you measure in this investigation?

The dependent variable is _____.



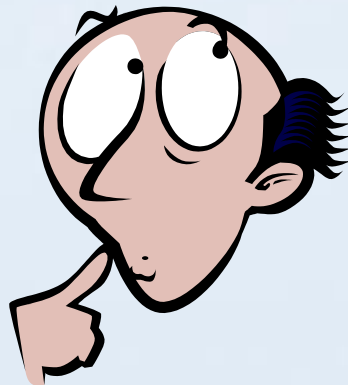
Materials

This is the list of items that will be used in the investigation. It should be very specific and include the **size, quantity, and descriptions** of each material needed so someone else could duplicate your project.



Set-Up Conditions

Also known as the "Constants" these are the things (materials & procedures) that will remain **constant** to ensure the independent variable is the only thing being tested .



Experiment Directions

This is a step-by-step list of how to set up the investigation and what you did (or how each item in your material list will be used) and the exact order it was done.



Predictions

There are three ways an independent variable can affect the dependent variable.

- The dependent variable can increase.
- The dependent variable can decrease.
- There may be no affect on the dependent variable.



Predictions

Now, write your three prediction statements.
Add your independent variable to the blanks below.

1. _____ will **increase**
the distance the marble rolls.

2. _____ will
decrease the distance the marble
rolls.

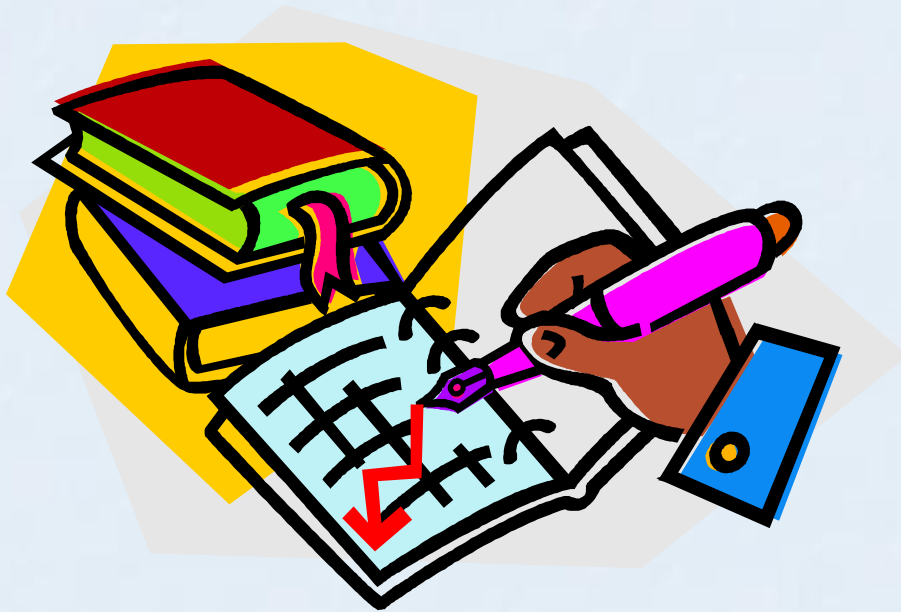
3. _____ will
have no affect on the distance the
marble rolls.

Real World Uses

This is a description of the ways, places, or situations where the **information** from your experiment might be **useful**.



Data Collection



This is an **organized** and complete account of everything that was **measured and observed** in the experiment (using metric units).

There should be at least 10 trials.

Graph

This is a mathematical picture of the data, using (mean) **averages** to plot the data in the experiment.

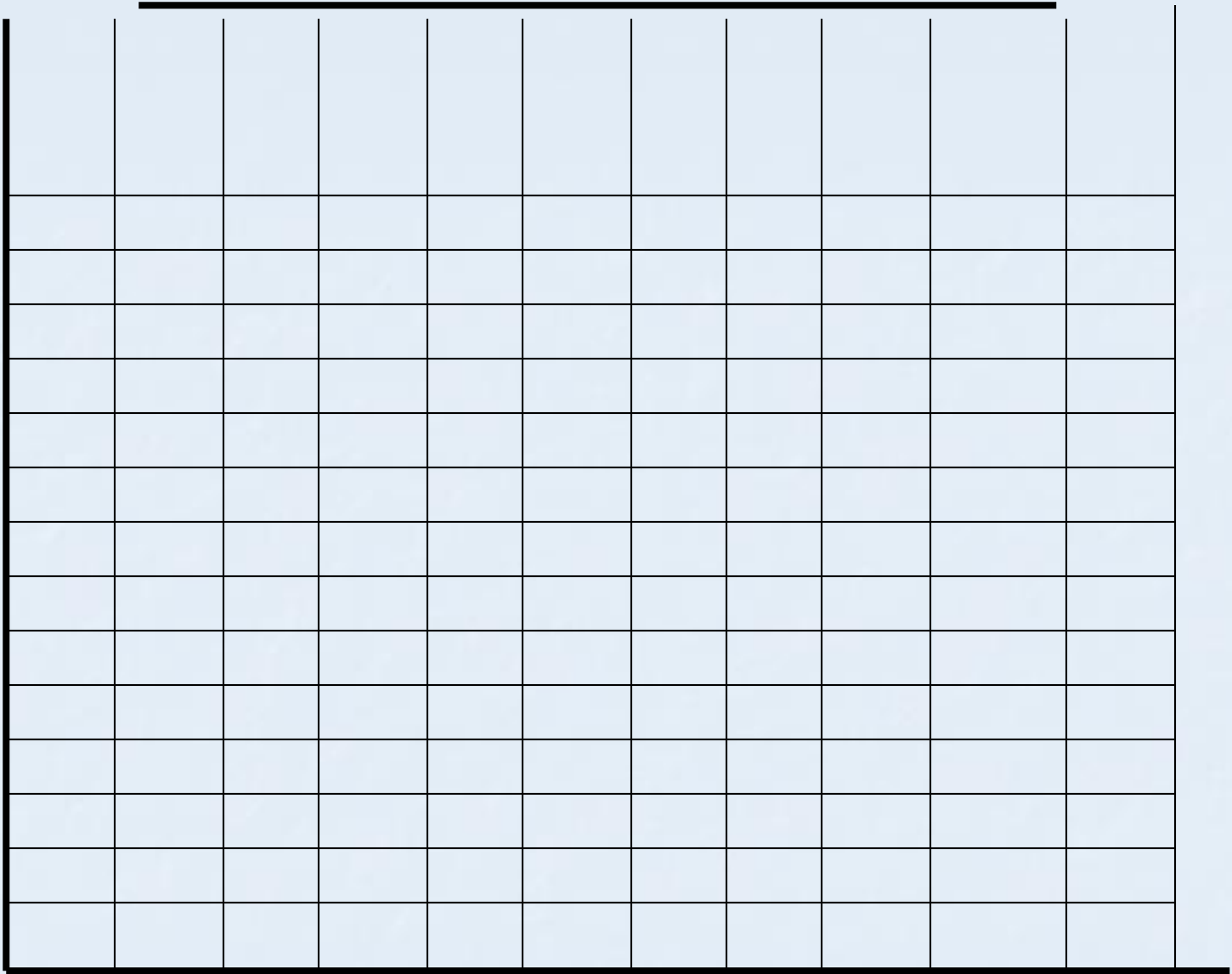


Dependent Variable (Y)

U - I - O R e f e r e n c e M e a s u r e m e n t

U - I - O R e f e r e n c e M e a s u r e m e n t

140
130
120
110
100
90
80
70
60
50
40
30
20
10
0



Independent Variable (X) Graph the average of the trials.

Experiment Results

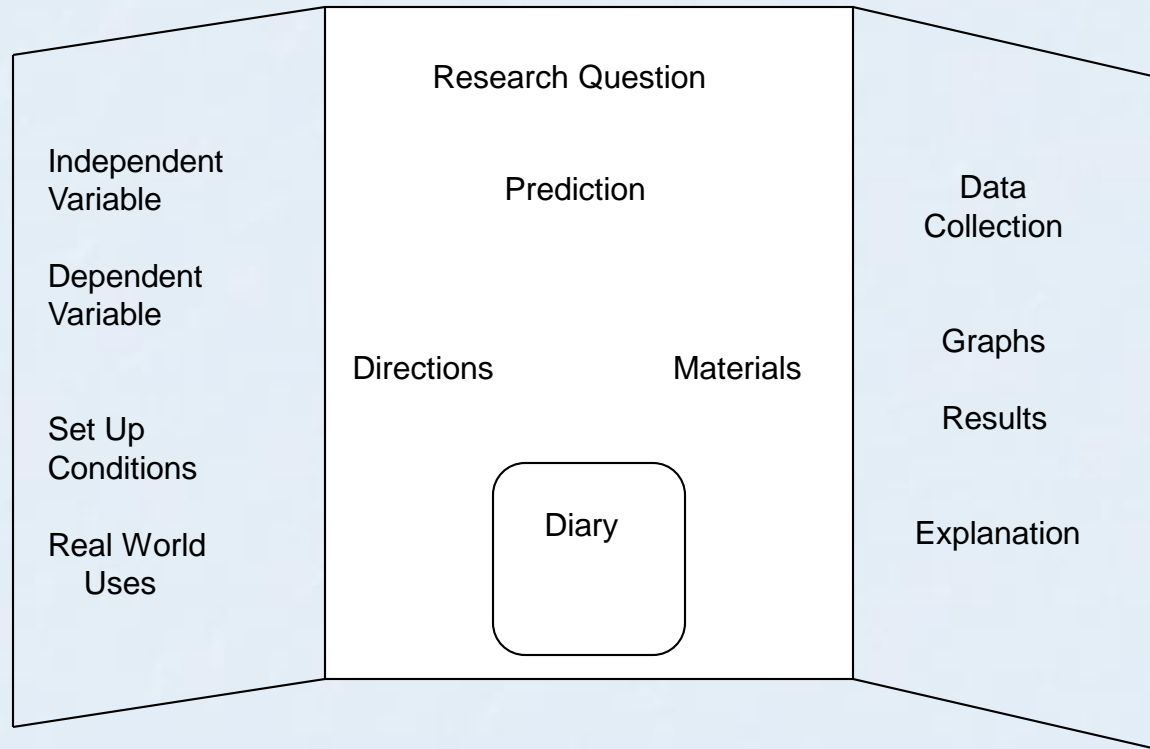
- Use the data and graphs (from the experiment) to **explain** what happened in the experiment.



Explanation

- This statement explains whether your data supports your identified prediction. Is what you change (independent variable) affect what you measured (dependent variable)? Describe the affect. It is acceptable if your data does not support your prediction.

Presentation Board Organization



Bauder Website

<http://www.bauder-es.pinellas.k12.fl.us/>

Go to Academics - Click Science Fair

Project DUE Friday, February 17, 2017

Science Expo - Friday, February 24, 2017