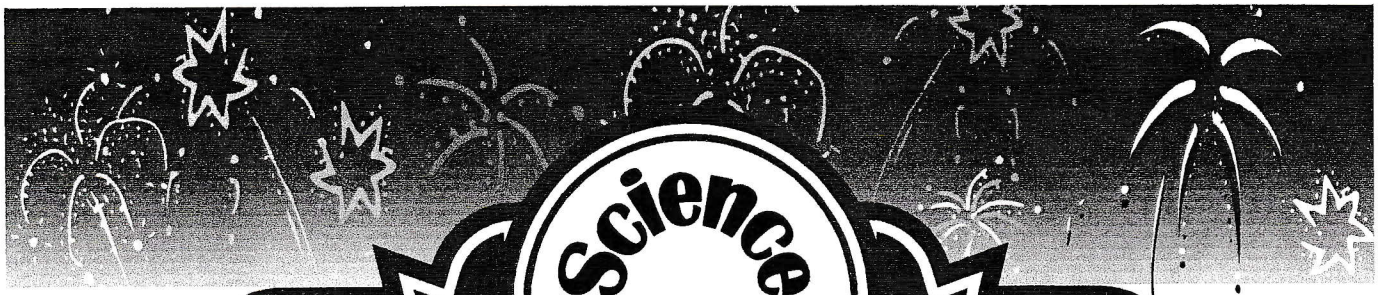
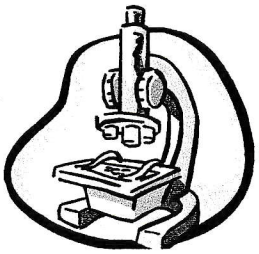
EXPERIMENTAL PROJECT

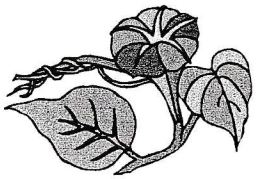
KINDERGARTEN – 5TH GRADE

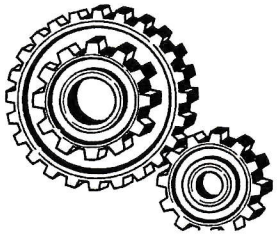


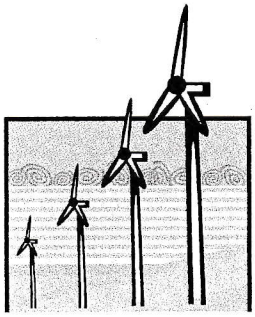
Science Fair

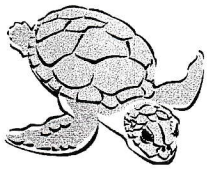
Student Information Packet











Helpful Hints for Students

- Start EARLY; don't wait until the last two weeks before it is due.
- Plan it out. It will be much more fun if you spread the time out over several days per week or several weekends, and you won't have to race to get it done! It might look like this:

  Week 1 – Decide on your QUESTION – what you want to find out.

  Week 2 – Collect and read books about your topic.

  Week 3 – Work the steps of your project.

  Week 4 – Think about the results and make your charts or graphs.

  Week 5 – Write your report.

  Week 6 – Make your display.

- Check with your parent or teacher if you want to use a web site for research. Not all web sites give correct information.
- Students in 4th and 5th grades should be doing almost all of this by themselves.
- Students in 2nd and 3rd grades should be able to do many parts.
- Students in Kindergarten and 1st grade will need help for most of the project.
- This is to be a fun process. "Success" is a completed project where you had fun and learned a lot.
- Enjoy the fun!

EXPERIMENTAL PROJECT

DEVELOPING A SCIENCE FAIR EXPERIMENTAL PROJECT USING THE SCIENTIFIC METHOD

For Kindergarten through 5th Grade

Conduct an experiment using ***The Scientific Method***. It includes asking a question, doing some preliminary research, making a hypothesis, planning and conducting your experiment, and analyzing your results.

I. QUESTION / PROBLEM

State the problem – one sentence in the form of a question. Choose a topic in which you are interested in learning more about.

II. PRELIMINARY RESEARCH

Research, read, watch science videos, contact resource people who may help. Incorporate prior knowledge.

III. HYPOTHESIS: Form a hypothesis as a one-sentence statement.

The hypothesis is an educated guess (your best guess) based on your preliminary research.

IV. EXPERIMENT

- **A. Materials:** Plan and collect the materials you will need for your experiment. It is best to borrow, make, or use inexpensive materials.
- **B. Procedure:** Plan the steps of your experiment carefully. Conduct your experiment.
- **C. Observe and record data:** Plan how you will record your data. Record what happens during your experiment.
- **D. Results:** Summarize findings in the form of data tables, graphs, and drawings. Write an explanation of your findings.

V. CONCLUSION

The **conclusion** answers the hypothesis. What did you learn from your experiment? Was your hypothesis proven? Why or why not?

ELEMENTARY EXPERIMENT

WRITTEN REPORT CONTENT

Kindergarten through 5th Grade

★ **TITLE PAGE**
See Written Report Format page.

★ **PURPOSE**
In three sentences or less, tell why you did your science project on the topic you chose.

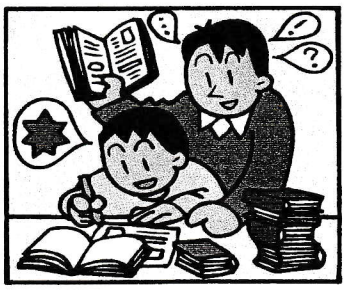
★ **ACKNOWLEDGEMENTS**
In one or more sentences, say "Thank You" to those who have helped you with your project. You should include those who gave you guidance, materials and the use of facilities or equipment.

★ **TABLE OF CONTENTS**
List each of the following sections and the page numbers for each. (See page 21: Written Report Format) Type the page number at the bottom of each page after you have finished the final copy of your report.

★ **PROBLEM**
State the problem in the form of a *question*. The problem is one sentence long and specific. Your page numbering begins here.

★ **PRELIMINARY RESEARCH**
This part of your report has information that was found by other scientists and relates to your topic.

★ **HYPOTHESIS**
State your *best guess* for answering the question before you have performed an experiment. The hypothesis is one sentence long.



★ **EXPERIMENT**
The experiment is used to test your hypothesis.

MATERIALS
List the materials you used.

PROCEDURE
List the steps of your experiment. Diagrams are helpful in this section. Do not use the words "I" or "you".

DATA
Show what you observed during the experiment. Include measurements you made. You may also use drawings to help show what you observed.

RESULTS
The results are a summary of your data. The results section of your paper is organized into graphs and charts. This is where you tell about your data and what you observed. *Remember, even if your data shows that your hypothesis was incorrect, your project is still good.*

★ **CONCLUSION**
Look over you report, graphs, charts and tables. Use two or three sentences to tell what you learned from your experiment. Was your hypothesis valid? Why or why not?

★ **APPLICATION**
Now that you have finished your project, use this section to share with others your thoughts about this experience. Did you have any problems? What would you do differently next time? Explain how what you learned from your project applies to the real world.

★ **SOURCES / BIBLIOGRAPHY**
List all books, articles, pamphlets and other communications or sources that you used for researching your topic and writing your paper. You must have at least two sources, and only one may be an encyclopedia. Interviews with experts in your field of study are encouraged.

ELEMENTARY EXPERIMENT
WRITTEN REPORT FORMAT

- Each line with a box (❑) in front of it begins a new page in the report.
- **Items with a star (★)** must be included in reports for **Kindergarten–2nd grade** projects. Other sections are optional for K-2nd grades.
- **ALL** of the items listed below must be included in reports for **3rd–5th grade** projects.

❑ ★Title page

Title *in middle of page*

In lower right-hand comer:
Last Name, First Name
Grade ___
Teacher Name
School Name
Date (include year)

❑ Purpose

❑ Acknowledgements

❑ Table of Contents (with page numbers)

❑ ★ Problem (Question) (page numbering starts here)

❑ Preliminary Research

❑ ★ Hypothesis

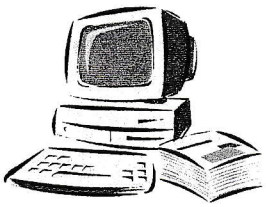
❑ ★ Experiment
- Materials
- Procedure
- Data
- Results

❑ ★ Conclusion

❑ Application

❑ ★ Sources / Bibliography (Use format on next page.)

1. **The original report goes inside the report pocket on the display board.**
2. **A COPY should be kept at home or on the computer.**



ELEMENTARY EXPERIMENT WRITTEN REPORT FORMAT FOR SOURCES / BIBLIOGRAPHY

Entries in a bibliography are alphabetized by the last name of the author or the first word of the title. An entry for which the author is unknown, such as a newspaper article or an unsigned review, is alphabetized by the first word of the title, excluding the articles *A*, *An*, and *The.*

Books	
Basic Form	Bronowski, Jacob. The Ascent of Man. Boston: Little & Brown, 1973.
Two Authors	March, James G., and Herbert A. Simon. Organizations. New York: Wiley, 1958.

Magazines	
Weekly	Tuchman, Barbara W. "The Decline of Quality." New York Times Magazine, 2 Nov. 1980: 38-57.
Monthly	Brown, Norman O. "Apocalypse: The Place of Mystery in the Life of the Mind." Harper's. May 1961: 27-35.

Newspapers	
Basic Entry	Kristof, Nicholas D. "Oil Futures Plunge on OPEC Doubt." New York Times, 3 Jan. 1985: DI3.

Reference Works

Encyclopedia Entry, Unsigned

"Huygens, Christiaan." Encyclopedia Britannica. 13th ed.

Dictionary Entry

"Advertisement." Webster's Third International Dictionary. (Because the number of the edition appears in the title, the date is not necessary.)

Atlas Entry

"Hidden Face of the Moon." Times Atlas of the World. 1981 ed.

Nonprint Sources

Video

Redford, Robert, dir. Ordinary People. With Mary Tyler Moore and Donald Sutherland. Paramount, 1980.

Computer Materials

Computer Software

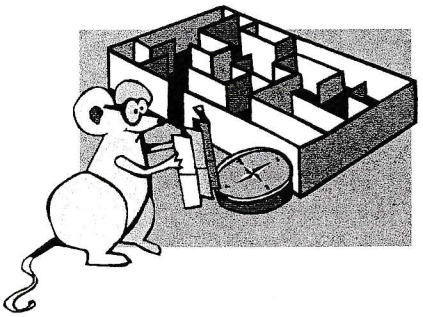
Visispell: Fut.heuristix. Version 1.00. Computer software. San Jose: Visicorp, 1983. Disk.

Web Sites

Corte, Corrinne. "Why Are British Sailors Called Limeys?" *Ask A Biologist.* Arizona State University.
http://ls.la.asu.edu/askabiologist/research/scurvy/index.html (8 Mar. 2001)

Interview

Persons name (last name first), position or work title, place of interview, date of interview.



ELEMENTARY EXPERIMENT DISPLAY INFORMATION

BACKBOARD MATERIALS

The backboard must be sturdy and stand by itself on a table. Foam core-board and cardboard are the best materials. If you need to cut through the sides of your core-board to make "wings", do not cut all the way through.

COLORS

If you need to paint your backboard, enamel paint works best. Do not use water-based paint. Contact paper may also be used. Use a minimum of three contrasting colors on your board.

LETTERING

Your title and subtitles may be computer-generated or cut from construction paper. Do not freehand the letters. The title letters should be 3-4 inches high. The subtitle letters should be 1-2 inches high. The subtitles, which are mandatory on the display board, are: Problem, Hypothesis, Procedure, Results and Conclusion. All items on the display must be glued to the board. Do not use pins, tacks, staples, or tape.

DRAWINGS, PHOTOS AND GRAPHS

Drawings and photos are most useful on the display. Drawings should be drawn in pencil first and then retraced. Drawings should be in color and outlined in thin black felt tip pen. Graphs and charts must be used in the results section. They may be computer-generated. All graphs and charts must have explanatory titles. Graph axes must be labeled.

If you have a camera, you should photograph your experiment's progress. A photo of you with your experimental set up is encouraged. All photos must be titled.

DISPLAY DIMENSIONS

1. When backboard (display portion) is flat, it should be 48 inches wide.
2. Side panels ("wings") should be 12 to 18 inches.*
3. Height should be no more than 48 inches.

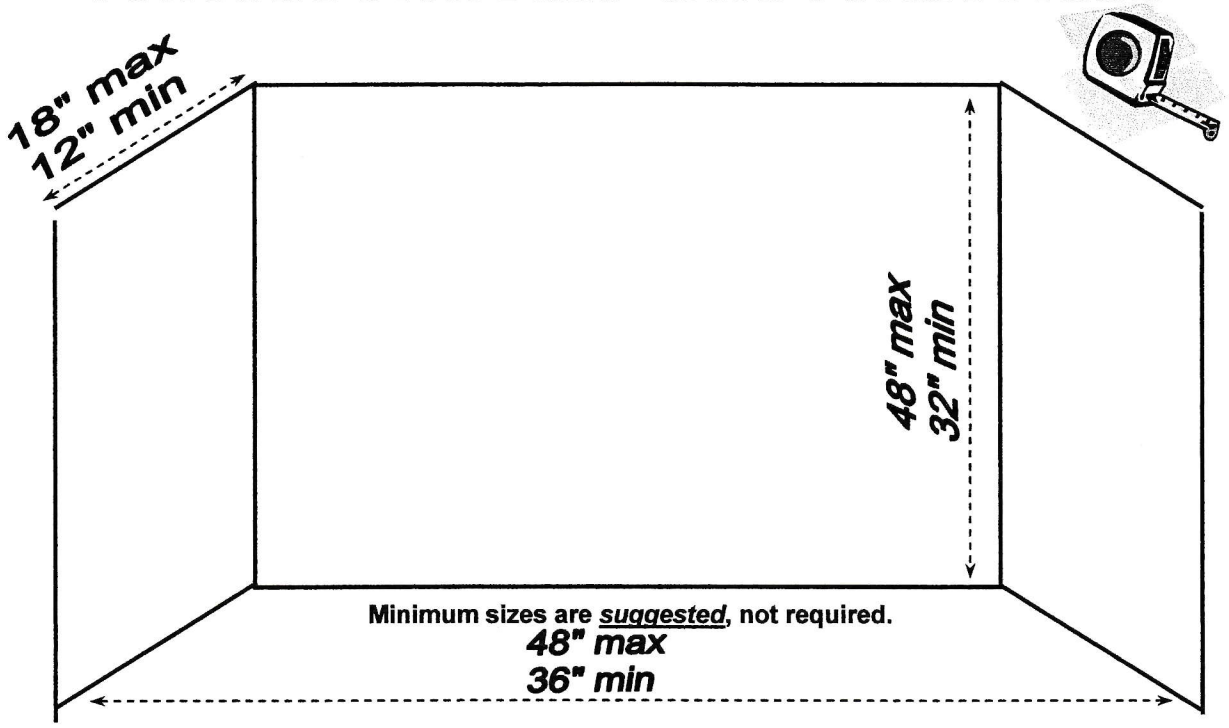
REPORT POCKET

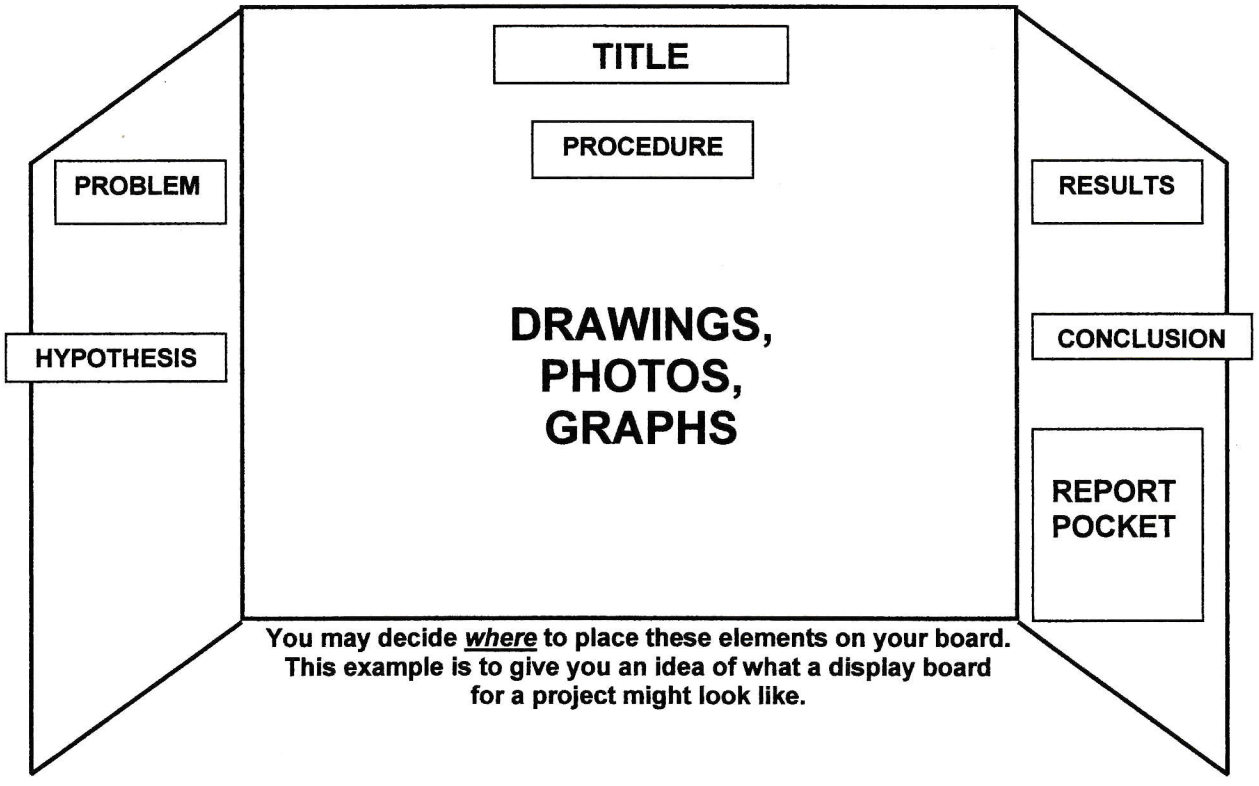
There must be a "pocket" on the display to hold your report.

When you have decided what you are going to put on the backboard (display), lay the unglued display on the floor and look at it carefully. Have family and friends look at it and ask their opinions. Then, you should glue everything into place. Examples of displays will be shown and discussed in class.

DISPLAY SIZE & SET-UP

FOR SCHOOL SITE AND LBUSD SCIENCE FAIRS





You may decide *where* to place these elements on your board.
This example is to give you an idea of what a display board
for a project might look like.