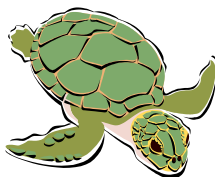
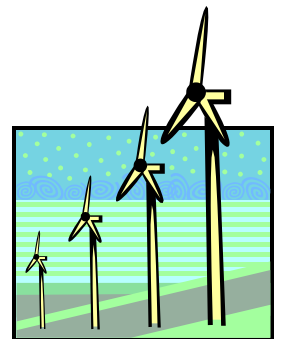
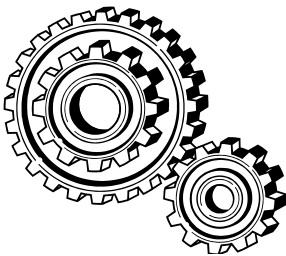
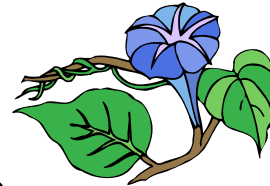
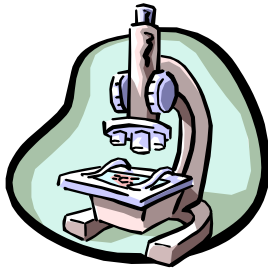


CAREER SHADOW PROJECT

6TH – 8TH GRADE



Student Information Packet





SECONDARY

SCIENCE FAIR

STUDENT INFORMATION PACKET

Revised 2009, 2011

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CAREER SHADOW PROJECT

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SCIENCE FAIR

STUDENT INFORMATION PACKET

INTRODUCTION



You are surrounded by science. Everything uses some form of science to make it work. Even the chair you sit on was made by a person using tools to build it based on knowledge of science and technology. How did they know what shape to make the saw and how sharp the teeth needed to be to cut wood? How did they know to make one saw for wood and a different one for metal? Why does the wood-cutting saw have larger teeth than the metal-cutting saw?

Science is asking questions and finding answers. A science project, simply put, is the process of asking a question about something you are interested in, for which you don't already know the answer, and then hypothesizing (best-guessing) what the answer might be, researching for information on that topic, experimenting, inventing, surveying, etc., analyzing your results, and coming to a conclusion!

The purpose of a science fair is to provide a focus for you, the student, to apply skills and concepts you have learned in science as well as in math, reading, writing, and technology. It gives you a place to use these skills creatively in your own way.

What your accomplishment will mean for you:

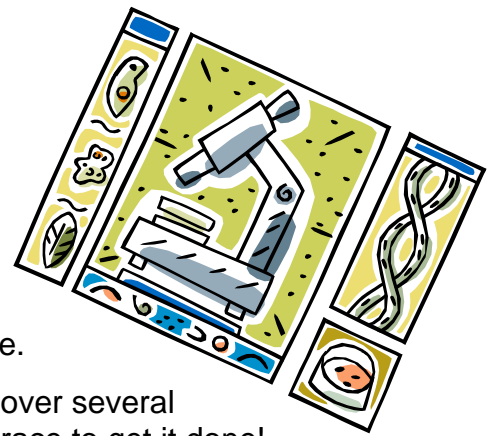
- ★ Developing self-reliance
- ★ Gaining self-confidence
- ★ Acquiring organizational skills
- ★ Knowing what the scientific method is and how it can help you.
- ★ Having your work viewed and recognized by your school and community

Everything you need to know about doing a great science project is inside this packet. You'll be discussing the contents in class. Approximately every two weeks between now and your school science fair, your teacher will give you a **Student Timeline for Science Fair Project** sheet to check your science project's progress. The timeline sheet is designed to keep you on target, and keep your teacher and parents informed so that they can help you if needed

You must keep this packet, timeline sheets, letters home to parents, and all other information in a separate folder. Your science fair folder should be kept at home unless your teacher asks you to bring it to school.

You will find the science fair to be an exciting and rewarding experience. Let's make this year's fair the best ever!

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 PROBLEM – what you want to solve.

Week 2 – Conduct your preliminary research by reading information about your topic, visiting libraries, universities, making contact with other sources, and checking out web sites.

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.

- ⊕ The goal is that you learn to use “the scientific method” or “the engineering design process” through direct experience.
- ⊕ Check with your parent or teacher if you want to use a web site for research. Not all web sites give correct information. *Remember:*
 - Anyone can create a web site; this does not mean its information is correct!
 - Make sure the web site is run by a large, recognized group such as a college or organization.
 - DOT “org”, “gov” or “edu” are generally trustworthy for accuracy of content.
- ⊕ What is an acceptable science fair project?
 - Something that answers a question to which you do not know the answer
 - Something you can figure out yourself
 - Something you can change somehow, add another variable, and then predict the outcome. That's an experiment!
- ⊕ What is NOT an acceptable science fair project?
 - Reproducing results found on the web is *not* an experiment; it's a reproduction.
 - A demonstration is not an experiment (i.e., volcano).



CAREER SHADOW PROJECT

IMPLEMENTING A SCIENCE FAIR PROJECT

BY SHADOWING A SCIENCE MENTOR

For 6th, 7th and 8th Grade ONLY

Learn about a science related career by shadowing one or two mentors currently working in a field of science of your choice. Before you begin this type of project, please consult the Career Shadow Rubric as well as following the Career Shadow guidelines below.

I. PREPARE

- A. Make phone calls and locate your own mentor. One or two mentors may be observed (in the same position). Mentors may not be your school's teachers or immediate family members. Students may shadow an aunt, uncle, or other removed relative.
- B. Write a **LETTER** to be given to your mentor on your first visit detailing who you are and what you hope to accomplish during this time. Include skills that you have to offer while you are observing. Be sure to thank your mentor for allowing you to shadow them.
- C. Spend a total of at least 8 hours shadowing the mentor(s). You must have a signature from your mentor for each session you spend shadowing.

II. RESEARCH / SOURCES / BIBLIOGRAPHY

Do research about the job or career that you are shadowing. Complete a 2-page research report about skills or education needed, salary and benefits of this job, and possible job duties and responsibilities of this job or career. Use at least 3 sources of information from at least 2 different types of resources. Include a bibliography with sources cited.

III. IMPLEMENTATION

- A. **LOG:** Keep a daily log detailing the dates, times, and activities that occurred during your visit with your mentor(s). This log will be included in your final report
- B. **INTERVIEW:** Conduct an interview with the mentor, to be included in your final report. Include at least 3 original questions of your own. See next page for ideas of the types of question you might ask.
- C. **PHOTO JOURNAL:** Create an ongoing photo journal with labels showing the subject of each photo. Include a photo of yourself with your mentor(s).

IV. REFLECTION

Write a reflection about the experience and how it has impacted your life and perceptions of the career you shadowed.

- A. What was your favorite part of this observation? Why?
- B. What has been the most rewarding part of this project? Why?
- C. How did this project meet your expectations? How was it different than you anticipated?
- D. If you were to do this again, what would you do differently?
- E. Is this a field in which you could see yourself pursuing a career? Why or why not?

V. KEEP A SCRAPBOOK TO USE WITH OPTIONAL DISPLAY BOARD

Compile all the pieces of your career shadow into a Scrapbook to turn in. If not on a display board, the scrapbook pages should be in this order: **Letter to Mentor, Research/Bibliography, Log, Interview, Reflection, Photos** (these may be interspersed throughout the scrapbook).

SECONDARY CAREER SHADOW INTERVIEW QUESTION IDEAS

- ◆ How long have you been doing this job?
- ◆ What originally attracted you to this job?
- ◆ What type(s) of schooling or other training did you have to do to be qualified for this job?
- ◆ How do you stay on top of the most current research in this field?
- ◆ Are there particular skills that are needed or come in handy in this occupation?
- ◆ What do you find is the most rewarding part of this job?
- ◆ How do subjects taught in middle school prepare me for a future in this field?
- ◆ Is the way you practice this profession the only way this job is done?
- ◆ What other ways can it be done?
- ◆ What are the benefits of each?
- ◆ What are the controversial issues involved in this profession?
- ◆ What are the different sides of each issue?

Think of some original questions of your own and write them here.

- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____



SECONDARY CAREER SHADOW

WRITTEN REPORT CONTENT

6th, 7th and 8th Grade

Scientists always report their research and experiments so that others may benefit from this new knowledge. Some research is reported through published papers while other work is presented at conventions, on TV, or through the Internet. Your research will be presented through your written report, a project display, and an oral presentation.

- ABSTRACT**

The abstract is a *concise summary* of your whole project. Others can read your abstract if they do not have time to read your paper. The abstract must *not* be more than one page long. It gives a clear yet concise presentation of the purpose of the career shadow and your conclusion about how this project may apply to your future plans. You must write the abstract *after* your report is complete.
- TITLE PAGE**

The title page belongs *after* the abstract. The project title must be centered on the page. See the **Written Report Format** sheet for information that needs to be in lower right corner.
- PURPOSE**

In one short paragraph, tell why you did your project on the topic you chose.
- ACKNOWLEDGEMENTS**

On one page, say “thank you” to all the people who helped you with your project. Include any family members, teachers, or experts who assisted you with information, materials, or equipment, or participated in some way in your project.
- TABLE OF CONTENTS**

Divide your Table of Contents into sections as indicated on the **Written Report Format** sheet. Put the actual page numbers at the bottom of each page *after* you have finished the final copy of your report.
- LETTER TO MENTOR**

This is a copy of the introduction letter you sent to the mentor, which introduced you to the mentor and explained the skills and interests you would bring to the Career Shadow. Your page numbering begins here.
- RESEARCH / SOURCES / BIBLIOGRAPHY**

Complete a 2-page research report in essay form telling about the sources of information you researched on the occupation observed. Tell about skills or education needed, salary and benefits of this job, and possible job duties and responsibilities of this job or career. If you are required to cite sources within the report, see **Written Report Format for Citing Scientific Research Sources**. Use notes from books, journals, the Internet, magazines, and interviews. Include a bibliography at the end. See **Written Report Format for Sources/Bibliography**.

WRITTEN REPORT CONTENT continued:

- LOG**
This is your daily log you kept during your time shadowing your mentor. It should detail each hour on the job, show at least eight hours of shadowing, and be verified by the mentor's signature.
- INTERVIEW**
Summarize the responses to the interview questions you asked your mentor to give a picture of the occupation and the mentor's experience in it.
- PHOTO JOURNAL**
Place your photos with labels showing the subject of each photo. There should be at least one photo of you and your mentor. Provide an organized visual overview of the experience using the photo journal.
- REFLECTION**
Write a reflection about the experience and how it has impacted your life. Reflect and write about how the mentor's occupation relates to your own talents, temperament and future.
- SCRAPBOOK &/OR DISPLAY BOARD**
Neatly organize your Scrapbook and/or Display Board. Use your creativity to draw the reader into your career shadowing experience.

**Rewrite your paper several times to correct errors.
Have someone you trust proofread your report before you make the final copy.**

BOXED topics are part of the rubric criteria for judging. The other parts are used only for grading the written report by the teacher.

SECONDARY CAREER SHADOW WRITTEN REPORT FORMAT

Each line with a box (☐) in front of it begins a new page in the report.

Abstract

Title page

Title in middle of page

In lower right-hand corner:

Last Name, First Name

Grade ____

Period ____

Teacher Name

School Name

Date (include year)

Purpose

Acknowledgements

Table of Contents (with page numbers)

Letter to Mentor (page numbering starts here)

Research / Sources / Bibliography

Implementation

- Log
- Interview
- Photo Journal

Reflection

Scrapbook (can be separate from report if used as a Display Item)

OTHER POINTS TO REMEMBER:

- ✓ Type or write on one side of paper.
- ✓ Do not put pages in plastic.
- ✓ Make two copies of your original report: Original to teacher, one copy you keep, second copy to use on display board (if you wish).
- ✓ Put report in a store-bought folder with three brads or rings.
- ✓ Put name, subject, period, date, and teacher's name on front of the folder in *upper right-hand corner*.

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.

WRITTEN REPORT FORMAT

FOR

CITING SCIENTIFIC RESEARCH SOURCES

(When used within the report)



Citations are similar to footnotes in English or history papers but are much easier to include. Citations are included only in the Preliminary Research. Scientific citations are placed *within* the paper itself, not at the bottom of the page. Citations are placed *at the end* of a sentence or paragraph that contains the information you gathered from another source.

- Rule 1: Cite all sources that refer to information on your species, experiment, or study site.
- Rule 2: Cite all sources that back up your conclusions.
- Rule 3: Cite anything that brings in a fact not directly taken from your own personal observations or experiment.
- Rule 4: When in doubt, cite!

EXAMPLES OF PROPER CITING

(author, date)

White sharks are known to be maneaters (Halstead, 1954). They are the only shark that regularly preys on marine mammals for food. Some scientists believe that great whites attack humans by mistake: the silhouette of a surfer paddling on a surfboard may be mistaken for a seal sunning on the surface (Ellis, ed., 1987).

(editor, date)

VARIATIONS IN SCIENTIFIC CITATIONS

One Author	Example	<i>(last name only, date)</i> (Bronowski, 1973)
Two Authors	Example	<i>(both last names only, date)</i> (Walker and Maben, 1980)
Three or More Authors	Example:	<i>(all last names only, date)</i> (Cochran, Wiles, and Kephart, 1975)
No Authors	Example:	<i>(abbreviated title, date)</i> (Insects of Guam, 1942)
Only an Editor	Example:	<i>(last name only, abbreviation for editor, date)</i> (Ellis, ed., 1987)
Citing an Expert You Have Spoken to or Corresponded with	Example:	<i>(last name, "personal communications")</i> (Collins, pers. commun.)



WRITTEN REPORT FORMAT FOR SOURCES / BIBLIOGRAPHY



Entries in a Sources / Bibliography section of a report are alphabetized by the last name of the author and the date is placed directly afterwards. 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*. Always double-space and *indent the second and succeeding lines of each reference*. Do not number your references and if you have two or more references by the same author, alphabetize them starting with the most recently written paper.

Books

One Author *(last name) (initial) (date) (title) (city) (publisher)*
 Bronowski, J. 1973. The Ascent of Man. Boston: Little & Brown, Inc. 376 pp.
(total # of pages only)

By Editor *(editor)*
 Ellis, R. (ed.) 1987. Sharks. New York: Wiley, 256 pp.

**2 Authors,
Local Agency** Walker, R. G., and A. Maben. 1980. The Feeding Ecology of Bats.
 Guam Div. Aquatic & Wildlife Resources. Mangilao, Guam. 44 pp.
(agency) (city) (country) (total # of pages)

Magazines and Scientific Journal Articles

**3 Authors,
Journal Article** *(last name, first initial, then first initial, last names) (date) (title)*
 Cochran, J. A., Wiles, G. and D. Kephart 1975. "Money, Banking, and
 the Economy". Fortune 34 (4): 47-55.
(vol.) (no.) (exact pages)

**No Author,
Scientific Bulletin** "Insects of Guam". 1942. Bernice P. Bishop Museum, Honolulu Bull. 17.
(title) (date) (publisher) (bulletin # only)

Newspapers

Basic Entry *(author) (exact day) (title)*
 Kristof, Nicholas D. 3 Jan. 1985: "Oil Futures Plunge on OPEC Doubt."
New York Times, D13.
(publisher) (section #)

Encyclopedia, Dictionary, Atlas

Article Within Encyclopedia	<i>(author)</i> Halstead, B.	<i>(date)</i> 1954.	<i>(title)</i> "Poisonous & Dangerous Marine Animals".	<i>(specific pages within)</i> Pp. 105-115 in <u>Encyclopedia Britannica</u> Vol. 93 (C. Brown, ed.), New York: Academic Press.
	<i>(encyclopedia)</i>	<i>(volume)</i>	<i>(editor)</i>	<i>(city)</i> New York <i>(publisher)</i>
Dictionary Entry	"Advertisement." <u>Webster's Third International Dictionary</u> . (Because the number of the edition appears in the title, the date is not necessary.)			
Atlas Entry	"Hidden Face of the Moon." <u>Times Atlas of the World</u> . 1981 ed.			

Nonprint Sources

Video / Film	<i>(director)</i> Shatner, William, dir.	<i>(date)</i> 1989.	<i>(title)</i> <u>Star Trek V: The Final Frontier</u> .	<i>(actors)</i> With William Shatner, Leonard Nimoy, and DeForest Kelley. Paramount Studios, Hollywood.
				<i>(studio)</i> Paramount Studios <i>(city)</i> Hollywood

Computer Materials

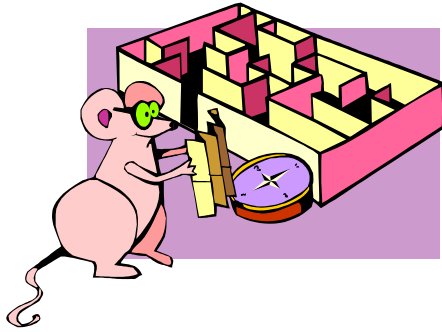
Computer Software	<i>(title)</i> <u>SimEarth</u> .	<i>(date)</i> 1990.	<i>(version)</i> Version 2.0.	<i>(publisher)</i> Sunburst Software, Green Valley, CA.	<i>(city)</i> Green Valley, CA.	<i>(format)</i> CD or DVD
Web Sites	<i>(title)</i> "How to Produce Award-winning Science Projects".	<i>(date)</i> 2005.	<i>(source)</i> Nat. Assoc. of Biology Teachers Bulletin Board, NABT.edu.	<i>(Internet address)</i>		

Citing "personal communications" with an Expert

(in person, on the phone, in letters or on the Internet)

<i>(full name and title)</i> Collins, Dr. Charles	<i>(date interviewed)</i> 2009.	Prof. of Biology, Calif. State Univ., Long Beach, CA	
		<i>(address of work or home)</i>	





SECONDARY CAREER SHADOW 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: **Implementation (Log & Interview), Career, Reflection and Photo Journal.** 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 very 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.

If you have a camera, you should photograph your **Career Shadowing** progress. A photo of you with your mentor 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.

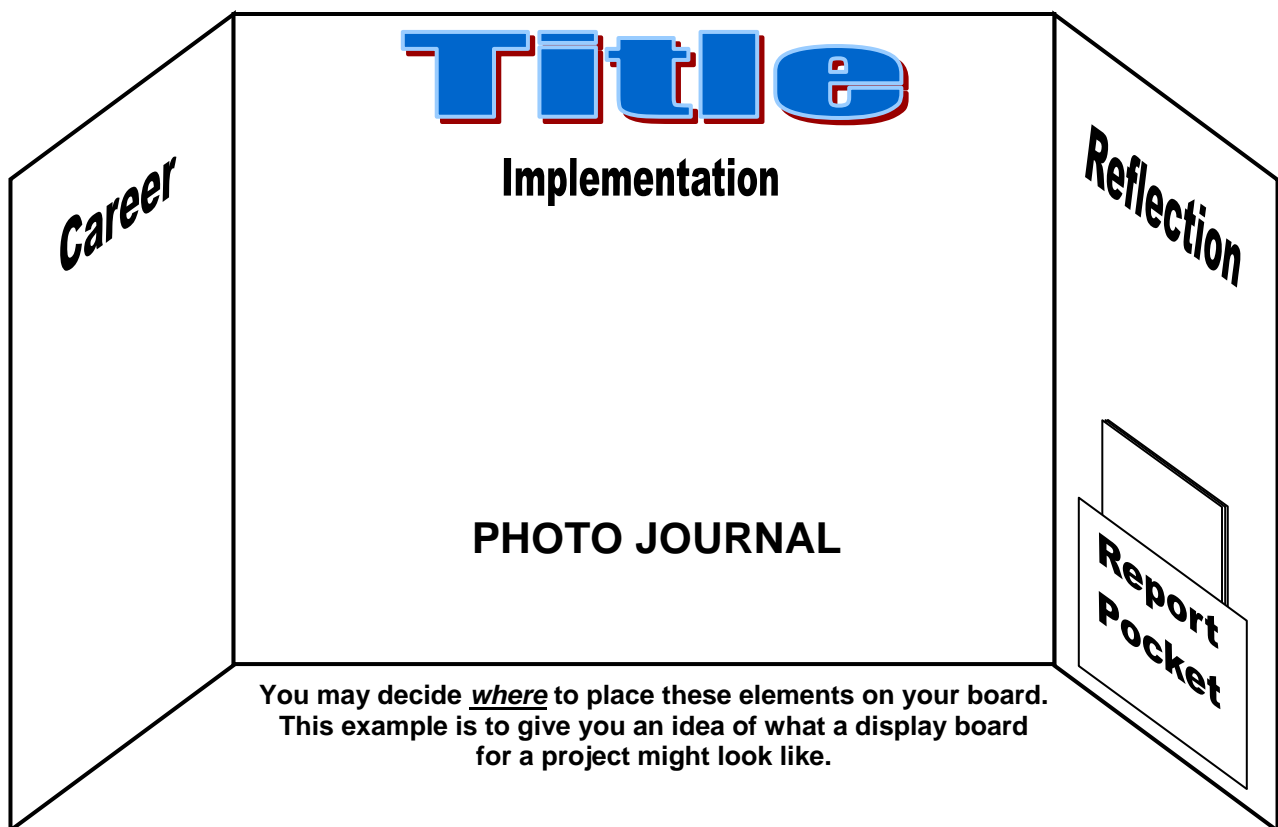
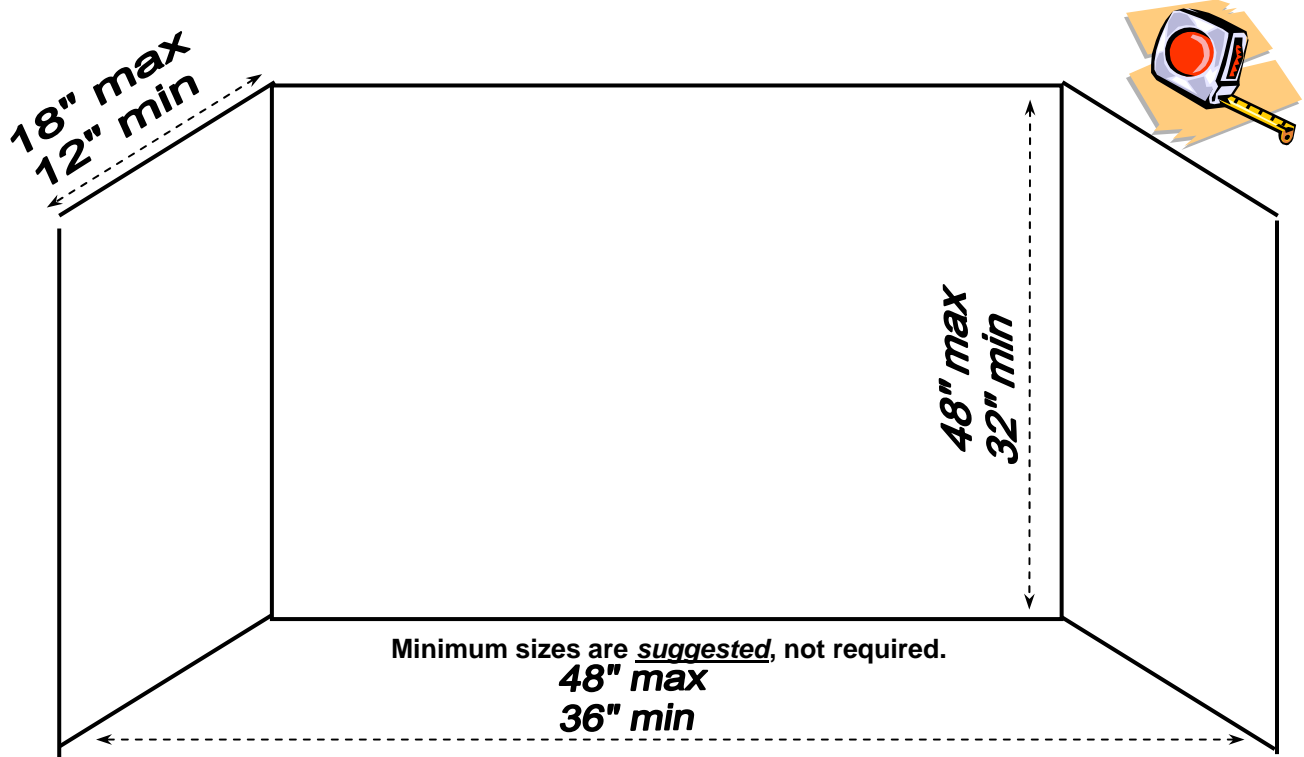
REPORT POCKET

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 IUSD SCIENCE FAIRS





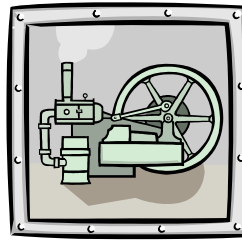
IMPLEMENTATION

CAREER

REFLECTION

**PHOTO
JOURNAL**

DISPLAY ITEMS



Part of your display should include something that represents the project and should be placed in front of or on the display board. Depending on the type of project you do, the display items may or may not be the focus of the display.

If you cannot decide what to use to represent your project, brainstorm with family, friends, and classmates. Keep in mind that the items you choose will set the tone for your display and must be approved.

No part of your display may pose a safety hazard. Do not include harmful chemicals, bacterial cultures, sharp objects, or any source of heat or flames. No live or preserved animals are allowed at the LBusD district-level science fair, at the Los Angeles County Fair, or at the California State Fair.

Some examples of display items are listed below:

- ◆ **Equipment or materials** you have built or used as part of your project or experiment (i.e., an incubator, variously shaped kites, a solar oven, a microscope with slides, etc.)
- ◆ **Models**
- ◆ **Artistic representations** of your topic (i.e., a large paper maché nose for an odor project, toothpick bridges for a physics project, or a collage of leaves for a plant project)
- ◆ **Samples or specimens**
- ◆ **Simulated items** such as photos, video, and audio taken while working on your project or during your experiment. (Keep in mind that use of extension cords requires special permission.)

There are endless possibilities. Be creative! Put on your thinking cap!



Career Shadow Project (6th - 8th Grade)

Rubric for School Site Science Fair

	Attempted 1 point	Proficient 3 points	Advanced Proficient 5 points
<i>Letter to Mentor</i>	Introduction letter thanks the mentor for allowing student to shadow them, but does not provide details about relevant skills or interest that the student brings to the shadow. Or, provides little or no information about the purpose of the shadow.	Introduction letter thanks the mentor and introduces the student to mentor mentioning some relevant skills or interests that the student brings to the shadow. Provides some information about the purpose of the shadow.	Introduction letter thanks the mentor and introduces the student to mentor clearly explaining relevant skills and interests that the student brings to the shadow. Provides a clear presentation of the purpose of the shadow.
Research <i>(double points)</i> x2	Cites only one or two sources of information about the occupation observed, or uses only one type of information resource. Makes little or no connection to the reason for selecting the planned shadow.	Cites three or more sources of information about the occupation observed, using at least two types of information resources. Makes a general connection to the reason for selecting the planned shadow in the student's own words.	Cites four or more sources of information about the occupation observed, using at least three types of information resources. Makes clear and well-elaborated connections to the reason for selecting the planned shadow in the student's own words.
Log <i>(double points)</i> x2	Notes from the job shadow are incomplete or lack detail, or do not reflect completion of the required eight hours or lack mentor's signature to validate the hours.	Notes chronicling each hour of the job shadow provide adequate detail to describe the experience. The log records eight to ten hours of shadowing, verified by the mentor's signature.	Detailed notes chronicling each hour of the job shadow give details that clearly describe the experience. The log records more than ten hours of shadowing, verified by the mentor's signature.
Interview <i>(double points)</i> x2	Student transcribes responses to questions, or records only a few responses. Or, there are less than three student-developed questions. Or, the summary of responses fails to give a clear picture of the occupation and the mentor's experience in it.	Student summarizes responses to several questions, including at least three student-developed questions, that give a general picture of the occupation and the mentor's experience in it.	Student summarizes responses to at least 10 questions, four of which are student-developed, to give a clear picture of many aspects of the occupation and the mentor's experience in it.
Reflection	Reflection on the experience merely retells events of the job shadow and makes vague or no reference to the student's life.	Reflection on the experience relates the shadow in a general way to the student's own life.	Reflection on the experience relates the shadow and the mentor's occupation to the student's temperament, talents, and future aspirations.
Photo Journal	Few photos record parts of the job shadow.	Several photos of the job shadow, including one of the mentor with the student, reflect significant aspects of the experience.	Thorough photographic record of the job shadow, including one of the mentor with the student, provides an organized visual overview of the experience.
Visual Quality of Scrapbook / Display Board	Various parts of the assignment are collected into a scrapbook or onto a display board, but little organization or effort to convey a complete story of job shadow experience is evident.	All parts of the assignment are assembled into a scrapbook or onto a display board showing some organization to convey the job shadow experience.	All parts of the assignment are neatly organized into a scrapbook or onto a display board that creatively draws the reader into the student's job shadow experience.

(Projects will receive between 10 and 50 points when all rubric criteria have been addressed.)

