Part I

Science Projects Step-by-Step

Keep a Log Book

The first step you must do for a science fair project is create a log book (a science diary), which is a written record showing the progression of your project from start to finish. The log book contains your notes and doesn't have to be in report form. Your log book is usually a part of your science fair display, so it may be included in the judging of your project.

Here are some handy tips for constructing your log book:

- Use a binder or a folder so that pages can be organized.
- Use labeled and tabbed sections to show parts of the study. (This chapter gives suggestions for tabs.)
- Date all entries.
- Include all experimental observations in order by date, and include the time if appropriate.
- Record your thoughts and questions during the entire study.
- Make the log book as neat, organized, and user-friendly as possible.
- Number each page after completing the log book.
- Include a table of contents that lists the first page for each part.

Don't rewrite any of the entries to make them look neater. If you do this, you might accidentally add or delete information. Stains on the pages don't matter.

Sections for the log book can include:

1. **Project rules and regulations.** This section contains all printed information provided by your teacher that is related to the project, including rules and deadlines for each step of the project.

2. **A planning calendar.** Make a list of all the project steps and the dates when you plan to complete each one. This will help you plan your time so that you use it wisely. In creating the calendar, you should schedule enough time so that you are finished by the date the final project is due. The calendar might include the following deadlines:

Steps	Deadline Date
1. Set up log book	
2. Project topic chosen	
3. Project research done	
4. Project question decided	
5. Project hypothesis determined	
6. Project experiment designed	
7. Project experiment performed	
8. Study and record results	
9. Project report done	
10. Project display done	
11. Project due	

3. **Project topic research.** Start by listing the categories in which you are interested. Then list the topics in each category that you might want to investigate. Narrow down this list to specific topics. Include information about all the resources that you used—magazines,

books, and so on—as you searched for a topic. Chapter 3 provides information about doing topic research.

4. **Project research.** This is research to help you understand the project topic, express a problem, propose a hypothesis, and design a project experiment. Project research is the process of collecting information from knowledgeable sources such as books, magazines, software, librarians, teachers, parents, scientists, or other professionals. It is also data collected from exploratory experiments. Be sure to give credit where credit is due, and record all information, data, and sources in your log book.

5. **The project problem.** Record all ideas about your project problem. If you have more than one idea or if the problem is revised, indicate the final decision.

6. **The project hypothesis.** Keep a record of all hypothesis ideas. Indicate the final hypothesis.

7. **The project experiment.** This experiment is designed to test your hypothesis. It should have measurable results. Keep a list of all your materials and record your step-by-step procedure.

8. **The project data.** These are the observations and measured results obtained from the project experiment. This information could be recorded in a table or a graph.

9. **The project summaries.** This section includes your analysis of the data for the **project abstract** (a brief overview of the project) and the **project report** (a written record of your entire project from start to finish). As with other parts of your log book, this section should contain all your work to show how different summaries were edited and revised.

10. **The project display.** Keep all information about the display in this section. It should include all drawings, tables, and graphs you consider for the display.

11. **The project presentation and evaluation.** Written copies of oral presentations should be kept in this section. Also include information about rules for presentations, such as length of time, as well as information about how the project will be judged.