

## Setting up the Science Project Log Book

- 1.) Only a composition book is allowed for the science project. No spiral notebooks. The composition book can be of any color and any design. **Be sure to write your name and teacher's name on the front.**
- 2.) Number the first 30 pages of the composition book. Upper right corner of each page, front-side only.
- 3.) Pages 1 and 2: Table of Contents
- 4.) Page 3: Statement of Purpose

This includes:

- a. The title of your science project. (Example, What brand of soap erodes faster if water constantly drips on it? Dove, Ivory or Dial Soap?)
- b. Why you chose the topic. (Example, I chose this topic for future purchases. So my mom will know which brand of soap lasts longest when she buys soap.)
- c. What you plan to prove through your experimentation. (Example, I plan to prove that Dove soap erodes the least.

- 5.) Page 4: Question, Hypothesis and Procedures

On this page:

- a. Restate the question you will be answering through your experimentation.
- b. Write out your hypothesis. (This should be formed only after you have completed your initial background research.)
- c. **Write out the steps to your experiment in recipe form.** Be specific and give details as to how much, how long, how often, etc. This should be written in a way that if someone was going to complete your experiment they should be able to follow each step and get the exact same results that you did.

- 6.) Page 5: Materials

This page should include all of the materials you used in your experiment. Be specific in the quantity. For example, don't just write "water" write "1 gallon of water" if that is how much your experiment will require.

- 7.) Page 6 and so on:

Page 6 begins your daily entries ( check out [http://www.sciencebuddies.org/science-fair-projects/printable\\_project\\_logbook.pdf](http://www.sciencebuddies.org/science-fair-projects/printable_project_logbook.pdf) for samples of how to write journal entries). A few entry reminders:

- a. **You must only write in ink, no pencil and no white-out/correction fluid.** If you make a mistake simply strike a line through the information and continue. Your journal is like a daily diary, it's not expected to be perfect!
- b. **Your first 5 entries should be based on your background research about your topic. Be sure to site your sources such as the website address or the book title.** This information will be used in the future for your research paper.
- c. You must have a minimum of 30 journal entries for your project. You may have more than one entry per day. You may include pictures, charts, graphs, etc in your journal entries.
- d. All entries must have the day's date and include your signature or your initials at the end of the entry. This verifies that you were the person responsible for the information.

## Organizing your experiment

After you have chosen your project topic and have done your background research there are a few easy tips to assist you in organizing your experiment.

- 1.) Think about the steps of the Scientific Method and the parts of an experiment.
  - a. Each experiment must follow the 6 steps of the scientific method.
    - Question/Problem
    - Gather Information
    - Hypothesis
    - Experiment
    - Results/Analyze Data
    - Conclusion
  - b. You should be testing only 1 variable. (This is your Independent Variable)
    - The variable I am testing is: \_\_\_\_\_
  - c. Dependent variable (The responding variable. Variable being observed or measured)
    - My dependent variable is: \_\_\_\_\_
  - d. Controlled Variables (Constants): These are variables that stay the same.  
My controlled variable(s) are:
    - \_\_\_\_\_
    - \_\_\_\_\_
    - \_\_\_\_\_
    - \_\_\_\_\_
  - e. Control Group: This group is what is used as a comparison. It is the group not being tested (does not get special treatment). Some experiments may not have a control group.
    - My control group is: \_\_\_\_\_

## Sample Experiment

Question: What temperature of water best dissolves an effervescent tablet the fastest, 10°, 20°, 30°, 40°, or 50° C?

Hypothesis: If the water temperature is 50° C, then the effervescent tablet will dissolve fastest.

Parts of the experiment:

- **Independent variable** is the variable that is intentionally changed in the experiment, such as the **temperature of the water** in which an effervescent tablet was dissolved.
- **Dependent variable** is the variable that responds to the changes in the independent variable. For example, the **time it takes for the tablets to dissolve** in the different temperatures of water is the dependent variable.
- **The control** is the standard against which the researcher compares the results from each treatment group (level) in the experiment. For example, the **control might be the room temperature water**, which is about 20° C. In many cases, there will not be a true control. The researcher could then set one of the groups as the standard and measure the other groups against that standard.
- **Constants** are the things that are kept the same each time one of the trials in the experiment is repeated. For example, constants could include the **amount of water used, the brand of effervescent tablet used, the type of water used, and the fact that the water was not stirred**. As many outside factors as possible should be kept constant in an experiment so that the researcher can be sure that any changes that occur do so because of the independent variable.

Resource: [http://sciencefair.msinnovation.info/handbook/parts\\_of\\_exp.htm](http://sciencefair.msinnovation.info/handbook/parts_of_exp.htm)

**IMPORTANT!!!!**

**\*\*\*YOU MUST REPEAT YOUR EXPERIMENT AT LEAST 3 TIMES TO COLLECT THE BEST DATA\*\*\***