



Complete Science Fair Instructions & Guidelines

Students may browse the Internet, science books and magazines. Some books are available for use in the classroom. Students may discuss topics with parents, family friends and acquaintances with experience in areas that interest the student. Any non-parent mentors should be listed on the proposal form.

Projects must be experiments. Students will not receive approval for building models, equipment or setting up demonstrations. The experiment should answer a question. It should test a cause and effect relationship. The experimental question should have a form similar to “What is the affect of increasing (or decreasing) the amount of (*your independent variable*) on (*your dependent variable*)?”

Students will need to identify all variables (factors that might affect or change the results). The experiment will test the affect of one variable (**independent variable**) on the factor you are measuring for your results (**dependent variable**). All other variables (**constants**) must not change during the experiment. All experiments must have a control or standard for comparison. The **control** will be a zero quantity of your independent variable. Successful experiments have results that can be measured and expressed as numbers. Only **metric measurement** units will be allowed. A reference sheet for metric measurement is included in the science fair information pages.

Proposal:

All proposal forms should be submitted **on or before Monday, 9/8**. Proposals that are not approved will be returned with suggestions for resubmitting. Proposals that are accepted will be kept and an acceptance note will be sent home.

The proposal form includes the experimental question your experiment is designed to answer. The experimental question should have a form similar to “What is the affect of increasing the amount of (*your independent variable*) on (*your dependent variable*)?” There should be increasing or decreasing amounts of your independent variable.

The hypothesis is different from the experimental question because it offers a logical answer to the question, based on the background research. The experiment tests if the hypothesis is correct. A very successful experiment may prove the hypothesis is incorrect!

The independent variable, dependent variable, constants and control must be identified for this form. A method for measuring the dependent variable for results must be clearly explained.

Materials needed for the experiment must be listed. In your logbook, specifically describe all materials and equipment. (Example: brand, lot number, expiration date, etc.) When you purchase supplies, buy more than enough to avoid switching batch or lot numbers.

Logbook/Notebook:

All students must have a composition book to use as a logbook for only science fair work. The logbook is a diary of all activities and work related to the project. Logbooks show the scientific community the experiment was your own work and completed in sequence. Logbooks will be part of the project grade and checked in class on scheduled days (see calendar).

A standard composition book will work well. Only use one side of the paper. Each page should be numbered. Pages should never be ripped out. Write in pen. Initial and date each entry. Mistakes should be crossed out with a single line across. Please initial and date any changes. Ring binders, spiral notebooks and loose-leaf are not acceptable.

Please use the following Logbook format:

Page 1	Title page- Topic, student name, school, grade level.
Page 2	Table of contents- enter page numbers and section titles
Page 3	Hypothesis
Page 4 to 9	Research bibliography (use correct format)
Page 10	Materials
Page 11 to 14	Procedure
Page 15	Daily log/Observations

Background Library Research:

After the project has been approved, library research must be done to understand the science behind your experiment. The research should logically lead to the hypothesis, based on what people already know about the topic. Record bibliography information for all information sources starting on page 4 of your logbook. Note the date and research work you do in the daily log section of your logbook. Specific facts should be kept on note cards or loose-leaf. Keep notes someplace safe. Logbooks will be checked for progress in class on **Wednesday, 9/23 and Wednesday 10/21.**

Experiment Update Form:

The Experiment Update Form is due on or before Tuesday, 10/6. This form shows your library and internet research progress. A minimum of five sources (one non-internet, non-encyclopedia and not our textbook) will be required. Keep this information for the bibliography & introduction due on Monday, 10/26.

Introduction and Bibliography:

The Introduction and Bibliography will be due on or before **Monday, 10/26.** Five bonus points are available for turning this in early! The introduction should explain the scientific information someone will need to know to understand the experiment. Organize the background information to move logically toward your experimental question. The introduction should end with a short paragraph stating your hypothesis. The introduction should be a minimum of one page using Times New Roman size 12 Font. Margins should be no more than 1-inch top/bottom and 1.25 inches on the sides.

The Bibliography **must be on a separate page** and follow the correct format included in the science fair information pages. The Introduction and Bibliography will receive a test level score for the second quarter grading period. Five points will be deducted for each day late. **Save these files on your computer!!!!** You will need them again.

Conduct the Experiment:

Experiments should be completed by **Wednesday, 11/18.** There will be a logbook check on this day to check for complete data. Follow procedures carefully. Record results as measurements, observation and descriptions. Run the experiment more than once. Each time the experiment is run is a trial. Completing several trials helps ensure the results are accurate. Data must be recorded in ink in the logbook. Record this information as the experiment is conducted. Initial and date each entry. Do not use other paper and write the data in at a later time.

Data Analysis: Data (measurements) should be organized into charts and graphs. Statistics (mean, median, mode, range, percent error) should be used where appropriate.

Final Science Fair Report:

The final report must be typed. Use Times New Roman size 12 Font. Top and bottom margins are 1 inch. Side margins are 1.25 inches. Sections should be identified with a subheading, but continue on the same page. A separate copy of the final report to be graded is due **Wednesday, 1/13**. This will receive a test level score for third quarter.

Final Report Sections:

- * **Introduction- 1 page minimum**
- * **Materials- typed as a list**
- * **Procedure- number and describe the specific steps to exactly duplicate your experiment**
- * **Observations/Data- descriptions of the experiment in paragraph form, charts and graphs**
- * **Data Analysis- discuss results in a paragraph or two, discuss problems and their effect**
- * **Conclusion- summarized expectations and actual results, discuss patterns, discuss possible next steps for future experiments, and discuss real world applications of results**
- * **Bibliography- start on a new page, follow correct format**
- * **Abstract- a 1 page/ 3 paragraph summary: purpose, procedure summary, data/conclusion**

(Instructions and help writing the abstract will be given in class.)