



Los Angeles County
Science & Engineering Fair

Writing the Abstract

(250-word limit)

Persons assigned to judge your project will read your abstract, prior to the Science Fair. The abstract represents the first exposure the judges will have to your project research. Therefore, first impressions are very important!

The following items must be included in your abstract: (*Source: California State Science Fair*)

Objective or Goal:

State the objective, goal, or hypothesis upon which your project is based. **Examples:**

1. This project was designed to discover the seed preferences of California scrub jays (*Aphelocoma californica*) visiting my backyard bird feeder.
2. After designing 3 types of balsa wood airfoils, I compared lift, drag, and airflow patterns, using a homemade wind tunnel.
3. My objective was to write a computer program for PC computers that would help a student memorize Spanish vocabulary words.

Materials and Methods:

Indicate the materials, methods, and experimental design used in your project. Briefly describe your experiment or engineering methods. **Examples:**

1. Fifty-gram soil samples were collected from the A horizons of five 1 m square lawns, initially fertilized with WonderGrow Super Fertilizer. Similar samples were collected from five 1 m square lawns, initially fertilized with coffee grounds. The samples were analyzed for nitrogen, phosphorus, and potassium content. This comparison was repeated once a month for four months, between November and February. Changes in soil composition over time were compared.
2. I constructed a maglev track, using 40 neodymium magnets, spaced .5 cm apart and glued to a plywood board. The track was mounted at an angle of 10 degrees, forming a ramp. I then designed a balsa wood vehicle with 5 neodymium magnets below the wooden base. To test its weight-bearing capacity, the vehicle was loaded with different weights and tested at each weight ten times. The weights compared were: no load, 2g, 4g, 6g, and 8g. I used a ruler to measure how far down the track the vehicle was able to go, after being released at the top of the track.
3. A survey form was distributed during science classes, asking a total of 50 sixth, 50 seventh, and 50 eighth graders to estimate how long each of three musical pieces were played. Participants were asked to leave their names off of the surveys, to keep data anonymous. Results were then compared to see whether ability to estimate playing time improves with participant age.

Results:

Summarize the results of your experiment and indicate how these results pertain to your objective. **Examples:**

1. Aluminum and wooden baseball bats were compared to see how far a regulation baseball would travel when struck. In all but one of the 25 trials, the baseball went further after being hit with an aluminum bat. On average, the ball traveled 4.5 cm further with the aluminum bat. In the one trial where the wooden bat made the ball go farther, the wind may have been blowing against the ball during part of the aluminum bat portion of the test.
2. The height of cookies made in 3 ways was compared after baking. Cookies made without baking powder were an average of 3 mm in height at their highest point. Cookies made with baking powder were an average of 10 mm at their highest point. Cookies made with my homemade rising formula raised an average of 4.5 mm. In this series of tests, baking powder was a much better leavening agent than my homemade formula. However, my homemade formula was slightly better than using no leavening at all.
3. Combining the results of the first 3 trials, after 15 minutes, there were 75 mealworm beetles (*Tenebrio molitor*) in the darkened area and 5 in the lighted area. Combining results of the second 3 trials, there were 89 mealworm beetles in the darkened area and 11 in the lighted area.

Discussion/Conclusion:

Indicate if your results supported your hypothesis or enabled you to attain your objective.

Discuss briefly how information from this project expands our knowledge about the category subject. **Examples:**

1. My hypothesis that the beetles would be more likely to move to the darkened area was strongly supported by the results. It would be interesting to repeat this experiment with mini darkling beetles (*Tenebrio obscurus*) to see if they act in a similar way.
2. Before doing the experiment, I thought iron would be a better conductor of electricity than silver. My results indicate the opposite. The results do not support my hypothesis. Next time, I would like to see if copper is also a better conductor than iron.
3. After reviewing my results, I could find no consistent pattern in my data. There was no clear advantage or disadvantage to doing homework while listening to Justin Bieber songs. My hypothesis that it would be helpful was not supported by the results. It might be useful to try again, substituting another kind of music, such as rap or jazz.

TIPS ON WRITING A PROJECT ABSTRACT, from Intel ISEF

A project abstract is a brief paragraph or two (limited to 250 words or 1,800 characters) highlighting and/or summarizing the major points or most important ideas about your project. An abstract allows judges to quickly determine the nature and scope of a project.

The abstract should include the following:

- a. Purpose/hypothesis of the experiment
- b. Procedure
- c. Data summary/analysis
- d. Discussion/conclusions

TIPS:

- Focus only on the current year's research.
- Leave out details and discussions.
- Use the past tense when describing what was done. However, where appropriate, use “active” verbs rather than passive verbs.
- Use short sentences, but vary your sentence structure.
- Use complete sentences. Don't abbreviate by omitting articles or other small words in order to save space.
- Avoid slang and use appropriate scientific language.
- Use proper syntax, correct spelling, grammar, and punctuation.

AVOID A REWRITE

- Focus on what you did, not on the work of your mentor or of a laboratory in which you did your work.
- Do NOT include acknowledgements, self-promotion or personal references. Don't name the research institution and/or mentor with which you were working and *avoid mentioning awards or honors* (including achieving a patent) in the body of the abstract.
- Be sure to emphasize the current year's research. A *continuation project* should only make a brief mention of previous years' research (no more than a sentence or two)