

ABSTRACT EXAMPLES

Writing an Abstract – Examples

Each student who completes a science fair project must write an abstract to be displayed with the project. An abstract gives the essence of the project in a brief but complete form — it should not exceed 250 words, be one paragraph with no indent or extra spaces. Judges and the public should have a fairly accurate idea of the project after reading the abstract.

The abstract must focus on the current year's research and give only minimal reference to previous work. Details and discussions should not be included in the abstract, but may be put in the longer, written research paper, or given on the project exhibit board.

Note that an abstract does not include acknowledgments (such as referencing mentor or university laboratory) or a bibliography (this should be included in the Form 1A Research Plan Attachment).

The following colors in the two abstract examples demonstrate the following concepts:

Purpose of the Experiment (Blue)

- An introductory statement of the reason for investigating the topic of the project.
- A statement of the problem or hypothesis being studied.

Procedures Used (Green)

- A summarization of the key points, not a numbered list and an overview of how the investigation was conducted.
- An abstract does not give details about the materials used unless it greatly influenced the procedure or had to be developed to do the investigation.
- An abstract should only include procedures done by the student. Work done by a mentor (such as surgical procedures) or work done prior to student involvement must not be included.

Observation/Data/Results (Red)

- This section should provide key results using summarized data such as % change compared to the other test groups and control that lead directly to the conclusions you have drawn.
- It should not give too many details about the results nor include tables or graphs.

Conclusions (Pink)

- Conclusions from the investigation should be described briefly based on the analyzed data only.
- The summary paragraph should reflect on the process and possibly state some applications and extensions of the investigation.

SENIOR HIGH LEVEL SAMPLE ABSTRACT

Effects of Marine Exhaust Water on Algae

Project ID: EEES-415

This project in its present form is the result of bioassay experimentation on the effects of two-cycle marine engine exhaust water on certain green algae. The initial idea was to determine the toxicity of outboard engine lubricant. Some success with lubricants eventually led to the formulation of "synthetic" exhaust water which, in turn, led to the use of actual two-cycle engine exhaust water as the test substance. Toxicity was determined by means of the standard bottle or "batch" bioassay technique. *Scenedesmus quadricauda* and *Ankistrodesmus* sp. were used as the test organisms. Toxicity was measured in terms of a decrease in the maximum standing crop. The effective concentration – 50 % (EC 50) for *Scenedesmus quadricauda* was found to be 3.75% exhaust water, for *Ankistrodesmus* sp. 3.1% exhaust water using the bottle technique. Anomalies in growth curves raised the suspicion that evaporation was affecting the results; therefore, a flow-through system was improvised utilizing the characteristics of a device called a Biomonitor. Use of the Biomonitor lessened the influence of evaporation, and the EC 50 was found to be 1.4% exhaust water using *Ankistrodesmus* sp. as the test organism. Mixed populations of various algae gave an EC 50 of 1.28% exhaust water. The contributions of this project are twofold. First, the toxicity of two-cycle marine engine exhaust was found to be considerably greater than reported in the literature (1.4% vs 4.2%). Secondly, the benefits of a flow-through bioassay technique utilizing the Biomonitor was demonstrated.

Word Count: 241

JUNIOR HIGH LEVEL SAMPLE ABSTRACT

Will Vitamin A Tablets Affect Plant Tissue Development and Growth Rate

Project ID: MS-PLNT-222

The purpose of this project was to determine if Vitamin A tablets have any effect on tomato plants stem cross sectional thickness and height. A total of twenty Rutgers tomato plants each two inches tall were planted in identical individual plastic pots using two cups of potting soil. Each plant received the same amount of water and sunlight during the three-week experiment. The twenty plants were divided into four groups of five plants each. One uncoated vitamin A tablet was added to each of the five plants in the first group by burying the tablet one inch from the stem and one inch deep. Two vitamin A tablets were added to the second group of five plants in a similar manner. The third group of five plants had three tablets planted in the soil. The fourth group of five plants had no vitamin A tablets added to the soil and served as the control group. The height of each plant was measured and recorded at the start of the experiment and every 7 days thereafter. At the end of the experiment (21 days) the stems were cut across at a height of 3 inches. Test groups all showed an avg. 1.4% less cross-sectional width development and slower height growth rates proportionally relative by 1.2%, 2% and 3.8% to the number of Vitamin A tablets compared to plants in the control group. Data was analyzed, and the conclusion was made that vitamin A tablets to tomato plants did not improve stem width or growth as each of the four experimental groups failed to produce plants that were taller or had thicker stems than those in the control group.

word count 241