

**ANNUAL SOUTHEASTERN MICHIGAN
JUNIOR SCIENCE AND HUMANITIES SYMPOSIUM
McGregor Memorial Conference Center
Wayne State University, Detroit, Michigan**

Guidelines for the Preparation and Presentation of Research Papers

1. **General Instructions:**

Use this outline as a guide in the preparation of and writing your research report

- A. Title Page: A short statement which indicates the content of the report.
- B. Table of Contents: A reference that will list the subjects covered and their order.
- C. Introduction: The beginning of the body of the report which orients the reader with the problem and gives necessary background.
- D. Problem: A statement which tells exactly what the investigator attempted to discover or analyze.
- E. Materials: The equipment essential in duplicating the experiment.
- F. Procedure: A description of the steps taken to prove or disprove the hypothesis.
- G. Data: All of the results obtained by experimentation or library research. Data may be summarized in graphs, charts, photos, etc. Primary, first-hand sources of data should be sought, where possible.
- H. Analysis: The relative success of the entire project in attempting to solve the problem as evaluated by the student.
- I. Conclusion: A concluding statement or discussion governed by the condition of the experiment based on the facts reported in the paper.
- J. Summary: A brief paragraph reviewing the entire paper.
- K. Bibliography: A complete list of all information used in the report - books, pamphlets, published papers, etc. - author, title, publisher, data, location.

2. **Specific Instructions:**

- A. Complete the attached Student Application to Present Research Paper, including a 200 word abstract of your paper. **E-Mail the abstract and the first full draft of your paper, (the completed paper is preferred, if you can do it)**, to the e-mail address indicated on the application form **on or before the due date**. The Student Speaker Committee will select the papers to be presented at the Symposium from the drafts submitted. The authors of the papers selected will be notified by mid-January.
- B. The complete text of your paper must be presented in accordance with the provisions of this sheet. The paper must be typed, double-spaced, on one side only, using 8 1/2 x 11" paper with one-inch margins. (You will want to make a copy for your personal use.) You may be asked by the Committee to retype the edited paper if necessary.

- C. Paper should cite references and/or other sources of information. If the paper contains information, either paraphrased or as quotations, from another individual's published work, you must give appropriate credit.
- D. If illustrations are used in your paper, they should be no larger than 8 x 10" and should be in black and white. Charts used in the presentation must be large enough to be seen by the audience.
- E. (1) Visual aids (slides, charts, etc.) in support of your papers are encouraged as opposed to exhibits, experiments and/or demonstrations. However, the latter may be used, if essential to your presentations.

(2) Please be specific in your requests as to size of projector, table space, chart holders, or other equipment you wish us to supply for you presentation.
- F. All experiments with animals (especially vertebrates) must provide evidence that the attached "Guiding Principles in the Use of Animals" was followed.
- G. All completed papers, accompanied by a list of visual aids requirements must be received in the JSHS Office by the deadline date.
- H. **Send by e-mail the abstract and paper to m.ferreira@wayne.edu.**

Return all other requested materials (i.e., [student application to present and parental consent form](#)) to:

Dr. Maria Ferreira
Junior Science and Humanities Symposium
281 College of Education
Wayne State University
Detroit, MI 48202

**GUIDING PRINCIPLES IN THE USE OF ANIMALS
BY SECONDARY SCHOOL STUDENTS AND
SCIENCE CLUB MEMBERS**

1. The basic aim of scientific studies that involve animals is to achieve an understanding of life, and to advance our knowledge of life processes. Such studies lead to a respect for life.
2. A qualified adult supervisor must assume primary responsibility for the purposes and conditions of any experiment that involves living animals.
3. No experiment should be undertaken that involves anesthetic drugs, surgical procedures, pathogenic organisms, toxicological products, carcinogens, or radiation unless a trained biological scientist, physician, dentist, or veterinarian directly supervises the experiment.
4. Any experiment must be performed with the animal under appropriate anesthesia if pain is involved.
5. The comfort of the animal used in any study shall be of prime concern of the student investigator. Gentle handling, proper feeding, and provision of appropriate sanitary quarters shall at all times be strictly observed. Any experiment in nutritional deficiency may proceed only to the point where symptoms of the deficiency appear. Appropriate measures shall then be taken to correct the deficiency, if such action is feasible.

This guide for high school students of biology was prepared at the request of the Science Clubs of America by a committee of the National Society for Medical Research and later amended by committees of Animal Care Panel and Institute of Laboratory Animal Resources.

ABSTRACT FORM

To be used to describe the nature of the research project of a student selected to participate in the Southeastern Michigan JSHS.

NAME:
HOME ADDRESS:
EMAIL ADDRESS:
SCHOOL:
SPONSOR/TEACHER:
TITLE:

Abstracts should include the problem you have studied, as well as the data collected and conclusions that have been made.

One definition of the word "symposium" is "a gathering in which people freely exchange their ideas." The abstract should be written to encourage discussions at the Symposium. Most of the time an abstract is worded to be read by specialists in the topic of the research. However, in this case it should be worded so that the attending students can quickly learn the nature of each other's research without need to consult a scientific dictionary, and thus be able to initiate discussions of each other's scientific interests. The abstract need not be an in-depth treatment of the research; the main idea is to describe its nature. There is no need for the wordage to be the same as that employed at the time of the Regional Symposium.

INSTRUCTIONS: Employ a font having clean type of a standard style (e.g., Times New Roman (10 or 12). Use the spacing and capitalization style shown by the examples, which are included. If any diagramming is necessary do it in black ink. The border lines will be cut away and whatever is in them will be photographed. The abstract should be of adequate length, but not exceed 200 words. It must not exceed the amount of space provided. The typing must be single-spaced. If a machine with special characters is not available, they should be done neatly in black ink. The "sponsor/teacher" line may be used if appropriate or left blank. Note that the examples differ in their information structure. There is no standard pattern. Use whatever sequence conveys the information in the fewest words.

EXAMPLES

NAME: Glick, Gary
HOME ADDRESS: 20 Surrey Road, Somerset, New Jersey 00873
EMAIL ADDRESS: myclevername@theinternet.com
SCHOOL: Franklin Township High School
SPONSOR/TEACHER: Mr. Ralph Pawlowski
TITLE: Characterization of Medieval Window Glass by Neutron Activation Analysis.

The concentrations of 15 component oxides in medieval stained glass were determined by instrumental thermal neutron activation analyses. Three groups of glass were studied: 52 specimens from a set of 13th century French grisaille panels from a demolished royal chateau at Rouen; 10 sample from a grisaille panel in the collection of the Princeton University Museum of Art; and a set of 32 random fragment of varied provenance. Significantly differing compositions were found. However, specimens from within individual and related groups of panels are compositionally similar even for different colors of glass, indicating a common origin for the related pieces.

NAME: Elliott, Douglas E.
HOME ADDRESS: P.O. Box 474, Corning, California 96021
EMAIL ADDRESS: sendmeaninstantmessage@networld.net
SCHOOL: Corning Union High School
SPONSOR/TEACHER: Mrs. Sally P. Green
TITLE: The Use of Grasshopper's Rejected Foods as Effective Repellents.

The objective of this research was to find a natural, effective, and grasshopper repellent. The procedure used a species of the *Melanoplus* genus of grasshoppers. Two and a half months of observations were recorded including time of day, meteorological conditions, and numbers of grasshoppers in the test area of measured volume for each of the 25 plants used. Five plants were rejected as foods and they were used as "repellents" in two types of tests. One test was done under natural conditions and the other under more controlled conditions. A plant found of possible value is the Black Walnut, *Juglans nigra*. This is easily obtained and is effective up to four days under natural conditions.

NAME: Mishark, Ken
HOME ADDRESS: 1460 Heights Boulevard, Winona, Minnesota 55987
EMAIL ADDRESS: nojunkmailallowed@myinbox.org
SCHOOL: Winona Senior High School
SPONSOR/TEACHER: Ms. Elmira Brown
TITLE: Formaldehyde Contamination of Ground Water.

Formaldehyde contamination of ground water as a result of embalming has never been considered as a possible hazard. This research was to check such contamination near cemeteries as a result of embalming. Water samples were collected and analyzed through use of spectroscopy. Through testing it was found that the average concentration of formaldehyde in ground water (for the test area employed) was less than one part per million, while in ground water from areas of cemeteries the concentration of formaldehyde was between ten and one hundred parts per million.

**ANNUAL SOUTHEASTERN MICHIGAN
JUNIOR SCIENCE AND HUMANITIES SYMPOSIUM**

SUGGESTED CRITERIA FOR SELECTION OF STUDENT RESEARCH PAPERS

1. Originality and Creativity of High School Student:
 - Originality in choice of project
 - Creative approach to use of materials
 - Use of novel and unique methods and techniques
 - Evidence of purposefulness and persistence of effort
2. Quality of Research Design:
 - Clarity of statement and delineation of problem
 - Adequate identification of relevant variables
 - Suitability of hypotheses or research questions
 - Adequacy of approach and methods used to study problem
3. Adequacy of Data, Analysis, and Conclusions:
 - Evidence of accurate observations
 - Adequacy of display of data and the procedures used to analyze this data
 - Validity of conclusions
 - Recognition of limitations in accuracy and in the evaluation of the significance of the data
4. Scope of Thought:
 - Depth of scientific understanding of scientific principles and methods
 - Evidence of a sequence of thought proceeding logically to a conclusion
 - Readability and clarity
 - Adequacy of overall organization of research project
5. Bibliography:
 - Adequate and relevant research and scientific publications
 - Attempts were made to examine primary sources of data where possible
6. Rank:
 - Rank order of this paper in total as compared with other papers read by committee member

These criteria are used for the initial selection of the twenty to twenty-five student papers to be presented at our Symposium. At the Symposium, the papers will be evaluated again, but this time stage presence and delivery will be considered as well as skill in answering questions from the audience.