

About the Tennessee Junior Academy of Science

Purpose

The Tennessee Junior Academy of Science (TJAS) is designed to further the cause of science education in high schools by providing an annual program of scientific atmosphere and stimulation for capable students. It is comparable to scientific meetings of adult scientists. The Junior Academy supplements other efforts in the encouragement of able students of science by providing an avenue of stimulation and expression.

Rewards and Prizes

The student's primary rewards are the honor of being selected to appear on the program, experience in presenting his/her paper, opportunity to discuss this work with other students of similar interests, membership in the Tennessee Junior Academy of Science, and publication of his/her paper in the *Handbook and Proceedings of the Tennessee Junior Academy of Science*. However, the top female and male writers will receive \$500 each from the Tennessee Academy of Science, and other top writers will receive \$200 for each paper published in the Handbook. In addition, the TJAS meeting is held in a different city each year. All students who present papers to the TJAS are encouraged to enter their papers in other competitive programs, such as the Westinghouse Science Talent Search and the International Science and Engineering Fair. Students are also encouraged to solicit scholarships from individuals, companies, or institutions.

Preparation of the Report

The report should be an accurate presentation of a science or mathematics project completed by the student. It should be comprehensive yet avoid excessive verbosity. Maximum length should be 1500 words. The report and the project it describes must be original with the student, not just a review of another article. It should be obvious that experimentation and/or observations have been scientifically made. The paper should reflect credit on the writer and the school represented.

Visual aids such as slides, mock-ups, and charts may be used in presentation of the report. Illustrations within the report should be restricted to tables and/or simple line drawings. These must be done in black ink on 8 ½" x 11" paper. It is suggested that the total width of the illustration itself be not more than 7". Illustrations submitted with the paper **MUST** be originals, not copies, and they should be in black and white because the Handbook cannot be printed in color.

The report must be double-spaced on 8 ½" x 11" paper. Give careful attention to spelling and grammar. Prepare a cover sheet for the report, giving the required information as specified. The cover sheet included with this material may be duplicated as needed. Prepare an abstract to accompany your paper (not more than 100 words). No paper will be considered unless it is accompanied by an abstract.

Scientific or Technical Report Writing.

A very important phase of the research of a scientist is the effective reporting of the research project attempted and completed. The technical report is different from other kinds of informative writing in that it has a single, predetermined purpose: to investigate an assigned subject for particular reasons. Technical reporting is done in the passive voice. Use of personal pronouns should be avoided except in rare instances. The telling portion of the research job is often underrated. Thus, communication is a very necessary part of research work. Any breakdown in communication means that the report has failed. The following functional analysis of the parts of the report is suggested for use to aid in organizing and presenting the results of scientific and experimental efforts.

I. Introduction

- A. Purpose of the investigation (why the work was done)
- B. How the problem expands/clarifies knowledge in the general field
- C. Review of related literature

II. Experimental procedure (how the work was done)

- A. Brief discussion of experimental apparatus involved
- B. Description of the procedure used in making the pertinent observations and obtaining data

III. Data (what the results were)

- A. Presentation of specific numerical data in tabulated or graphic form
- B. Observations made and recorded
- C. Any and all pertinent observations that bear on the answer to the problem being investigated

IV. Conclusions (final contributions to knowledge)

- A. General contributions the investigations have made to the answer to the problem
- B. Further investigation suggested or indicated by the work

V. References—should be the works CITED only (the literature sources that are cited in the paper)

- A. Items arranged alphabetically by author's surname
- B. References presented in this order:
 - 1. Author (surname, with initials only)
 - 2. Date of year (in parentheses)
 - 3. Title; capitalize first word only
 - 4. Source: (periodical) NO ABBREVIATIONS
(book) city, state of publication, publisher

- 1. Example—Book: Nebel, B. J. (1999). Environmental science. Englewood Cliffs, NJ: Prentice Hall.
- 2. Example—Periodical: Bardeen, J. L. (2000). To a solid state. Elementary Science Concepts, 27(9): 14-15.

Submission of the Report

Each report must bear an OFFICIAL COVER SHEET, which may be obtained in advance from:

Director of the Tennessee Junior Academy of Science
Dr. Jack Rhoton
Box 70684, East Tennessee State University
Johnson City, TN 37614
E-mail: RhotonJ@ETSU.edu

The ORIGINAL COPY of the report should arrive on or before March 1, 2006. The parts of each report should be stapled or clipped, not bound. Heavy covers increase the cost of postage. The student should keep a copy of the report; the original cannot be returned. (We MUST have the ORIGINAL of all papers—and illustrations—for publication.)

Selection of the Report

Each report submitted must be endorsed by a local science or mathematics teacher. The teacher should approve the report as the first member of a selection committee. IT SHOULD BE APPROVED ONLY IF IT IS OF HIGH QUALITY AND REPRESENTS THE STUDENT'S OWN WORK IN RESEARCH AND PREPARATION. The science or math faculty submitting two or more papers in a given category will be asked to serve as judges for those papers and rate them in the order of 1, 2, 3, 4, etc., according to merit before submission to the Tennessee Junior Academy of Science for final judging. The report will then be read by a committee of two or more additional scientists in the field appropriate to the report. Reports will be selected on the basis of research design (30 points), creative ability (20 points), analysis of results (20 points), grammar and spelling (20 points), and general interest (10 points).

TJAS Tentative Dates for 2006-2007

November 15, 2006	Final date for receiving request for student research grant application
March 1, 2007	Final date for receiving student research paper
March, 30, 2007	Mailing of student invitation to participate in Annual TJAS competition in Nashville
April 21, 2007	Annual TJAS meeting in Nashville—Belmont University

Tennessee Junior Academy of Science Regulations

The following regulations have been developed to govern the Tennessee Junior Academy of Science meeting by the Standing Committee on Junior Academies of the Academy Conference. Papers must be of a research problem type, with evidence of creative thought. Papers presented should be suitable for publication (typewritten, double-spaced, one side of paper only, name and address on each sheet) and between 1000 and 1500 words in length. Oral presentation will be limited to 10-12 minutes. Projectors and other audiovisual equipment will be available. Questions on paper presentation will be limited to 3 minutes. All papers should be postmarked NO LATER THAN MARCH 1, 2006, and sent to Dr. Jack Rhoton, PO Box 70684, East Tennessee State University, Johnson City, TN 37614. Certificates will be presented to all participants. Sponsoring schools or clubs should have insurance coverage to protect school

participants. The Tennessee Junior Academy of Science can assume no responsibility in this matter.

What You Can Do Now

If there is no science club at your high school, why not start one? A science club will provide many opportunities to work on problems that will be fun and relaxing. In addition, the ready, mutual exchange of ideas can provide a challenging experience in proposing, designing, and completing research into the unknown. Begin now to work on a scientific project to present at the next annual meeting of your local, state, and national Junior Science Clubs. For further information on the Juniors Academy program contact:

Dr. Jack Rhoton, Director
Tennessee Junior Academy of Science
Box 70684
East Tennessee State University
Johnson City, TN 37614
e-mail: rhotonj@etsu.edu
Fax: 423-439-8362

Purpose of the Academies of Science

The purpose of the various state and municipal Junior Academies is to promote science as a career at the secondary school level. The basic working unit is the science club or area in each school where the extracurricular science projects and activities are supervised by science teacher/sponsors. The American Junior Academy serves a state or city organization much the same as do the professional societies, and it functions in a similar manner; e.g., holding annual meetings for presenting research papers. The parent sponsor of a Junior Academy of Science is the State Academy of Science.

The primary activity of the American Junior Academy of Science is the Annual Meeting, held in conjunction with the Annual Meeting of the American Association for the Advancement of Science and the Association of Academies of Science. Top young scientists in each state or city academy are encouraged to present papers and exchange research ideas at the national level. Tours and social hours are also arranged.

Directors of the TJAS (1942-2006)

The Tennessee Academy of Science has been the sponsor of the Tennessee Junior Academy of Science since its initial organizational meeting on the Vanderbilt University campus in 1942.

The Directors of the Junior Academy of Science since 1942 are as follows:

Dr. Frances Bottom - 1942-1955

George Peabody College, Nashville

Dr. Woodrow Wyatt - 1955-1958

University of Tennessee, Knoxville

Dr. Myron S. McCay - 1958-1963	University of Tennessee, Knoxville
Dr. Robert Wilson - 1963-1965	University of Tennessee, Chattanooga
Dr. John H. Bailey - 1965-1976	East Tennessee State University, Johnson City
Dr. William Pafford - 1976-1992	East Tennessee State University, Johnson City
Dr. Jack Rhoton - 1992-present	East Tennessee State University, Johnson City

Research Grants for Science Projects by High School Students

The Tennessee Academy of Science has available a limited number of small research grants (\$100-\$300 per student) to assist high school students involved in developing scientific projects for the TJAS program. These grants are intended to be need-based. That is, we want to support good proposals from motivated students of adequate ability, where lack of some outside financial support might result in a poor project or possibly no project at all. These grants should not be regarded as competitive merit awards for outstanding proposals or outstanding students, and should not be given to students whose families, or whose project mentors, can readily provide the resources needed. For instance, a project being conducted under the mentorship of a university professor would not, in general, be a good choice for a TAS grant, no matter how able the student and how good the proposed project. It is intended that the TAS research grants program create opportunities for adequately motivated students with access to limited resources to conduct significant, competitive projects. The Tennessee Academy of Science will depend on the sponsoring science or math teachers to provide input into the decision-making process as it concerns the need of applying students and worthiness of their proposed projects.

The application form for the TAS research grant included in these materials may be duplicated as needed. Please note the deadline for receiving grant applications is NOVEMBER 15, 2006. However, the earlier grant applications are received, the sooner grant application funds can be distributed. If you desire further information concerning the TAS research grants program, please write to Dr. Jack Rhoton, Division of Science Education, Box 70684, East Tennessee State University, Johnson City, TN 37614 or E-mail RhotonJ@ETSU.edu.

Application for Tennessee Junior Academy of Science Research Grants

(All students who receive TJAS grant funds are required to submit a research paper by March 1, 2007)

TENNESSEE ACADEMY OF SCIENCE HIGH SCHOOL RESEARCH GRANT

(Please Print)

Student Name _____

E-mail _____

School _____

Teacher Name _____

School Address _____

School Phone _____

Home Phone _____

Title _____ of _____ Project

DEADLINE FOR SUBMITTING APPLICATIONS IS NOVEMBER 1, 2006

Will you be conducting the project (check those that apply):

___ on your own?

___ under the guidance of a mentor?

___ for submission in the TJAS program?

Description of Project – **General purpose and goals, statement of need, and the nature of the research. (A maximum of two typed pages should be attached.)**

Requested Budget Amount (\$300 maximum) _____

Explanation of how the money will be spent: _____

Over Principal Budget Items Approximate Cost

Estimated Total Cost _____

If awarded a grant, we agree to use the funds to conduct the research project that has been described and submit it to the Tennessee Junior Academy of Science program.

Name of Student (Print)

Signature of Science/Math Teacher

If approved, the grant funds are to be made payable to:

Name _____

Address _____

Phone _____

E-mail _____

Please mail to:

**Dr. Jack Rhoton, Director
Tennessee Junior Academy of Science
Box 70684
East Tennessee State University
Johnson City, TN 37614.**

My e-mail address is: Rhotonj@etsu.edu