

Regional Science Fair Manual

and

School Participation Guide

SAES

SOUTHWESTERN ASSOCIATION
of EPISCOPAL SCHOOLS

**S.A.E.S.
Regional
Science Fair
Manual**

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This section of the notebook will contain a letter of thanks from the Executive Director to the Head of the host school.

USING THE SCIENCE FAIR MANUAL

This manual is written in order to be of assistance to you as you host the Regional Science Fair. It includes step-by-step instructions for hosting the fair, as well as complete regulations within which to do so. The Southwestern Association of Episcopal Schools and its Board has approved these regulations in order to establish consistent expectations for all hosts and participants in fair competition, judging, and awards. Any school requesting to participate in the Regional Science Fair is required to abide by the regulations established and published within this manual, unless written permission is granted through the Southwestern Association of Episcopal Schools.

Steering Committee

Establish a Steering Committee to plan and carry out all aspects of the S.A.E.S. Regional Science Fair. This committee should include, but is not limited to Science Department Chair, science teachers, faculty and volunteers, with guidance from the school's administration.

The committee is responsible for all aspects of hosting the fair including logistics and planning, notification and mailings within S.A.E.S., registration, securing and preparing judges, and awards.

The Steering Committee will also make decisions regarding the grade divisions for judging purposes. For example, in the event there are fewer projects entered in a grade division than the number needed in order to have projects in both the Life and Physical Science categories, the committee may decide to combine two grade levels.

The Steering Committee will be responsible for averaging judges' scores and making award determinations at the conclusion of the fair.

Timeline

Setting a timeline and a schedule for completion of all aspects of the Regional Fair is imperative to hosting a successful fair. Contact the Southwestern Association of Episcopal Schools to schedule the dates for the Regional Science Fair. It is before that date that all plans and initiatives must be completed. Historically, the fair is held in April, with dates and plans being secured the previous spring and summer.

Once the date has been set, the steering committee will make preliminary arrangements to secure hotel room blocks and facilities for holding the fair. Early in the fall semester, the host school will send a letter of announcement and a **School Registration Form** to schools in the region. It is from these School Registration Forms that all further plans can be made.

The steering committee then plans the preliminary schedule for the fair, determines the cost for awards, for special activities and meals, and sets the amount of the Project Entry Fee to cover the cost of hosting the fair. (Historically, this is between \$35 and \$40) The committee then prepares the **Participating School Materials** and mails them to those schools who indicated their interest in participating. It is recommended that the host school continue to attract schools throughout the region through phone contact, mail and conference exhibits for increasing participation in the fair.

School Registration Form

Name of School _____

Head of School _____

School Address _____

City, State, Zip _____

Phone # _____ Fax # _____

Contact Person _____ Position _____

E-Mail _____

Please indicate the approximate number of students in each grade who will attend the competition:

4 th grade	_____
5 th grade	_____
6 th grade	_____
7 th grade	_____
8 th grade	_____
9 th grade	_____

(The area below can be used by the host school for determining hotel preferences, meal sign-ups, attendance at special events, etc.)

Scientific Review Committee

A host campus based Scientific Review Committee (SRC) will be named in order to oversee the actual competition of the fair, and must be present during judging. The SRC will consist of a minimum of three persons, to include:

- A biomedical scientist (Ph.D., M.D., D.V.M., D.D.S., or D.O.)
- A faculty member
- At least one other member

In order to eliminate conflict of interest, members of the SRC may not be an Adult Sponsor, parent, Qualified Scientist or Designated Supervisor for any fair participant.

The SRC or a designated team of faculty members will evaluate all projects for compliance with the rules and regulations established by the Southwestern Association of Episcopal Schools. The rulings of the host school SRC will be final in determining compliance.

Judges and Judging

The selection and preparation of judges is crucial to the success of the Regional Science Fair. When **Project Entry Forms** are received from participating schools, the Steering Committee will check for accuracy in the choice of category and subcategory on each form. Then the committee will schedule judges for the fair according to the number of projects registered. It is desired that every student entering a project will be interviewed by no less than three (3) judges. It is imperative to begin the solicitation of judge participation early in the process of planning the fair to insure an adequate number of judges.

Judges may be selected and assigned projects for judging according to their background in Life Science or Physical Science, but those are not prerequisites for being a judge. A general knowledge of science education, the process of preparing a science project and the scientific method will serve to prepare a judge for the task you have asked him/her to do.

Prior to the Regional Fair, judges will be prepared by the host SRC through judging materials published in this manual. They include **Judge's Instructions, Episcopal Regional Science Fair Guidelines, Student Journal Guidelines, Criteria for Judging, Judge's Score Sheet, Superlative Awards Sheet, and Sample Judging Questions**. The host SRC may choose to meet with the judges or may send the materials for review prior to the fair.

Awards

Judges' Score Sheets will be averaged by the Steering Committee and projects will be given a ranking within the science categories for each grade bracket (4, 5, 6, 7, 8, 9) according to the following:

Life Science in each grade bracket

- Best of Fair - project with the highest average
- 1st Place - project with the 2nd highest average
- 2nd Place - project with the 3rd highest average
- 3rd Place - project with the 4th highest average
- Honorable Mention - project with the 5th highest average

Physical Science in each grade bracket

- Best of Fair - project with the highest average
- 1st Place - project with the 2nd highest average
- 2nd Place - project with the 3rd highest average
- 3rd Place - project with the 4th highest average
- Honorable Mention - project with the 5th highest average

Superlative Awards will be given in each category at each grade level based on judge selection for:

- Best Display
- Best Use of Computer
- Best Use of Photography
- Best Oral Presentation
- Best Use of Multimedia

In the event there are five (5) or more entries in a grade bracket, in either Life or Physical Science, that category may be split into a subcategory for full awards, including "Best of Fair", 1st Place, 2nd Place, 3rd Place, Honorable Mention and Superlative Awards. Subcategories are:

Life Science

- Group 1 - Behavior, Health, Environmental
- Group 2 - Botany, Microbiology, Zoology

Physical Science

- Group 1 - Chemistry, Earth, Environmental
 - Group 2 - Space, Engineering, Physics
-

Awards are given to projects according to the manner below.

Best of Fair Award - Trophy

1st Place Award - Gold Medal on neck ribbon

2nd Place Award - Silver Medal on neck ribbon

3rd Place Award - Bronze Medal on neck ribbon

Honorable Mention - rosette ribbon

Superlative Awards - Certificate of Award

Judges' Materials

Prior to the Regional Science Fair, judges will be prepared by the host SRC using the materials in this section. Materials include:

- Judge's Instructions
- Episcopal Regional Science Fair Guidelines
- Student Journal Guidelines
- Criteria for Judging
- Judge's Score Sheet
- Superlative Awards Sheet
- Sample Judging Questions

Judge's Instructions

Your participation in the Southwestern Association of Episcopal Schools Science Fair is greatly appreciated. The notes below, along with the enclosed information, will give you an opportunity to review the judging procedure, competition regulations and criteria for judging in our fair.

Enclosed Forms

Episcopal Regional Science Fair *Guidelines*, Student Journal *Guidelines*, *Criteria for Judging*, *Judge's Score Sheet*, *Superlative Awards Sheet*, *Sample Judging Questions*

Judge's Preparation

Read all information prior to your arrival at the fair. You will be given time to look over each project before you begin the judging process to evaluate for regulation compliance.

Judging Categories

Each project will be categorized into either Life or Physical Science, and in some cases subcategories of Life or Physical Science, and by the grade level of the student. Judges will be assigned projects within the same grade level.

Judging Criteria

The enclosed *Criteria for Judging* form should be analyzed carefully prior to judging. It suggests areas for emphasis in evaluating the project and gives guidance on evaluation of those areas.

Student Interviews

The questions you ask will help you to determine how well each student understands their experimentation. The students will not make a formal presentation, but will rather respond to a judge's inquiries.

Criteria for Judging

CREATIVITY 10 POINTS

- *Originality of the Problem
- *Ingenuity of the Solution

Does the project show creative ability and originality in: the question asked? The approach to solving the problem? The analysis of the data? The use of equipment?

Obviously, no project would be creative and original in all of these aspects. One must keep in mind that one is dealing with young students. Is the project creative in terms of science for that age student?

A student should not be penalized for taking help from others (all professionals receive help to some degree in some way.) Credit for creative ability should be in the regard to the contribution made by the student.

SCIENTIFIC METHOD 40 POINTS

- *Question
- *Variables and Controls
- *Hypothesis
- *Procedure
- *Results and Conclusions
- *Practical Applications

Did the student have a clear idea of what he/she wanted to accomplish? Consider the difficulty of the problem and whether or not it is sufficiently limited so that it is possible of attack. Is there a procedural plan for obtaining a solution? If controls were necessary, was the need recognized, and were they correctly used? Are the variables clearly recognized and defined? Does the conclusion explain the results and adequately answer the question?

LOG BOOK/JOURNAL 15 POINTS

- *Research (Report)
- *Methods
- *Raw Data
- *Notes and Record Keeping
- *Time Spent

How much time was spent on the project? Was it a sufficient amount of time considering the nature of the project? Was research conducted prior to the experimentation? Does the journal provide evidence of the scientific procedure? Does the journal include the raw data? The journal should not be judged for grammatical correctness or on handwriting but on how well it documents the experiment.

LEVEL OF DIFFICULTY 10 POINTS

*Appropriate to the age level *Amount of Independent Work

Does the student have the skills required to do all the work necessary to obtain the data which supports the project? What assistance was received from parents and others? Some students were required to have adult supervision due to their age and the safety hazards associated with their particular project. They should not be penalized for having adult supervision, although the student must be capable of actually carrying out the experiment themselves.

DISPLAY 10 POINTS

*Visual Impact *Information Presentation

Has the student expressed him/herself well in written material? How clearly are the data and results presented? How well does the display explain itself? Is the display aesthetically pleasing?

ORAL PRESENTATION 10 POINTS

*Poise and Articulation *Basic Knowledge of the Topic

How clearly is the student able to discuss the project? Is he/she able to explain its purpose, procedure, and conclusions in a clear and concise manner? Does the student show respect for the judge during the interview?

WHAT TO LOOK FOR:

- The quality of work done on a project and how well that student understands the project and the area in which he/she has been working should be considered primary to evaluating the actual physical display.
- The project should be compared with other projects in its grade division and not with projects seen elsewhere under other circumstances.
- A project should involve laboratory, field, or theoretical work, and not simply library research.

JUDGE'S SCORE SHEET

Project number/name _____

CATEGORY	IMPRESSIVE		ADEQUATE		MINIMAL	
I. Creativity						
Originality of the problem	5	4	3	2	1	0
Ingenuity of the solution	5	4	3	2	1	0
Creativity Subtotal:						
II. Scientific Method						
Question that was asked is clear	5	4	3	2	1	0
Hypothesis that was tested is clear	5	4	3	2	1	0
Experiments were appropriate to question	5	4	3	2	1	0
Measurements were made and recorded	5	4	3	2	1	0
Results (tables, graphs, pictures) are shown	5	4	3	2	1	0
Conclusions agree with the results	5	4	3	2	1	0
Conclusions are relevant to the hypothesis	5	4	3	2	1	0
Practical applications are discussed	5	4	3	2	1	0
Scientific Method Subtotal:						
III. Log Book/Journal						
Quality of the background research	5	4	3	2	1	0
Methods were described	5	4	3	2	1	0
Raw data were recorded	5	4	3	2	1	0
Log Book/Journal Subtotal:						
IV. Level of Difficulty						
Difficulty is appropriate to age of student	5	4	3	2	1	0
Amount of independent work by student	5	4	3	2	1	0
Level of Difficulty Subtotal:						
V. Display						
Display is neat and informative	5	4	3	2	1	0
Overall visual impact of display	5	4	3	2	1	0
Display Subtotal:						
VI. Oral Interview						
Student can explain what was done & why	5	4	3	2	1	0
Student can answer questions about project	5	4	3	2	1	0
Student's poise and articulation	5	4	3	2	1	0
Oral Interview Subtotal:						

Judge _____

Total Points

Superlative Awards

Please enter the project number from the grade level you are judging that you feel deserves the award below:

Best Display _____

Best Use of Computer _____

Best Use of Photography _____

Best Oral Presentation _____

Best Use of Multimedia _____

Judge Number _____

Grade Level _____

Category _____

Sample Judging Questions

CREATIVITY

- How did you get interested in your topic?
- How did you come up with the idea for your purpose?
- Why did you decide to solve this problem?
- How did you prepare the materials for your investigation?

SCIENTIFIC METHOD

- What problem were you trying to solve?
- What variables did you control?
- What experimental limitations did you encounter?
- How does your conclusion answer your problem?
- What practical applications does your work have in the real world?

LOG BOOK/JOURNAL

- What sources of information did you use in conducting research prior to your investigation?
- What did you learn from your background study?
- How many trials did you conduct?
- Where is your raw data recorded?
- How did you measure and analyze your data?

LEVEL OF DIFFICULTY

- What help did you receive from others?
- Did you find this project challenging?
- Do you intend to continue work in this area?

DISPLAY

- Did you design the display yourself?
- What part of your display will attract interest in your project?

Participating School Materials

Schools indicating the desire to participate will be mailed a packet of materials to prepare for the fair. Materials include:

- Information on hotels, meals provided, activities planned, uniform requirements, maps and local attractions
- Preliminary schedule for the fair
- Project Entry Form
- Episcopal Regional Science Fair Guidelines
- Campus SRC Information
- Student Journal Guidelines
- Judge's Instructions
- Criteria for Judging
- Judge's Score Sheet
- Superlative Awards Sheet
- Sample Judging Questions
- Blood-Borne Pathogen Use and Approval Form
- Designated Supervisor Form
- DNA or RNA Use and Approval Form
- Hazardous Material or Chemical Use and Approval Form
- Human and Animal Tissue Use and Approval Form

- Human Subjects Use Form
- Laser or Ultraviolet Light Use and Approval Form
- Qualified Scientist Form
- Registered Research Institutional/Industrial Setting Form
- Vertebrate Animal Subjects Use and Approval Form

Campus Scientific Review Committee

A campus based Scientific Review Committee (SRC) will be named in order to oversee compliance of all projects with S.A.E.S. regulations. The SRC will consist of a minimum of three persons, to include:

- A biomedical scientist (Ph.D., M.D., D.V.M., D.D.S., or D.O.)
- A faculty member
- At least one other member

In order to eliminate conflict of interest, members of the SRC may not be an Adult Sponsor, parent, Qualified Scientist or Designated Supervisor for any fair participant.

Prior to your local campus fair and the Regional Fair, the campus SRC must evaluate all projects for compliance with the rules and regulations established by the Southwestern Association of Episcopal Schools. This includes inspection for inclusion of proper Special Forms, display guidelines, and overall adherence.

The rulings of the host school SRC at the Regional Fair will be final in determining compliance the Regional Fair begins.

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Student's poise and articulation	5	4	3	2	1	0
Oral Interview Subtotal:						

Judge _____

Total Points _____

Superlative Awards

Please enter the project number from the grade level you are judging that you feel deserves the award below:

Best Display _____

Best Use of Computer _____

Best Use of Photography _____

Best Oral Presentation _____

Best Use of Multimedia _____

Judge Number _____ Grade Level _____

Category _____

Sample Judging Questions

CREATIVITY

- How did you get interested in your topic?
- How did you come up with the idea for your purpose?
- Why did you decide to solve this problem?
- How did you prepare the materials for your investigation?

SCIENTIFIC METHOD

- What problem were you trying to solve?
- What variables did you control?
- What experimental limitations did you encounter?
- How does your conclusion answer your problem?
- What practical applications does your work have in the real world?

LOG BOOK/JOURNAL

- What sources of information did you use in conducting research prior to your investigation?
- What did you learn from your background study?
- How many trials did you conduct?
- Where is your raw data recorded?
- How did you measure and analyze your data?

LEVEL OF DIFFICULTY

- What help did you receive from others?
- Did you find this project challenging?
- Do you intend to continue work in this area?

DISPLAY

- Did you design the display yourself?
- What part of your display will attract interest in your project?

Previous Regional Fairs

Every host school will have situations that are different from those of previous host schools. Materials provided in this manual may need to be supplemented with other correspondence, based on the schedule and planning for the regional fair. This section contains a list of those schools who have hosted an S.A.E.S. Regional Science Fair. We encourage our host schools to share materials and learn from others.

The host school will send a copy of all correspondence and materials used during the Regional Science Fair to the S.A.E.S. office at the completion of the fair.

Host Schools:

- 1992 - LUBBOCK (All Saints Episcopal School)
- 1993 - ARLINGTON (Central Region)
- 1994 - ABILENE (St. John's Episcopal School)
- 1995 - SOUTH PADRE ISLAND (Episcopal Day School)
- 1996 - HOUSTON (St. Stephen's Episcopal School)
- 1997 - TYLER (All Saints Episcopal School of Tyler)
- 1998 - DALLAS (Good Shepherd Episcopal School)
- 1999 - LUBBOCK (All Saints Episcopal School)
- 2000 - HOUSTON (St. Thomas The Apostle Episcopal School)
- 2001 - HOUSTON (St. James School)
- 2002 - SOUTH PADRE ISLAND (Episcopal Day School)
- 2003 - DALLAS (Parish Episcopal School and St. John's Episcopal School)
- 2004 - LUBBOCK (All Saints Episcopal School)