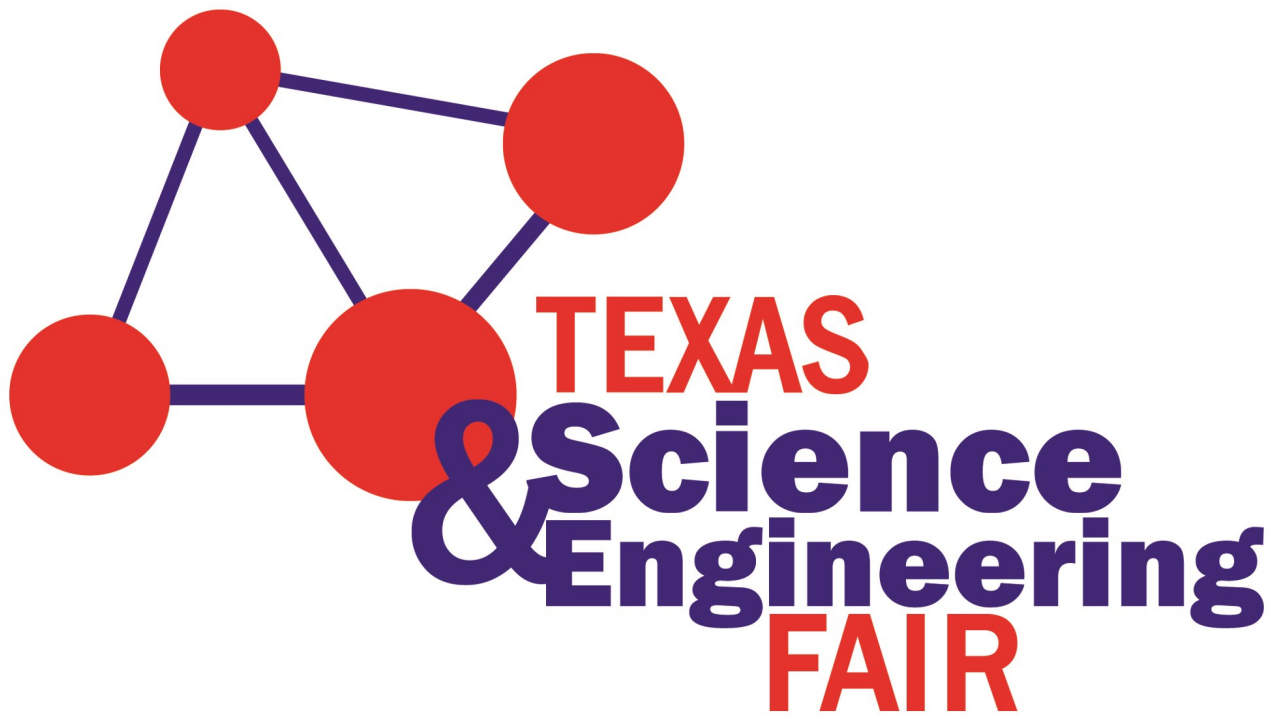


Texas Science and Engineering Fair



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Judge's Guide

Texas Science and Engineering Fair

Welcome

Thank you for volunteering your time and expertise at this year's Texas Science and Engineering Fair (TXSEF). The TXSEF is a major event in the academic and scientific lives of the students of Texas. The level of scientific thought and competition at the state level is high. In order to ensure the best students continue through the fair process, we are committed to providing the highest level of competency in judging at the TXSEF.

This is your guide to judging at the TXSEF. It contains information about all aspects of the process including some of the forms you will see on fair day. Please review the information carefully because your evaluations will determine who wins an award, who represents the State TXSEF at the Intel International Science and Engineering Fair (ISEF), and who will be invited to attend the Governor's Science and Technology Champions Academy (GSTCA).

Do not hesitate to contact a fair organizer if you have any questions or are unsure of anything. We look forward to welcoming you at another successful fair and we hope the event is as exciting and fulfilling for you as it will be for our student participants.

TXSEF Office: (210) 458-6177

TexasScienceFair@utsa.edu

<http://www.txsef.org>

Texas Science and Engineering Fair

Table of Contents

General Information	4
Types of Judges.....	5
Judge’s Conduct.....	6
Judging Guidelines.....	7
Fair Judging Process.....	8
Judging Criteria.....	9
Scoring Sheet.....	12
Summary Sheet.....	13
Award Flow Chart.....	14

Texas Science and Engineering Fair

General Information

Two divisions:

- Junior Division (middle school students)
- Senior Division (high school students)

Two project types:

- Individual (completed by a single student)
- Team Projects (completed by a team of two or three students)

Two category types (20 total individual categories):

- Life Sciences
 - Animal Sciences
 - Behavioral and Social Sciences
 - Biochemistry
 - Biomedical and Health Sciences
 - Cellular and Molecular Biology
 - Computational Biology and Bioinformatics
 - Earth and Environmental Sciences
 - Microbiology
 - Plant Sciences
 - Translational Medical Sciences
- Physical Sciences
 - Biomedical Engineering
 - Chemistry
 - Embedded Systems
 - Energy Chemical
 - Energy Physical
 - Engineering Mechanics
 - Environmental Engineering
 - Materials Science
 - Mathematical Sciences
 - Physics and Astronomy
 - Robotics and Intelligent Machines
 - System Software

Texas Science and Engineering Fair

Types of Judges

Fair Judges



The Fair Judge will select first place, second place, etc. from one of 22 categories. Each judge will be assigned a category based upon your preferences. Fair Award judges will split into groups and evaluate projects to receive awards from the State Fair.

Blue Team Judges



The task of Blue Team judges is to identify the best entries in the fair. There are four Blue Teams:

- 1) Life Science, Junior
- 2) Life Science, Senior
- 3) Physical Science, Junior
- 4) Physical Science, Senior

As a Blue Team Judge you will select Grand Prize and Best of Show winners from amongst the winners of the individual fair categories. Specifically, you will rank them sequentially with the best project ranked number one and descending through the list. The fair organizers will use this list to award grand prizes and identify (in the senior division) students qualifying to represent the State TXSEF at the Intel International Science and Engineering Fair.

Special Award Judges



Special Award Judges represent a professional society, company, industry, or the military and have been specifically asked by the organization they represent to evaluate projects eligible to receive scholarships and awards from external organizations. Judges review specific projects in relation to their organization's scholarship or award guidelines.

Texas Science and Engineering Fair

Judges' Conduct

The TXSEF is both a competition and an educational and motivating experience for students. Students enjoy conversations with judges, both to showcase their projects and to learn from judges.

As a judge you are a professional authority whose comments can motivate or discourage students from continued engagement with scientific and engineering work. Because of this, it is important that feedback is offered in a friendly, supportive, and positive manner.

Never harshly criticize or dismiss any of the projects assigned to you. It is equally destructive to a budding scientist or engineer to feel ignored as it is to feel chastised. Also, don't forget to give credit to the students for their effort to prepare and present their projects. Please try to find something positive to say for each project you judge and offer supportive suggestions.

IMPORTANT:

1. **DO NOT** evaluate a student whom you know.
2. If you must excuse yourself from judging a particular project or category, please report to the organizers of the fair for reassignment.

Texas Science and Engineering Fair

Judging Guidelines

1. Interviews
 - a. Conduct a one-on-one interview with each student in your assigned category. For teams, interview the entire team together making sure each member contributes.
 - b. Ask questions and listen to the student's explanations .
 - c. Feel free to engage in a bit of "shop talk" with the students .
 - d. Please remember to place a Judge label on each project you judge. (see page 8)
 - e. ***Do not exceed 10 minutes per project . You will hear a tone at 7 minutes reminding you to begin completing the interview process by asking questions; a second tone 3 minutes later will remind you to move to your next project.***



2. Evaluations
 - a. Does the student understand the work?
 - b. Is there evidence of lab, field, or theoretical work?
 - c. Is the display complete? (NOTE: Student understanding outweighs the look of the physical display.)
 - d. Was the work completed in the current year?
 - e. How much guidance and active help was given by third parties? (NOTE: including parents)

3. Interactions
 - a. Encourage students to continue scientific work.
 - b. Provide constructive criticism in a conversational tone.
 - c. Find something positive to say to each student.
 - d. Do not discuss rankings in the presence of students. Results are confidential until announced.

Texas Science and Engineering Fair

Judging Process

Fair Judges (*and only Fair Judges*) will receive a sheet of Judge Labels. Once a project has been judged, place a Judge Label on the Project's Table Card (see sample below). This procedure verifies how many times each project has been judged.

TYPE	INDIVIDUAL	DIVISION	SENIOR	PIN	5016ABCD50
					
3 4 1 5					
COMPUTATIONAL BIOLOGY & BIOINFORMATICS					
MY PROJECT IS THE BEST PROJECT BECAUSE IT WILL SAVE THE WORLD AND ALL OF MANKIND.					
DISPLAY & SAFETY INSPECTION				JUDGE STICKERS	
1st Inspector	2nd Inspector	3rd Inspector	Display Approved		JUDGE 2
Violation SENT	Violation SENT	Violation SENT			
Approved	Approved	Approved			
				JUDGE 3	

Once each Fair Judge has completed judging their assigned projects, all scoring sheets (pg.12) are to be turned in immediately.

Write your Judge ID on each sticker and place it on each Project Table Card you judged.

Texas Science and Engineering Fair

Judging Criteria

Criterion	Science	Engineering
Research Question	10	10
Design and Methodology	15	15
Execution	20	20
Creativity	20	20
Presentation Poster	10	10
Presentation Interview	25	25

Entries are judged on a number of criteria that are weighted differently .

I. Research Question (10 pts)

Science

- clear and focused purpose
- identifies contribution to field of study
- testable using scientific methods

Engineering

- description of a practical need or problem to be solved
- definition of criteria for proposed solution
- explanation of constraints

Texas Science and Engineering Fair

Fair Judging Criteria contd.

II. Design and Methodology (15 pts)

Science

- well designed plan and data collection methods
- variables and controls defined, appropriate and complete

Engineering

- *exploration of alternatives to answer need or problem*
- *identification of a solution*
- *development of a prototype/model*

III. Execution: Construction and Testing(20 pts)

Science

- systematic data collection and analysis
- Reproducibility of results
- appropriate application of mathematical and statistical methods
- sufficient data collected to support interpretation and conclusions

Engineering

- prototype demonstrates intended design
- prototype has been tested in multiple conditions/trials
- prototype demonstrates engineering skill and completeness

IV. Creativity (20 pts)

Science & Engineering

- project demonstrates significant creativity in one or more of the above criteria

Texas Science and Engineering Fair

Fair Judging Criteria contd.

V. Presentation (35 pts)

Science and Engineering

a. Poster (10 pts)

- logical organization of material
- clarity of graphics and legends
- supporting documentation displayed

b. Interview (25 pts)

- clear, concise, thoughtful responses to questions
- understanding of basic science relevant to project
- understanding interpretation and limitations of results and conclusions
- degree of independence in conducting project
- recognition of potential impact in science, society and/or economics
- quality of ideas for further research
- for team projects, contributions to and understanding of project by all members

Texas Science and Engineering Fair

Scoring Sheet

Division	Category	Judging Score Sheet						Judge ID Number	
		I. Research			IV. Creativity				
		II. Design & Methodology			V(a). Presentation Poster				
		III. Execution			VI(b). Presentation Interview				
<i>Score each project relative to total points listed</i>									
Project #	Title	I.	II.	III.	IV.	V.	VI.	Total	Comments for Tie Breaker
1		10	15	20	20	10	25		
2		10	15	20	20	10	25		
3		10	15	20	20	10	25		
4		10	15	20	20	10	25		
5		10	15	20	20	10	25		
6		10	15	20	20	10	25		
7		10	15	20	20	10	25		
8		10	15	20	20	10	25		
9		10	15	20	20	10	25		
10		10	15	20	20	10	25		
11		10	15	20	20	10	25		
12		10	15	20	20	10	25		
13		10	15	20	20	10	25		
14		10	15	20	20	10	25		
15		10	15	20	20	10	25		
JUDGE SIGNATURE								Date	

Texas Science and Engineering Fair

Judge Process

Fair Judge Process

Score each project using the scale as described on the Judge Score Sheet.

Category judges will be grouped in a minimum of 3 judges to judge the same projects.

Each category will have several groups of judges.

Each group of judges will need to arrive at consensus for their top 3 projects.

Each group will identify a representative to caucus within the category to arrive at consensus of the Top 4 projects in that category.

For example, if there are 9 judges in a category (3 groups of 3 judges each), then 1 judge from each group will represent that group in the consensus-forming process.

Each category consensus of the Top 4 projects of that category must be turned in and signed by a judge(s).

Fair judging at this time is complete.

Blue Team Judges to follow.

Example:

If Senior Division – Animal Sciences has 30 Projects with 9 Category Judges assigned to them...

Round 1: 3 Judges per group = Total 3 groups of judges judging 10 projects each

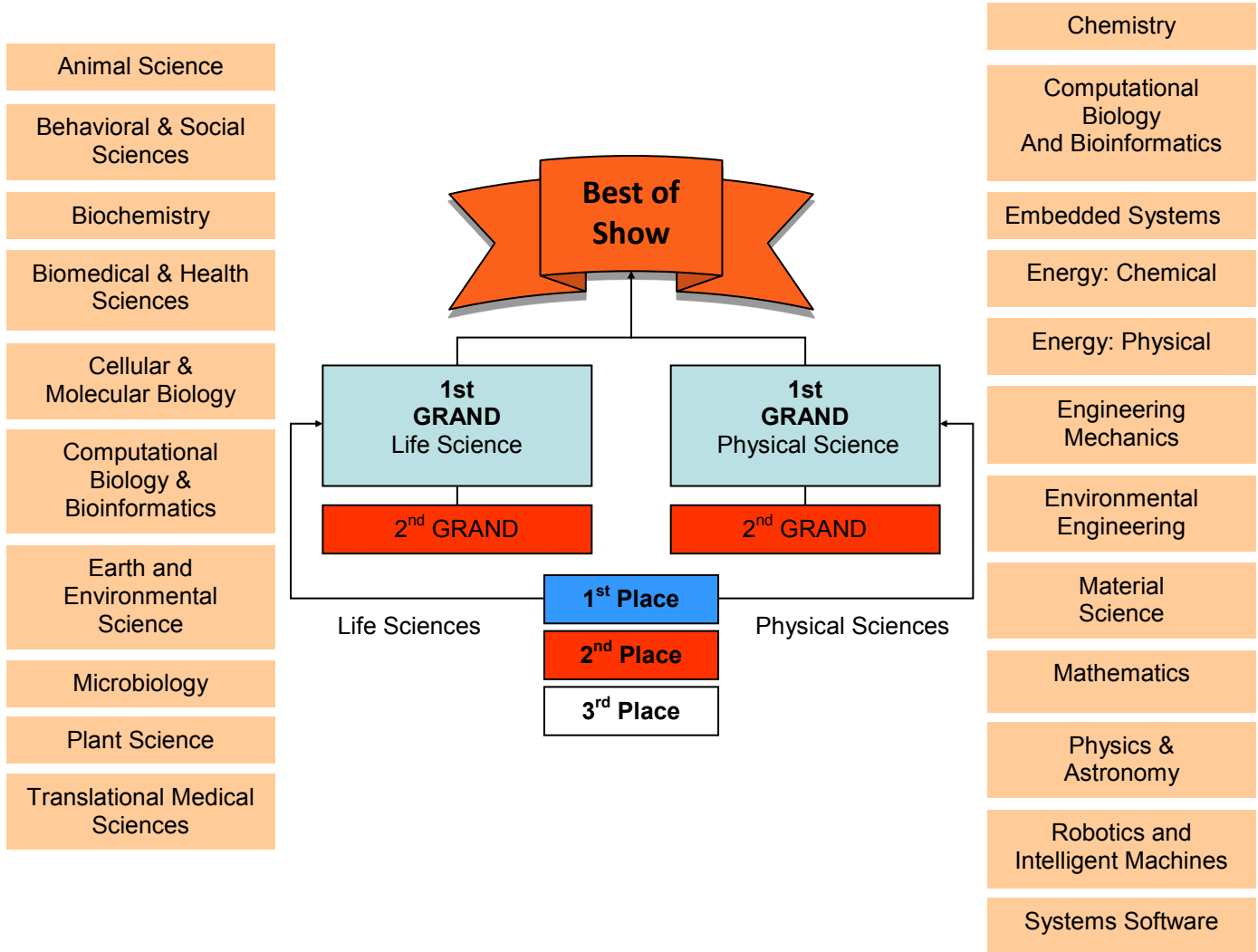
Group 1 will judge projects 3001-3010

Group 2 will judge projects 3011-3020

Group 3 will judge projects 3021-3030

- Each group will arrive at consensus for their Top 3 projects & identify 1 representative to caucus with the representatives from the other groups
- Round 2: The representatives from each group will arrive at consensus for the category's Top 4 projects by re-visiting the projects selected
- Turn in the Top 4 projects

Texas Science and Engineering Fair



Fair Judges will determine 1st through 4th place of each category.

Blue Team Judges will receive a list of all 1st Place projects in their division and arrive at consensus to identify the 1st & 2nd Grand Awards in the Life Sciences and 1st & 2nd Grand Awards in the Physical Sciences divisions; then select the Best of Show Award from the 1st Grand Life Science & 1st Grand Physical Science. Senior division Blue Team Judges will also rank ALL their projects from best downwards (1 to 10 in Life Sciences and 1 to 12 in Physical Sciences).

Note: The 1st place project of the category that is awarded a grand prize, will move 2nd place up to 1st place, 3rd place up to 2nd place, and 4th place up to 3rd place of that category.

Texas Science and Engineering Fair

Special Awards

Category Awards

1st—3rd Place in Life Sciences

1st—3rd Place in Physical Sciences

Grand Awards

1st & 2nd Place Grand - Life Sciences

1st & 2nd Place Grand - Physical Sciences

Broadcom Masters

Top 10% Junior Division Projects Qualify

Governor's Science and Technology Champions Academy

Up to 50 Senior Division Students Awarded per year

"Best of Show" Award

Intel International Science and Engineering Fair

8 Senior Division Projects will advance to Intel ISEF

Texas Science and Engineering Fair

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TXSEF
College of Sciences - BSE 2.110
One UTSA Circle
San Antonio, Texas 78249

TXSEF Office: (210) 458-6177

TexasScienceFair@utsa.edu

www.txsef.org