



# 2027

# Judging Handbook



Scott Ryals, Judging Coordinator [judges@ncsciencefair.org](mailto:judges@ncsciencefair.org)  
Dr. Thomas Williams, Director NCSEF [director@ncsciencefair.org](mailto:director@ncsciencefair.org)

# Welcome

Thank you for your interest in serving as a Judge for the NCSEF. We can say without a doubt that our students consistently indicate that their time and interactions with the judges is the highlight of their NCSEF experience. They have worked hard and having STEM field experts such as you engage with them in learning more about their research and fielding your questions makes it all worthwhile.

Thank you for reading this Handbook so you are familiar with the judging role, process, rules, and judging criteria. We hope this is helpful and please let us know if you have any questions or concerns.

Best regards,  
[Scott Ryals](#), Judging Coordinator,  
[Tom Williams](#), Director, NCSEF

## Judges Registration in Stem Wizard

If you registered as a judge in the previous year, you will receive an email from Scott Ryals through Stem Wizard requesting you sign up to judge this year. You will use the same Stem Wizard User Name and Password. Please update your information. If you have any issues, please contact [judges@ncsciencefair.org](mailto:judges@ncsciencefair.org).

## Quick Reference: Judge At-A-Glance Sheet

- **Judging is based on the Regeneron International Science and Engineering Fair (ISEF) [Judging Criteria](#) consistent with the [ISEF Rules and Regulations](#). Please mark these for future reference.**
- **Minimum Interviews:** Every project must receive at least **3 separate Category judge interviews**.
- **Judges Tracking Markers:** Each project board will have three (3) removable Post-it tags. After completing your interview, remove one of the tags.
- **Core Evaluation Principle:** Focus on the student's scientific or engineering process, critical thinking, and depth of understanding. Do **not** score solely based on poster aesthetics, expensive equipment, or student access to professional laboratory facilities.
- **Strict Student Safety & Contact Policy:**
  - **No Direct Contact:** Never exchange phone numbers, email addresses, or personal contact details with students.
  - **Follow-up Requests:** Any legitimate follow-up, mentorship, or opportunity must be coordinated through the NCSEF Director with parental approval.
- **Rule Escalation Procedure:** If you suspect safety non-compliance, missing ISEF Form 1C (work done in a regulated research institution), or improper outside assistance, **do not discuss it with the student**. Report the project number immediately to the Judging Coordinator.

# 1. Introduction & Overview

## Qualified Judges

Judges must hold at least a bachelor's degree in a scientific, technical, or educational field (or equivalent related experience approved by the Judging Coordinator). Above all, judges must enjoy encouraging elementary, middle, and high school students to pursue scientific inquiry, engineering design, and experimentation.

## The Scope of the NCSEF

Across all 100 counties, thousands of North Carolina students in grades 3 through 12 from public, public charter, private, and homeschools compete in the NCSEF system at the school, school district, and 10 Regional Fairs.

The State Fair brings together approximately 450 student researchers evaluated by over 200 judges:

- **Elementary Division (Grades 3–5):** Recognizes students with Honorable Mention, Exemplary awards, and the Dewey & Susan Ryals Family Memorial Award. Special Awards are provided by select sponsors.
- **Junior Division (Grades 6–8):** Recognizes students at the 1st, 2nd, and 3rd place level. Nominates the top 10% projects (1st and 2nd place winners by each Category) for the Thermo Fisher Scientific Junior Innovators Challenge. Special Awards are provided by select sponsors.
- **Senior Division (Grades 9–12):** Recognizes students at the 1st, 2nd, and 3rd place level. Selects up to 12 of the top projects to represent North Carolina at the Regeneron International Science and Engineering Fair (ISEF) with all expenses paid. Special Awards are provided by select sponsors.

# 2. Professional Ethics & Judge Expectations

## Respecting Young Scientists

Treat every student with the professional courtesy due a fellow researcher. Listen carefully to their explanation, ask thoughtful questions, and offer sincere praise. Avoid trying to "fix" experimental flaws during the interview; instead, ask guiding questions that help the student discover deeper insights independently.

## Confidentiality & Conflicts of Interest

- **Confidentiality:** All judging discussions, scores, and notes are strictly confidential. While still on site, destroy all personal notes at the conclusion of the fair.
- **Conflicts of Interest:** If you know a student personally or identify any potential conflict of interest, inform fair officials immediately so you can be reassigned. Because the standard includes both "actual" conflicts of interest (i.e.; student is a relative, current or past student, etc.) or "perceived" conflicts of interest (i.e.; student or student's parent has current or past affiliation with a lab or organization, etc.), please be mindful of this and disclose it immediately your Division Lead Judge.

## Student Contact & Boundaries

The relationship between a judge and a participant is that of an adult authority figure to a minor. Judges must adhere to strict professional standards:

- Never request personal contact details from a student.
- If you wish to offer mentorship, internship, or academic advice, contact the Judging Coordinator or NCSEF Director. Post-fair contact is facilitated strictly through official channels with explicit parental/guardian consent.

### **3. Event-Day Judging Workflow**

#### **Step 1: Arrival, Continental Breakfast, Orientation (8:00 AM)**

- Please proceed to the designated area in the NCSU Student Wellness Center/Carmichael Gymnasium as described in your Judging Assignment.
- Please bring your project notes from your Stem Wizard online review of student materials.
- Attend the general orientation to review the judging schedule, [ISEF Judging Criteria](#) scoring procedures, logistics, and any assigned Special Award criteria.
- Please review ISEF's [Scientific Integrity](#) statement and [Guidelines for Use of AI](#) for students (2026) as they undergo the ISEF and NCSEF competitions.

#### **Step 2: Division Category Meetings & Interview Question Agreement**

- Meet with your assigned judging panel to align on interview rotations, standard questions, and target interview durations. Remember, at a minimum, every student should be interviewed by a **minimum** of 3 Category Award judges.

#### **Step 3: Student-Free Preview Beginning at 9:15 am**

- Review assigned project boards and related project materials before students arrive.
- **Do not** assign scores or draw final conclusions during this phase. The interview frequently alters preliminary impressions.

#### **Step 4: Student Interviews**

- Briefly introduce yourself warmly to put the student at ease.
- Request a brief overview (1–2 minutes) of the project.
- Politely manage time and ensure equal participation in team projects.
- When done, remove the tracking Post-it tag upon completion of your interview.

#### **Step 5: Division Category Caucus & Awards Selection**

- Reconvene with your Category group to compare your scores, rankings, and review potential candidate winners.
- Ensure top candidate projects have been interviewed by all Category judges on the panel.
- By the allotted time deadline, reach final ranking consensus through respectful discussion (or majority vote if necessary). Resolve ties prior to submitting final results—do not submit tied rankings.

#### 4. Judging Criteria Rubrics (100-Point Scale)

##### Science Projects Scoring Rubric

| <b>Criterion</b>                                             | <b>Points</b> | <b>Key Assessment Focus</b>                                                                                                                                                                                                                                   |
|--------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>I. Research Question</i></b>                           | <b>10</b>     | <i>Clear and focused purpose; identifies contribution to the field; testable using scientific methods.</i>                                                                                                                                                    |
| <b><i>II. Design &amp; Methodology</i></b>                   | <b>15</b>     | <i>Well-designed plan and data collection methods; variables and controls clearly defined and appropriate.</i>                                                                                                                                                |
| <b><i>III. Execution: Data Collection &amp; Analysis</i></b> | <b>20</b>     | <i>Systematic collection; reproducibility; proper mathematical and statistical methods; sufficient data to support conclusions.</i>                                                                                                                           |
| <b><i>IV. Creativity</i></b>                                 | <b>20</b>     | <i>Significant creativity demonstrated in research question, methodology, data interpretation, or equipment design.</i>                                                                                                                                       |
| <b><i>V. Presentation &amp; Interview</i></b>                | <b>35</b>     | <b><i>Poster (10 pts):</i></b> Logical layout, clear graphics, complete documentation.<br><br><b><i>Interview (25 pts):</i></b> Concise Q&A responses, comprehension of basic science, understanding of limitations, independence, and future research ideas. |

## Engineering Projects Scoring Rubric

| Criterion                                         | Points    | Key Assessment Focus                                                                                                                                                                                                                                                               |
|---------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I. Research Problem</b>                        | <b>10</b> | Description of a practical need or problem; criteria for proposed solution; clear identification of constraints.                                                                                                                                                                   |
| <b>II. Design &amp; Methodology</b>               | <b>15</b> | Systematic exploration of alternatives; identification of optimal solution; prototype/model development plan.                                                                                                                                                                      |
| <b>III. Execution: Construction &amp; Testing</b> | <b>20</b> | Prototype demonstrates design goals; tested under multiple conditions/trials; shows engineering skill and completeness.                                                                                                                                                            |
| <b>IV. Creativity</b>                             | <b>20</b> | Novel solution to an engineering challenge; creative use of materials, design, or testing protocols.                                                                                                                                                                               |
| <b>V. Presentation &amp; Interview</b>            | <b>35</b> | <p><b>Poster (10 pts):</b> Clear schematics, logical flow, complete documentation.</p> <p><b>Interview (25 pts):</b> Thorough understanding of engineering principles, awareness of constraints/limitations, clear team role distinction, and practical application potential.</p> |

## 5. Unique Judging Guidelines

### Assessing Scientific Rigor & Resource Equity

- Scoring should emphasize scientific understanding over access to resources. A student who demonstrates rigorous methodology using basic household items should score higher than one who uses advanced laboratory equipment without understanding the underlying science.
- Assess what the student actually accomplished versus outside assistance. Ask clarifying questions regarding how equipment was obtained and how procedures were understood.

### ***Team vs. Individual Projects***

- *Team projects are evaluated on the same 100-point scale as individual projects, but teams are expected to show synergy—producing higher quality data, more trials, and broader background research.*
- **Interview Strategy:** *Direct questions to individual team members by name to ensure equal participation and confirm that all members share a comprehensive understanding of the entire project.*

### ***Projects to Avoid Rewarding***

*The following project types lack scientific rigor and should generally **not** receive top awards:*

- *Exact repeats of cataloged projects from websites (e.g., Science Buddies).*
- *Pure visual models, artwork, or demonstrations without experimental data collection.*
- *Inventions that do not undergo iterative engineering testing or answer a scientific question.*
- *"What happens if..." tests conducted without prior background research or a supported hypothesis.*
- *Literature searches presented as original scientific proof.*