FLINT REGIONAL SCIENCE & ENGINEERING FAIR

Instructions & Information for Judges

Goals for the Fair

- **Fair Judging Process**
- **Encouragement for each student in their pursuit of Science, Technology, Engineering and Math**
- **Positive experience for all**
  - Students
  - Teachers
  - Parents
  - Judges

Our Judging Process => Middle + High School

- **Preliminary Round**
  - 1st round of judging
  - Projects are judged online based on student submitted materials
    - Display Slides (up to 12 slides)
    - Project Report (optional)
  - Projects are primarily scored by judges in their categories (1-2 cross category to provide representative comparisons)
  - Outcome
    - Top 35-50% of projects are Finalists

- **Finalist Round**
  - 2nd round of judging, at project display board
  - Non-Finalist
    - 1 – 2 interviews at project display board
    - Determine Research Fellow or Honorable Mention
    - Goal: Excite and inspire students
  - Finalist
    - Determine Grand Award placing (1st, 2nd, 3rd….)
    - 3 – 10 (depends on level) judging interviews (individual or teams of judges)
    - High School judging is across disciplines
  - Final score is 10% preliminary round, 90% finalist round

Our Judging Process => Elementary

- **Judging**
  - Interviews at project display board
  - Determine Grand Award placing (Gold, Silver, Bronze)
  - 3 – 5 judging interviews
    - Please do individual interviews when possible to not overwhelm students
  - Goal: Excite and inspire students

Judging Criteria – 2025 Preliminary

- **Introduction and Background** 10%
  - Provides an intro that begins with general information leading up to the area of their project.
  - Student understands how their research is relevant in their area of study or the world.
- **Problem Statement / Goals / Hypothesis** 15%
  - Student clearly explained the goals or purpose of the research.
  - Explains how the goal addresses a problem or gap in understanding.
- **Methods / Materials** 15%
  - Explains method of scientific work.
  - A clear plan was shown and variables were identified.
  - If controls were necessary, appropriate controls were selected.
  - Sample size was appropriate.
  - If appropriate, prototype solutions were developed.
  - If using a survey, the questions adequately addressed the problem.
- **Results / Analysis / Discussion** 15%
  - Student clearly and adequately explained the results of their work and understands the relationship of the results with respect to the goals.
  - Sufficient data was presented to support the conclusion. If applicable, statistical analysis was used properly.
  - Student was able to explain method of analysis, including statistical analysis.
  - Student interpreted the data in a way that is consistent with the original hypothesis / problem statement.
  - If applicable: Solution provides improvement or alternative to existing product or designs.
  - If applicable: Solution was tested for performance.

Judging Criteria – 2025 Preliminary

- **Conclusion / Application / Future Research** 15%
  - Sound conclusions were made based on the data / schematics presented.
  - Project was carried out to completion within the scope of the original intent.
  - The student provided possible applications of their work.
  - Demonstrated a clear direction for further study in the area of research.
- **Novelty / Creativity** 15%
  - A creative project demonstrates imagination and inventiveness.
  - Such projects often offer different perspectives that open up new possibilities or new alternatives.
  - The project demonstrates considerable creativity in one or more of the following criteria: research question, design and methods, or execution (prototype development, data collection, analysis or interpretation).
- **Quality of Materials** 15%
  - The display slides demonstrate an organized scientific approach.
  - Slides clearly showed the data that was presented in identifiable tables and or figures.
  - Slides clearly presented the specific goals or specific purpose of research study.
  - Text was clearly visible with readable formatting.
  - Information was organized in a way that enhanced the presentation of the student's research.

Judging Criteria – 2025 Finalist

- **Introduction and Background** 10%
  - Provides an intro that begins with general information leading up to the area of their project.
  - Student understands how their research is relevant in their area of study or the world.
- **Problem Statement / Goals / Hypothesis** 10%
  - Student clearly explained the goals or purpose of the research.
  - Explains how the goal addresses a problem or gap in understanding.
- **Methods / Materials** 10%
  - Explains method of scientific work.
  - A clear plan was shown and variables were identified.
  - If controls were necessary, appropriate controls were selected.
  - Sample size was appropriate.
  - If appropriate, prototype solutions were developed.
  - If using a survey, the questions adequately addressed the problem.
- **Results / Analysis / Discussion** 15%
  - Student clearly and adequately explained the results of their work and understands the relationship of the results with respect to the goals.
  - Sufficient data was presented to support the conclusion. If applicable, statistical analysis was used properly.
  - Student was able to explain method of analysis, including statistical analysis.
  - Student interpreted the data in a way that is consistent with the original hypothesis / problem statement.
  - If applicable: Solution provides improvement or alternative to existing product or designs.
  - If applicable: Solution was tested for performance.

Judging Criteria – 2025 Finalist

- **Conclusion / Application / Future Research** 10%
  - Sound conclusions were made based on the data / schematics presented.
  - Project was carried out to completion within the scope of the original intent.
  - The student provided possible applications of their work.
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- **Novelty / Creativity** 10%
  - A creative project demonstrates imagination and inventiveness.
  - Such projects often offer different perspectives that open up new possibilities or new alternatives.
  - The project demonstrates considerable creativity in one or more of the following criteria: research question, design and methods, or execution (prototype development, data collection, analysis or interpretation)
- **Quality of Presentation** 10%
  - Student presented the material in a clear and organized manner.
  - Student demonstrate enthusiasm in the presentation of their research.
- **Student Understanding** 15%
  - Student demonstrated understanding of the project.
  - Student clearly explains all aspects of the project.
- **Display Organization** 10%
  - The display demonstrates an organized scientific approach.
  - Display clearly showed the data that was presented in identifiable tables and or figures.
  - Display clearly presented the specific goals or specific purpose of research study.
  - Text was clearly visible with readable formatting.
  - Information was organized in a way that enhanced the presentation of the student's research.

Judging Criteria – 2025 Elementary

- **Problem Statement / Goals / Hypothesis** 15%
  - Student clearly explained the goals or purpose of the research.
  - Explains how the goal addresses a problem or gap in understanding.
- **Methods / Materials** 15%
  - Explains method of scientific work.
  - A clear plan was shown and variables were identified.
  - If controls were necessary, appropriate controls were selected.
  - Sample size was appropriate.
  - If appropriate, prototype solutions were developed.
  - If using a survey, the questions adequately addressed the problem.
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  - Student clearly and adequately explained the results of their work and understands the relationship of the results with respect to the goals.
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  - Student was able to explain method of analysis, including statistical analysis.
  - Student interpreted the data in a way that is consistent with the original hypothesis / problem statement.
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  - If applicable: Solution was tested for performance.

Judging Criteria – 2025 Elementary

- **Conclusion / Application** 15%
  - Sound conclusions were made based on the data / schematics presented.
  - Project was carried out to completion within the scope of the original intent.
- **Novelty / Creativity** 10%
  - A creative project demonstrates imagination and inventiveness.
  - Such projects often offer different perspectives that open up new possibilities or new alternatives.
  - The project demonstrates considerable creativity in one or more of the following criteria: research question, design and methods, or execution (prototype development, data collection, analysis or interpretation)
- **Quality of Presentation and Display 15%**
  - Student presented the material in a clear and organized manner.
  - Student demonstrate enthusiasm in the presentation of their research.
  - The display demonstrates an organized scientific approach.
  - Display clearly showed the data that was presented in identifiable tables and or figures.
  - Text was clearly visible with readable formatting.
- **Student Understanding 15%**
  - Student demonstrated understanding of the project.
  - Student clearly explains all aspects of the project.

FRSEF Rules

International Science & Engineering Fair

Regulated Research Institutions

- Students allowed to work at Regulated Research Institutions (RRI)
- Students must declare what work was conducted at the RRI and what assistance was received. => Form 1C (RRI)
  - This is signed by someone at the RRI

- Two categories of projects with a Form 1C
  - Complete project at RRI: student received significant guidance and did their project at the RRI
  - Equipment usage: student conducted the majority of their project at home or school and used specialty equipment from an RRI for a portion of their project

- **Judge the project based on the work and knowledge of the student**

- The Form 1C will be displayed vertically on the table in a blue sleeve

FRSEF Rules

International Science & Engineering Fair

Continuation Projects

- Students are only allowed to work on a project for 12 months
  - Students are allowed to work on a project longer and across multiple years if it is a continuation
  - Students can only present on the work of this year but are allowed to reference previous data and research

- Students must declare what work is new and for this year => Form 7 (continuation)

- **Judge the project based on the work for this year**

- The Form 7 will be displayed vertically on the table in a yellow sleeve

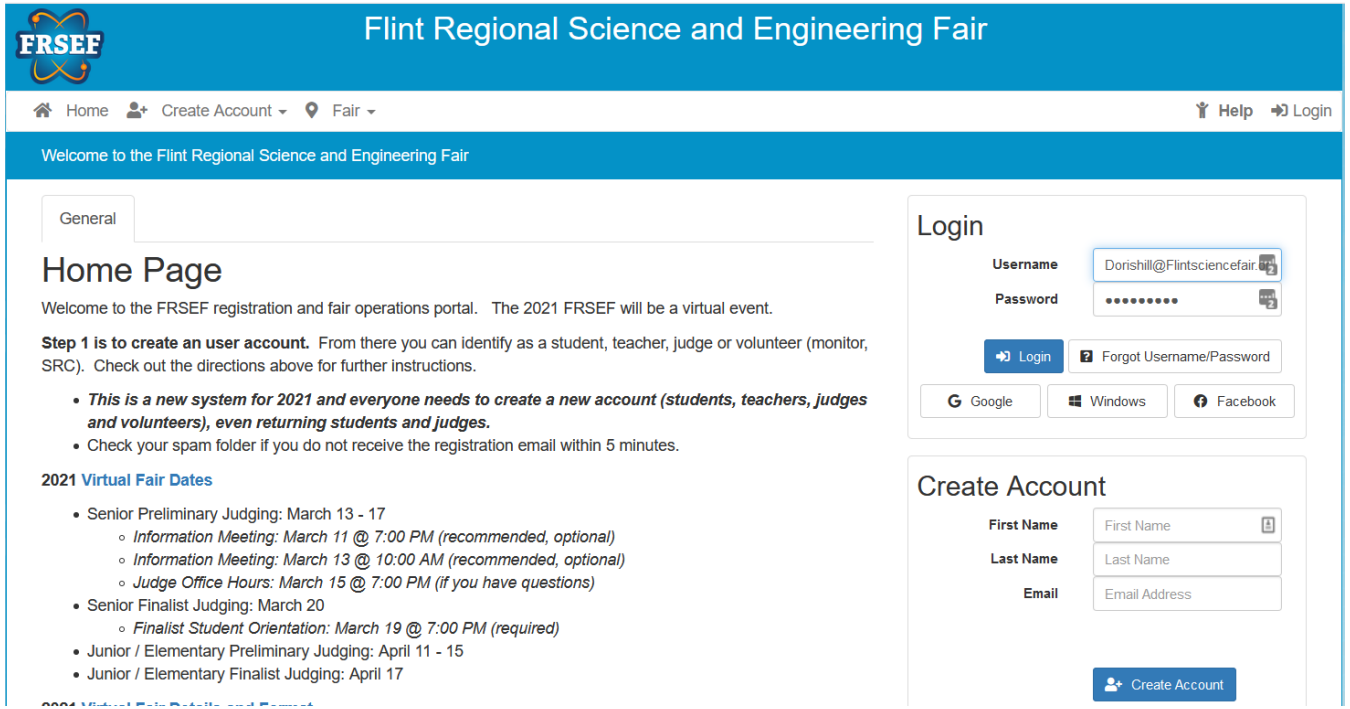
Judging Platform

You also can go directly to zFairs
https://mi-frsef.zfairs.com

Student, Judge Login & Registration

- www.flintsciencefair.org – **and click on yellow box**

- Put in username and password. If you have forgotten either, click on forgot username/password and follow the directions



Converting raw scores to z-scores ”normalizes” scoring from judge to judge.

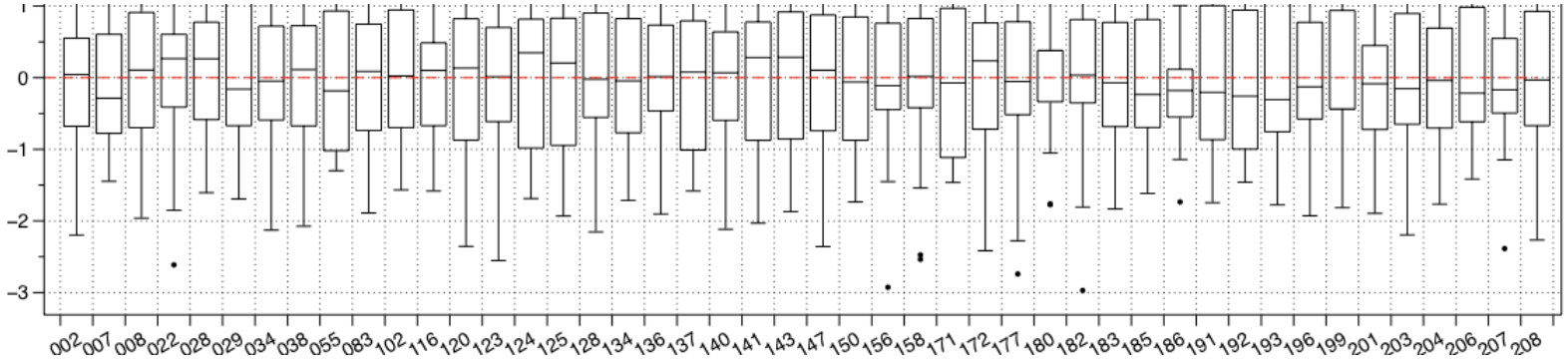
Each judge’s raw scores are converted to z-scores with a formula.

Z-Score = (Raw Score – Judge’s Mean Score) ÷ Judge’s Standard Deviation

All scores are converted into z-scores.

Z-Scores by Judge

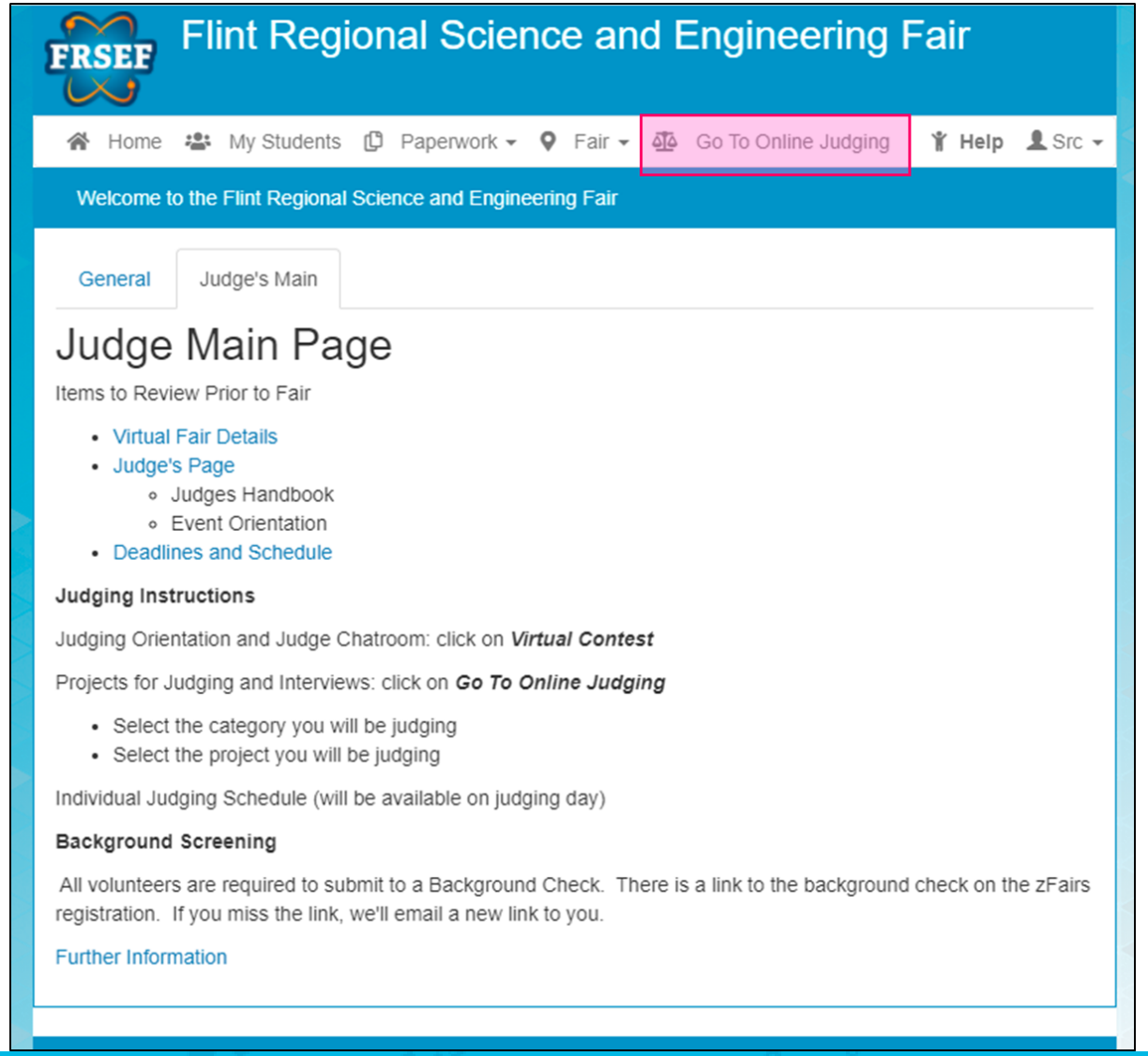
Do not give every project the same score!
There must be some variation!



This allows each judge to pick the mean that is natural to them

Online Judging (where to view & score)

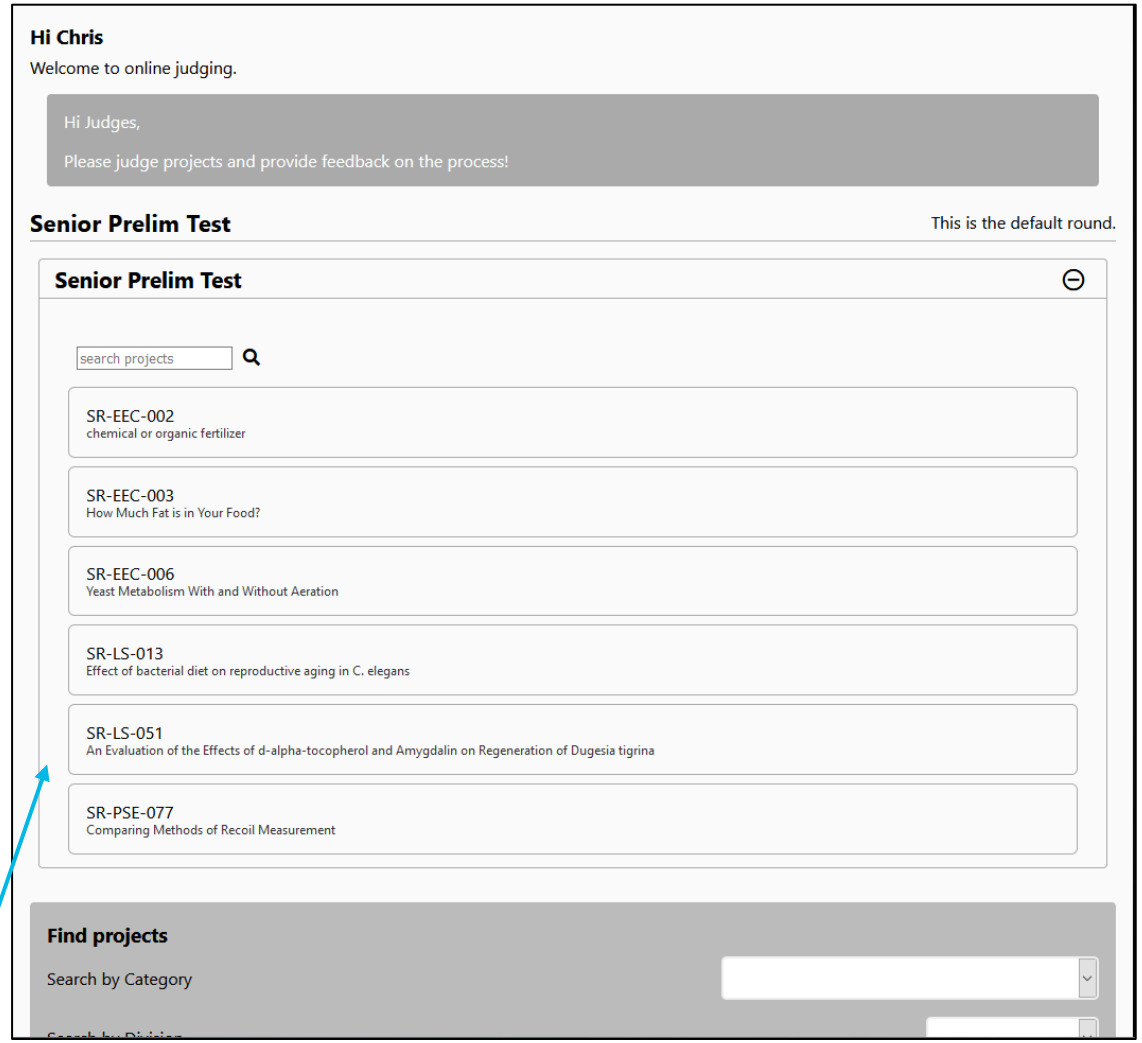
1) Log into FRSEF (previous page)
2) ***Go to Online Judging*** to start !



In person Judging

For preliminary judging and special awards, the projects are judged without the students present

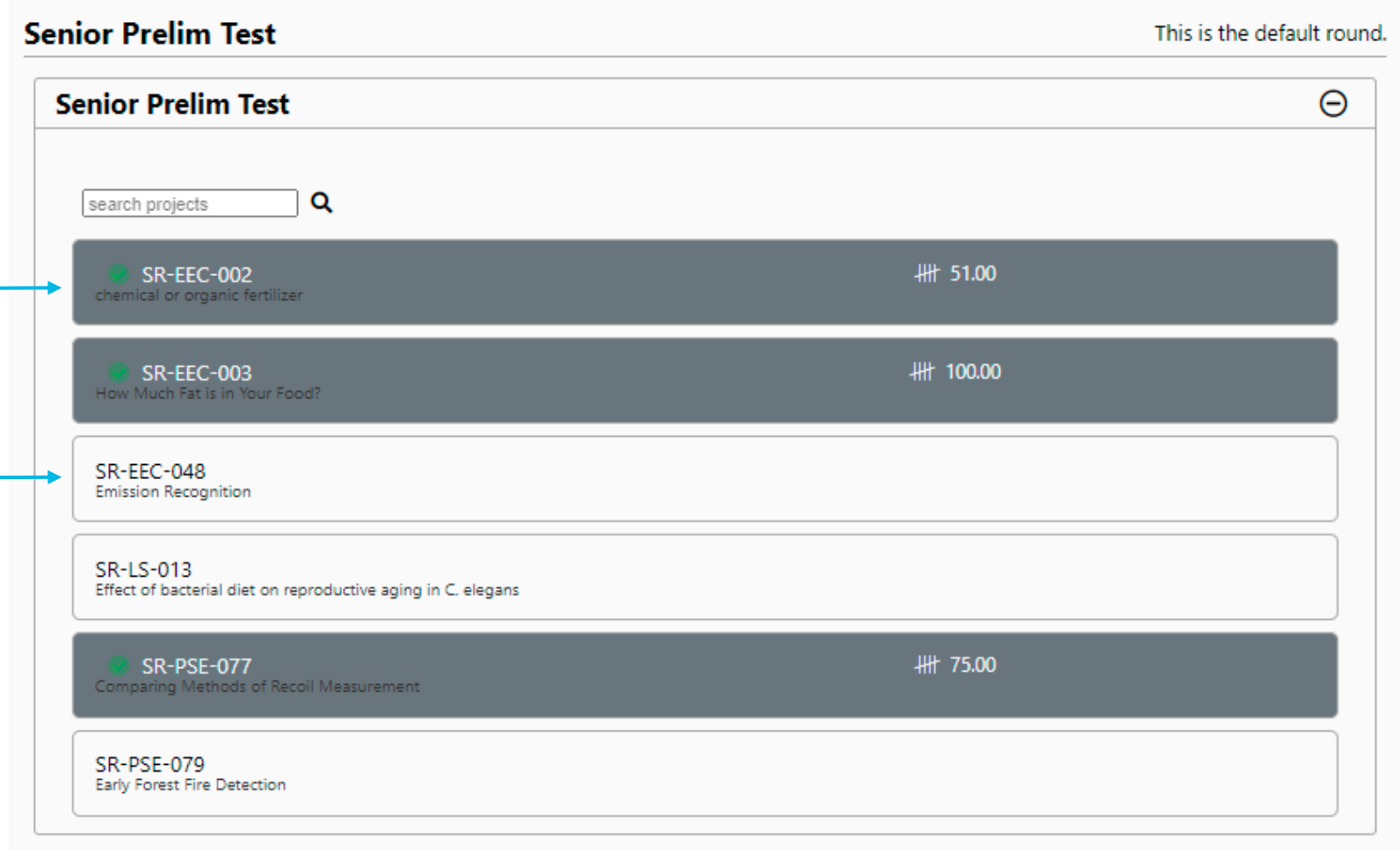
- On Saturday, the judges will have the opportunity to ask questions to the students to gauge their understanding
- Finalist Judges: The projects listed have been pre-assigned to you. We make every effort to match projects to your expertise. But, you may be asked to judge projects outside of your educational expertise, that is okay. Clarity is an important requirement for students.
- Special Awards: All projects are listed, use *search* bar to find applicable projects.
- All Senior projects have been pre-loaded onto laptops in the various judging rooms.



Projects assigned to you.
Click on the project to view and score

In-Person Judging

Scored projects are highlighted.
Judges can adjust scores until scoring deadline.



Scored Project

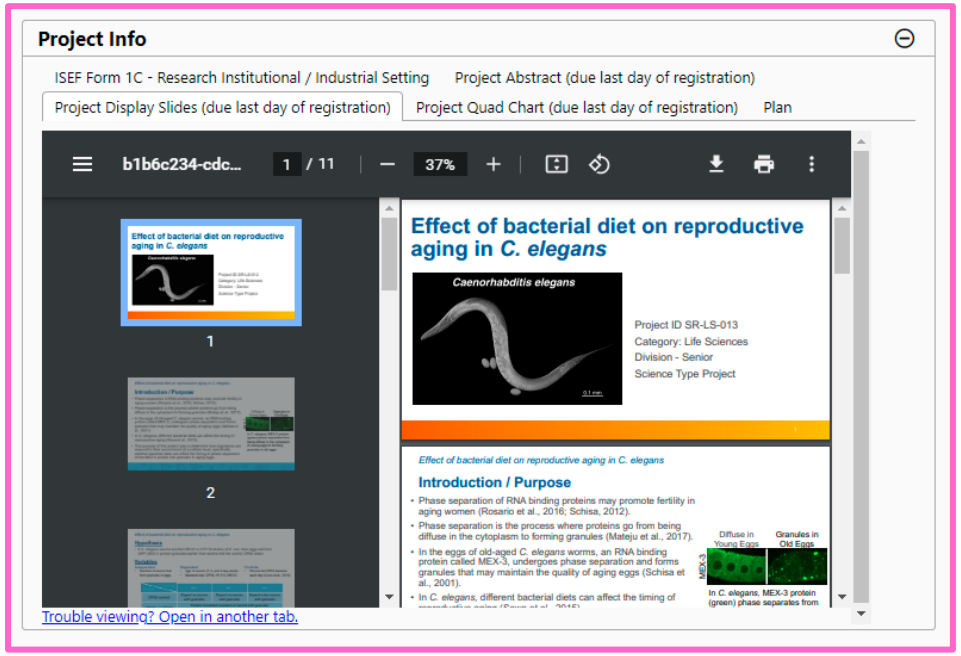
Unscored Project

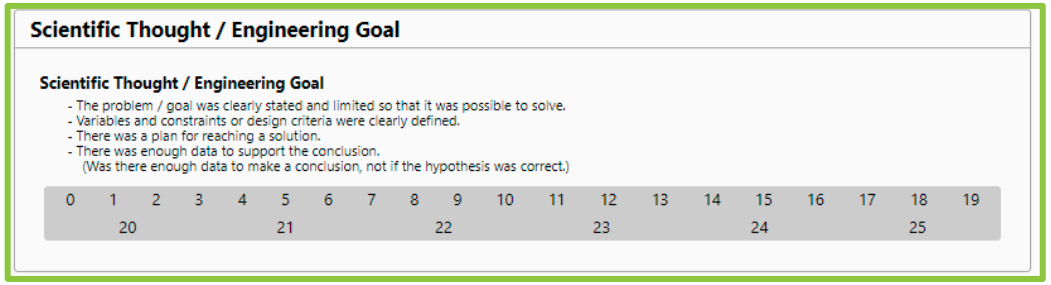
Project View

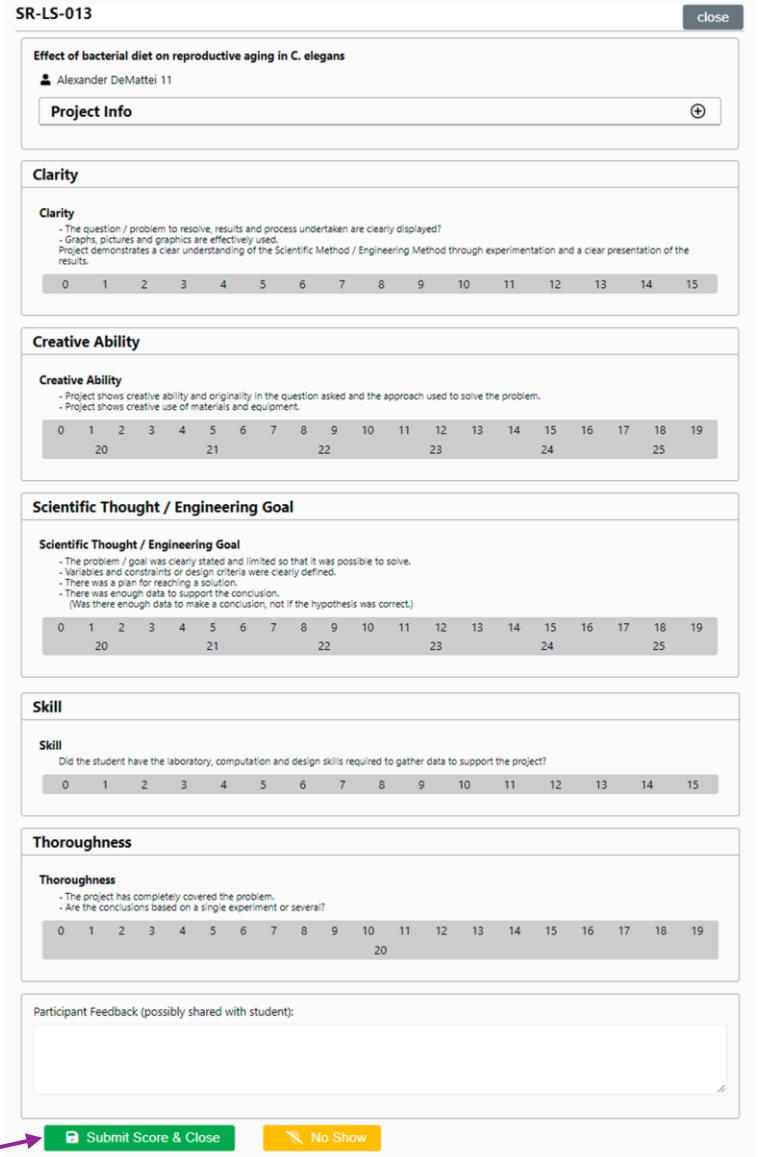
Review the materials
- *Display Slides*
- *Quad Chart*
- *Abstract*
- **Form 7 (Continuation)*
- **Form 1C (Regulated Research Institution)*

**Some projects will have this.*

Score the Projects in the different criteria.







Place your encouraging comments to the students here.

When complete, click ***Submit Score & Close***

Project Feedback & Comments

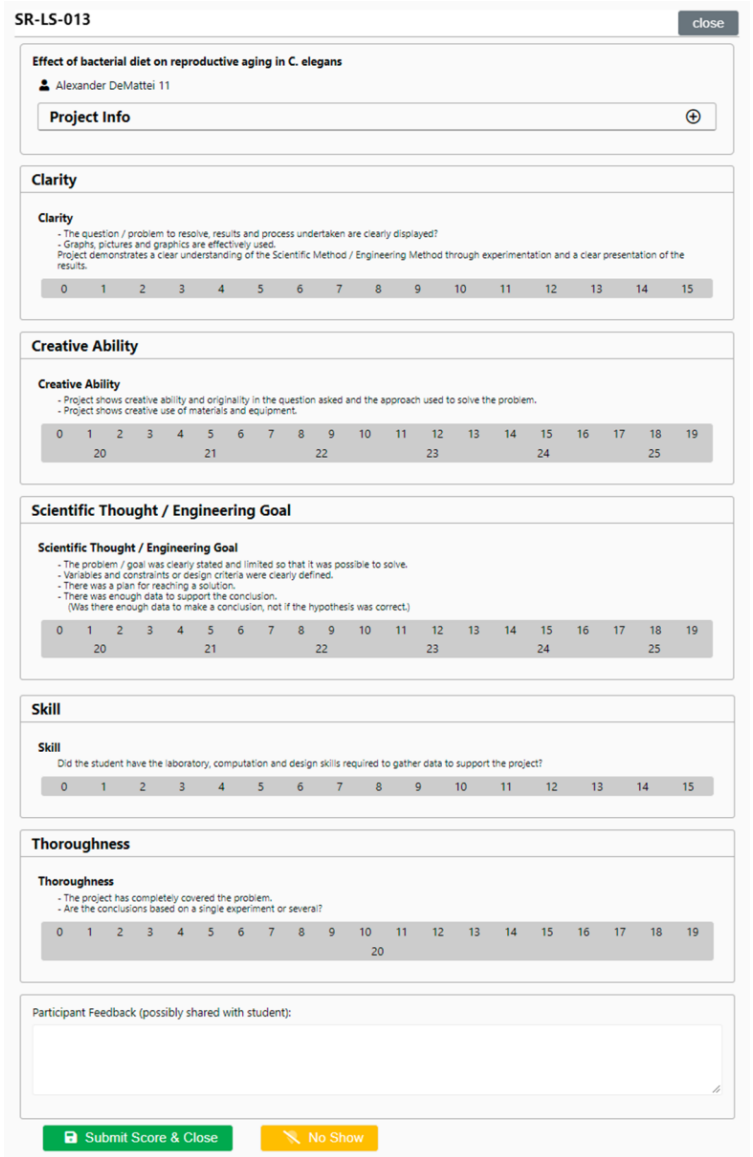
Goal: Encourage students and provide constructive feedback.

- Non-Finalists may choose to defer Judging, so many students may only receive feedback from these comments.

Examples:

- *My favorite part of your project is:*
- *Strength of project is:*
- *I would like to see more of:*
- *If you continue, focus on:*

Place your encouraging comments to the students here.



Determining overall student scores

Students are ranked during finalist judging by their average z-score.

- All finalists receive awards (~$10,000 for senior division) at the awards ceremony based on their Saturday z-score average.
- Certificates, Prizes and Ribbons are presented during the awards ceremonies (or mailed if students are not present).
- A wide variety of additional special awards are given by various companies and associations.

Perceived or Actual Judging Conflicts

If you have a child or science fair participant whom you mentored participating in the division that you are assigned to judge:

- ✓ Please let a science fair official know
- ✓ You will be reassigned to avoid an actual or perceived conflict of interest

Student Safety

Student Safety is Our Top Priority

- See Something, Say Something
  - If you observe any behavior that is inappropriate toward a student, volunteer or parent

  ⇒ Notify FRSEF personnel immediately (green shirts)

  ⇒ The situation will be addressed immediately

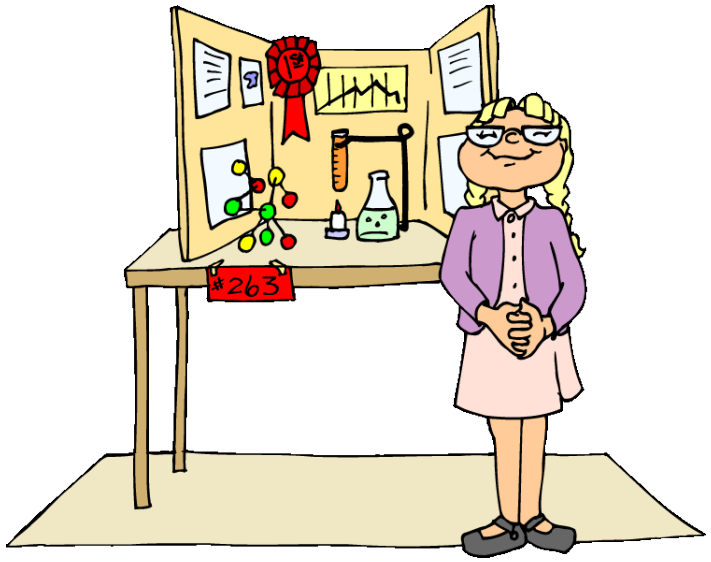
- Safety text line
  - If you are in a situation, please text the help line and FRSEF personnel will address it immediately
  - If you have not received the introduction text message already, let us know

Special Notes for Finalist Judging

- On Saturday Finalist judging, student interviews will measure the student's knowledge.
- Please judge using the rubric and outlined criteria.
- Please leave comments for each project.
  - These will be given to the teachers so the students can receive feedback.
- Prepare to be impressed and inspired.

Thank you for spending your time to encourage and inspire our students.

We couldn't do it without you!



Thank you!

Any questions, please email

azick@flintsciencefair.org

jkrell@flintsciencefair.org

cwagner@flintsciencefair.org

We will assist as soon as possible.