
2024-2025
DMRSEF
SEASON KICKOFF
Denver

Welcome to Our Science Fair Community!

THAT'S YOU!

- Students
- Teachers
- Parents
- Mentors
- Volunteers
- Partners

Thank You to our Partners

College of Liberal Arts and Sciences
UNIVERSITY OF COLORADO **DENVER**

Student Government Association
UNIVERSITY OF COLORADO **DENVER**

Office of Undergraduate
Research & Creative Activities
UNIVERSITY OF COLORADO **DENVER**

DENVER MUSEUM OF
NATURE & SCIENCE

College of Engineering,
Design and Computing
UNIVERSITY OF COLORADO
DENVER | ANSCHUTZ MEDICAL CAMPUS

Denver Section

GAME PLAN

9:00 – Intro to DMRSEF

9:30 – Panel: What makes for a successful science fair project?

10:00 – From Start to Science Fair

10:30 – Panel: Supporting Your Science Fair Student
Project Mindstorming (for student participants)

11:00 – Adjourn (Kayla will stick around for questions)

About DMRSEF

A science fair…

- Is a place for students to **present their science projects** to professional scientists and to the community.
- Encourages **inquisitive students to explore their environment in** a systematic, logical manner
- Is a **science communication** community and experience for students
- Stimulates students' interest in science and technology while simultaneously promoting the development of effective **communication, decision making, evaluation of alternative solutions, and critical thinking**
- An opportunity for students to **network with peers and STEM professionals**
- An opportunity for the best young middle and high school researchers from around the Denver Metro region to share ideas, showcase cutting-edge science projects and **compete for awards and scholarship money**
- A **community** for students to develop their **science identity**

CoorsTek

DMRSEF DENVER METRO REGIONAL SCIENCE AND ENGINEERING FAIR

CU DENVER LYNX

- Our goal is to empower the next generation of STEM professionals by **fostering an enthusiasm for science and inquiry.**
- Our annual event, held **each February at CU Denver,** offers students an opportunity to **engage the Denver metro STEM community** and to **present their original research** in an atmosphere of **competition, creativity, education, and fun.**
- All **middle and high school students** (grades 6-12) from the **eight Denver metro counties** (Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Jefferson, and Summit) are eligible to compete in the DMRSEF.
- Winners from our fair go on to compete in the **Colorado Science and Engineering Fair** (CSEF) and the **International Science and Engineering Fair** (ISEF).
- DMRSEF is more than an annual competition, it is a **year-round program** that supports students and teachers through the entire research process.
- From the first spark of an idea through a fully developed scientific presentation, we are committed to getting students **"from start to science fair".**

2023-2024 Highlights

227 Students

202 Projects

34 Schools

120 Judges

112 Volunteers

159 Awards

$12,000+ Cash Prizes

DMRSEF

Denver Science Fair: Friday, February 28, 2025

Awards Ceremony: Sunday, March 2, 2025

Registration Opens: Friday, November 1, 2024

Early-Bird Registration Deadline: Friday, January 3, 2025

Final Registration Deadline: Friday, January 17, 2025

From Start to Science Fair

Finding a topic

Remember: You are going to be thinking about this project for at least the next 146 days, so it needs to be something you are genuinely interested in!

Sparking Ideas

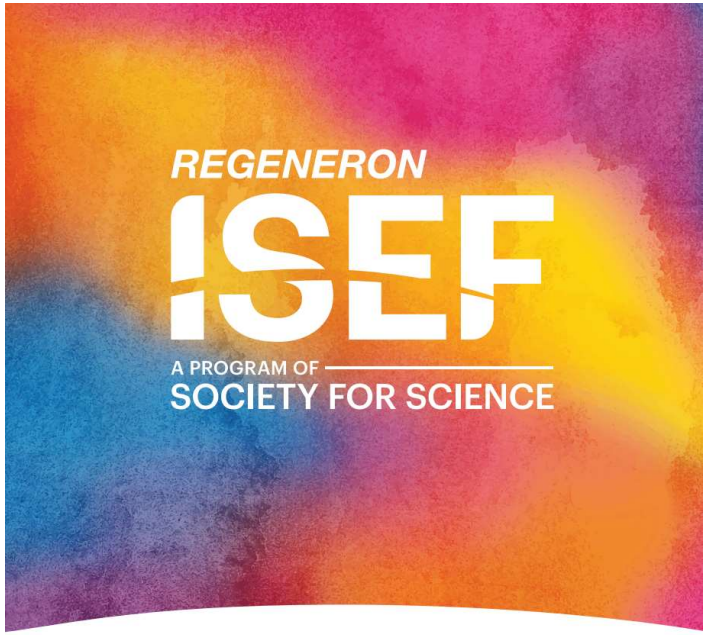
- Project Mindstorming
- DMRSEF Project Archives
- Hobbies and interests
- Challenges in daily life

Keep in mind

- Question should be simple, measurable, and answerable within a few months
- Ask what or how instead of why
- If you don’t love your topic, it won’t get done

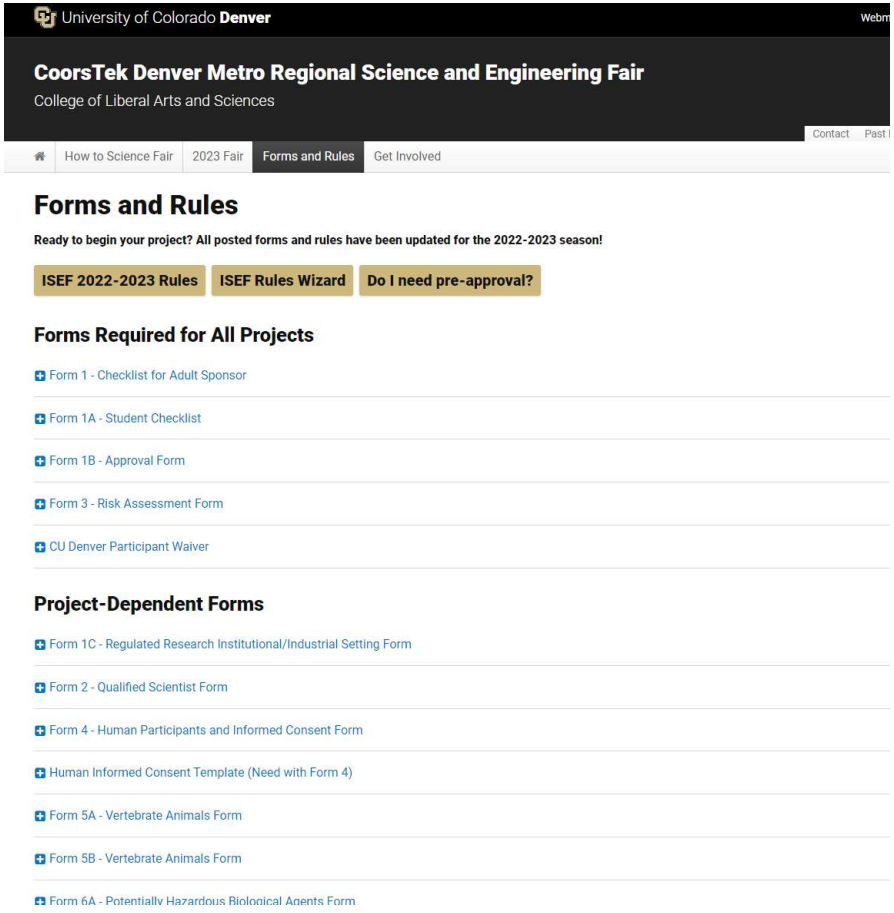
Categories

- Animal Sciences (AS)
- Behavioral Sciences (BS)
- Biological Sciences (BIO)
- Medicine & Health Sciences (MED)
- Chemistry (CH)
- Computer Sciences (CMP)
- Earth and Environmental Sciences (EEV)
- Energy (EGY)
- Engineering (ENG)
- Material Sciences (MS)
- Microbiology (MI)
- Physics and Astronomy (PA)
- Plant Sciences (PS)
- Social Sciences (SS)



INTERNATIONAL RULES FOR PRE-COLLEGE SCIENCE RESEARCH

GUIDELINES FOR SCIENCE AND ENGINEERING FAIRS 2022–2023



University of Colorado **Denver**

CoorsTek Denver Metro Regional Science and Engineering Fair

College of Liberal Arts and Sciences

Contact

How to Science Fair | 2023 Fair | Forms and Rules | Get Involved

Forms and Rules

Ready to begin your project? All posted forms and rules have been updated for the 2022-2023 season!

ISEF 2022-2023 Rules **ISEF Rules Wizard** **Do I need pre-approval?**

Forms Required for All Projects

- Form 1 - Checklist for Adult Sponsor
- Form 1A - Student Checklist
- Form 1B - Approval Form
- Form 3 - Risk Assessment Form
- CU Denver Participant Waiver

Project-Dependent Forms

- Form 1C - Regulated Research Institutional/Industrial Setting Form
- Form 2 - Qualified Scientist Form
- Form 4 - Human Participants and Informed Consent Form
- Human Informed Consent Template (Need with Form 4)
- Form 5A - Vertebrate Animals Form
- Form 5B - Vertebrate Animals Form
- Form 6A - Potentially Hazardous Biological Agents Form

What You Will Need to Compete:

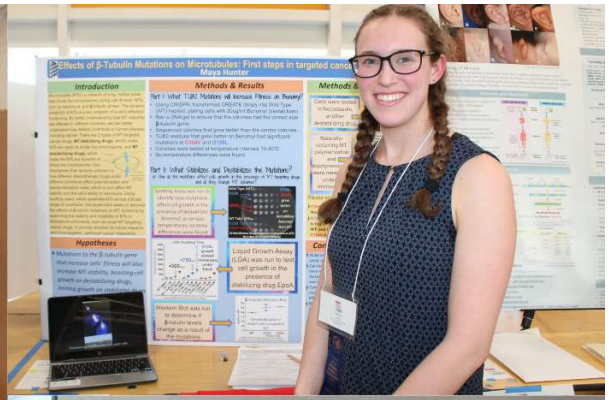
BRING TO THE FAIR

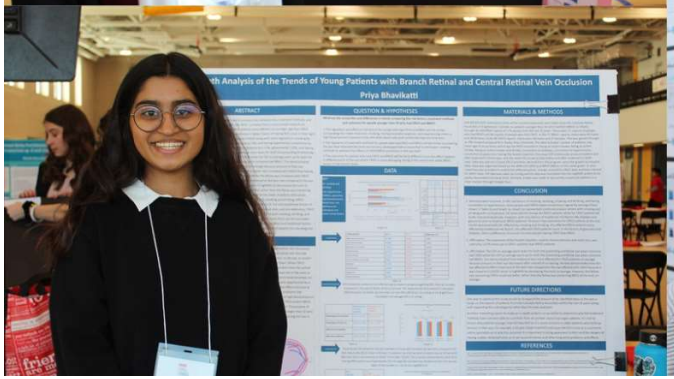
- **Physical poster board**
- Optional physical martials: Notebook, Demos

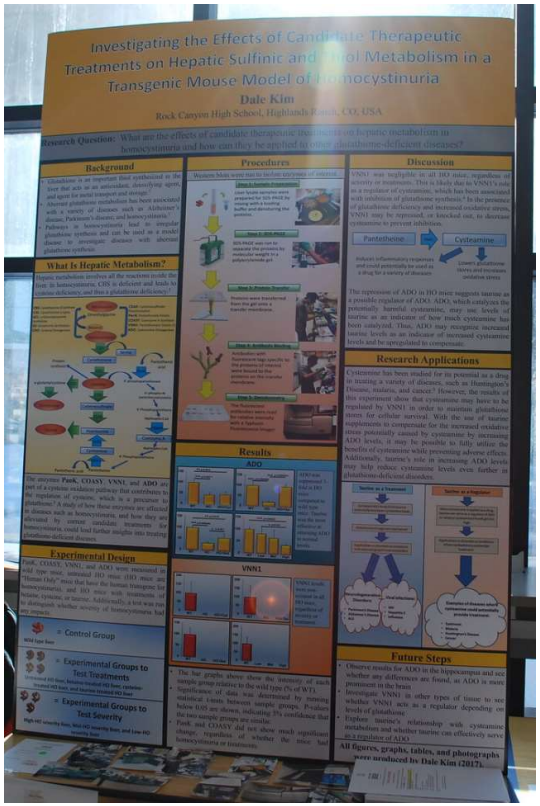
UPLOAD TO SYMPOSIUM

- **2-3 Minute Introduction Video**
- **Digital Poster Slide Deck**
- Optional digital materials: Demo video, Supporting documents

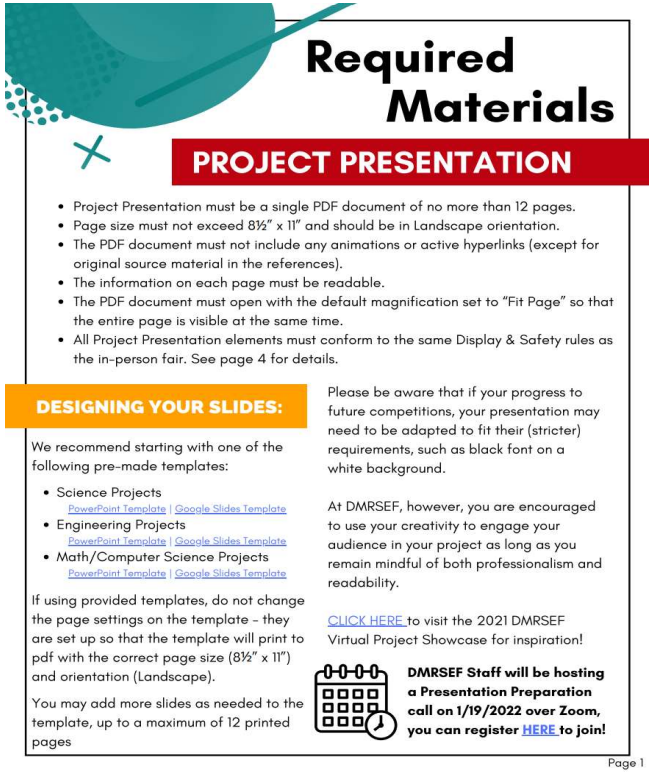
Physical Poster Board







Virtual Poster (Slide Deck)



Required Materials

PROJECT PRESENTATION

- Project Presentation must be a single PDF document of no more than 12 pages.
- Page size must not exceed 8½" x 11" and should be in Landscape orientation.
- The PDF document must not include any animations or active hyperlinks (except for original source material in the references).
- The information on each page must be readable.
- The PDF document must open with the default magnification set to "Fit Page" so that the entire page is visible at the same time.
- All Project Presentation elements must conform to the same Display & Safety rules as the in-person fair. See page 4 for details.

DESIGNING YOUR SLIDES:

We recommend starting with one of the following pre-made templates:

- Science Projects
  PowerPoint Template | Google Slides Template
- Engineering Projects
  PowerPoint Template | Google Slides Template
- Math/Computer Science Projects
  PowerPoint Template | Google Slides Template

If using provided templates, do not change the page settings on the template – they are set up so that the template will print to pdf with the correct page size (8½" x 11") and orientation (Landscape).

You may add more slides as needed to the template, up to a maximum of 12 printed pages

Please be aware that if your progress to future competitions, your presentation may need to be adapted to fit their (stricter) requirements, such as black font on a white background.

At DMRSEF, however, you are encouraged to use your creativity to engage your audience in your project as long as you remain mindful of both professionalism and readability.

CLICK HERE to visit the 2021 DMRSEF Virtual Project Showcase for inspiration!

DMRSEF Staff will be hosting a Presentation Preparation call on 1/19/2022 over Zoom, you can register HERE to join!

Page 1

Quantitative Methods to Analyze the Synergism of Digestive Enzymes for Gluten Breakdown: A step closer to making Glu-relief pills.

Voiceover

Presenter(s)(s)

Aditi Avinash

Project Number

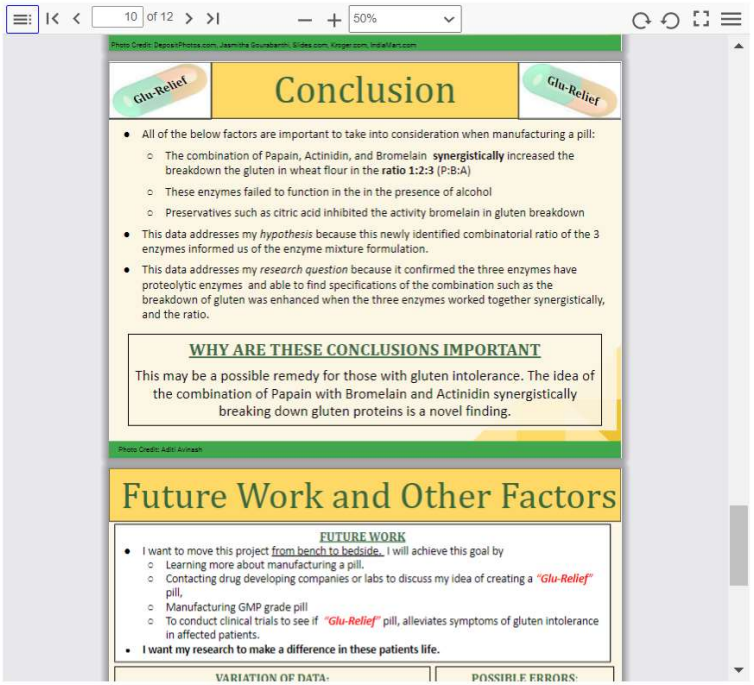
SR-MED-006

Optional: Supplementary Materials

https://docs.google.com/document/d/1nHnzbyvkFsHyYASLUBRvyq-pY6YP0-l1TEXx8SI2T3c/edit?usp=sharing

Abstract or Description

Millions of people in the USA alone suffer from celiac disease or gluten intolerance. In previous work, I identified three fruit-derived enzymes that when combined have an efficient effect in gluten breakdown (Papain, Bromelain, and Actinidin). This year, I pursued quantitative identification of a



[Online: Student Materials Guide]

Introduction Video

PROJECT VIDEO

What to include in your video?

Introduce Yourself:

- State your full name
- You may include your school and/or town if you wish
- Rather than reciting your project title, consider explaining your project in one or two sentences.

Explain Your Project:

- Summarize your research:
  - What did you do?
  - What did you find?
  - What conclusions did you draw?
- You may use props or visuals as long as they are within the Display & Safety guidelines (see page 4).

Tips for Filming:

- Film in a well-lit and non-distracting environment
- For best results, film your video horizontally (landscape).
- Keep the camera still and in place during filming.
- Speak clearly and loudly enough that the recording is able to pick up every word you say.
- Avoid long pauses and filler phrases
- Listen to your video after recording to ensure your voice is clear and audible, and that the video has not picked up too much background noise.

Posting and sharing your video

Your introductory video **must be linked from YouTube,** demos and optional materials may be uploaded into google drive. See below for full instructions.

- In YouTube, your video may be uploaded and posted as "unlisted" so that only those with a direct link can access it. Unlisted videos are not searchable or available to the public. You can choose to list your video publicly but should check with your parent or guardian before doing so.
- Google Drive is also a sharing option. Remember to set permissions so that anyone with the link can view your video.

Please Remember:

- **Videos should be no longer than 2-3 minutes and should broadly summarize your project.**
- **Students are the only individuals allowed to appear in the video, however, they are not required to do so.**

DMRSEF Staff will be hosting a Video Preparation call on 1/26/2022 over Zoom, you can register HERE to join!

Page 2

Rhys Hanson- To Apc

[Online: Student Materials Guide]

PLEASE EVALUATE THE PROJECT ON THE FOLLOWING ELEMENTS:

Criteria:	Score:	Notes:
Research Question	/10	
Design & Methodology	/10	
Execution	/10	
Creativity	/10	
Poster (slides)	/10	
Introductory Video	/10	
Interview	/10	

Year-Round Support & Events

2024-2025 Important Dates

- **Registration Opens:** November 1, 2024
- **Early Bird Reg. Closes ($40):** January 3, 2025
- **Registration Closes ($50):** January 17, 2025
- **Virtual Material Submissions Open:** January 24, 2025
- **Virtual Material Submissions Closed:** February 7, 2025
- **Paperwork Corrections Due:** February 21, 2025
- **Virtual Materials Corrections Due:** February 21, 2025
- **2025 DMRSEF:** February 28, 2025
- **Awards Ceremony:** March 2, 2025

SCIENCE FAIR OFFICE HOURS:
(6-7pm on Zoom)

October 2024

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November 2024

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December 2024

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

January 2025

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 2025

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

Wednesday, October 30th
Wednesday, November 13th
Thursday, December 12th
Monday, December 23rd
Thursday, January 2nd
Tuesday, January 14th
Thursday, January 30th
Friday, February 14th
Wednesday, February 26th

Online Resources

Click on each step to learn more!

- 1. Planning & Preparing
- 2. Getting Involved
- 3. Designing Your Project
- 5. Complete Your Project
- 6. Get Fair Ready
- 7. Celebrate Your Science
- 8. Go Beyond DMRSEF

How to Science Fair

Resource Library

What makes a successful Science Fair project?

Spoiler Alert: There is no one magical solution…

…but communication is key! So is creativity!

Those who do well at our fair have:

- A genuine interest in their topic/problem
- The ability to talk (and teach) clearly and concisely about their research
- A clear understanding of the methods they used and why they were chosen
- Comfort answering questions and the ability to reason through answers
- A story to tell

Your project doesn't need to be overly complex –

as long as you can tell us what you did and why you did it!

STUDENT ALUMNI PANEL:

What makes for a successful science fair project?

How do I make the most of my science fair experience?

FROM START TO SCIENCE FAIR

1. Plan & Prepare

- Begin narrowing down your interests for a science fair project and start learning more about your topic and field of study.
- Check out the ***2025 DMRSEF Showcase*** or the ***ISEF Project Database*** for inspiration.
- Familiarize yourself with the ***ISEF Rule Book*** before deciding on a project.
- Decide if you will be working by yourself or as a team (3 people max).
- Begin to identify your teachers, mentors, parents, and other adults that will be involved.

2. Get Involved (you're here, you did it!)

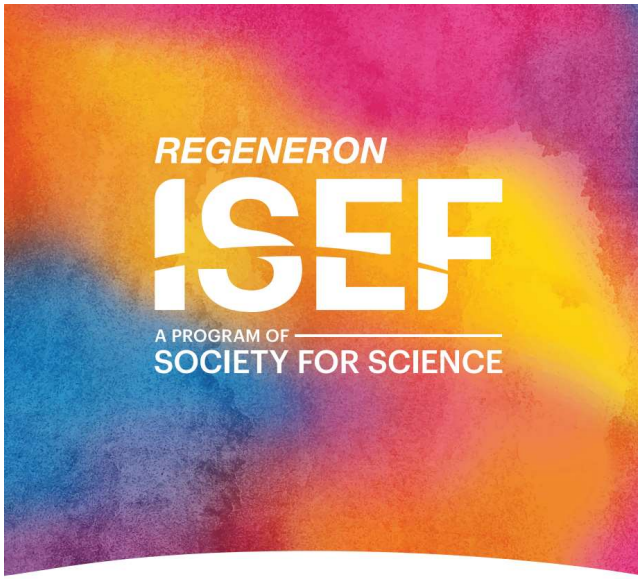
- Join our ***Monthly Newsletter*** for updates from the DMRSEF team.
- ***Register yourself*** for the fair, <u>you do not need a completed project to register!</u>
- ***Sign up to participate*** in pre-season events for help along the way.
- Join us for ***Science Fair Office Hours*** with any questions or ideas you might have. DMRSEF staff can help you with paperwork, project plans, resources, and more!

SIGN UP FOR THE DMRSEF NEWSLETTER

3. Design Your Project

- Make sure you have a testable question or design goal.
- Plan your experimental procedures.
- Make sure any forms that require signatures before the start of experimentation are ready to go.
- Check your project plan against ***All DMRSEF and ISEF Rules*****.**
- If you are working with a team, have a clear plan for collaboration and division of work.
- Work with your adults to ensure your project plan and materials are ready to go before beginning your experiments.
- Obtain any necessary pre-preapprovals from review boards (IRB/SRC/IACUC).
- Check out the helpful ***SRC Preapproval Flowchart*** from CSEF.
- Reach out to the DMRSEF team if you need assistance with a preapproval.

ISEF Rules & Forms



INTERNATIONAL RULES
FOR PRE-COLLEGE SCIENCE RESEARCH
GUIDELINES FOR SCIENCE AND ENGINEERING FAIRS 2022–2023

The International Rules are organized into 5 key sections:

- Rules for **All Projects**
- **Human Participant** Rules
- **Vertebrate Animal** Rules
- **Potentially Hazardous Biological Agents (PHBA)** Rules
- **Hazardous Chemicals, Activities, or Devices** Rules

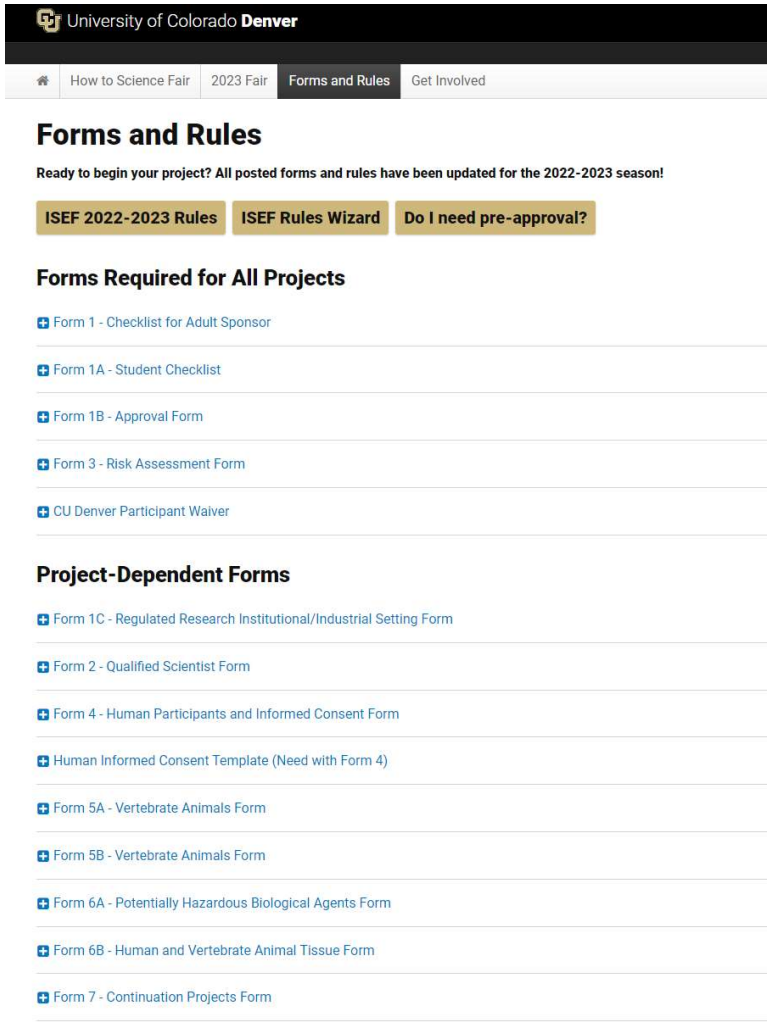
ISEF Rules Wizard:
https://ruleswizard.societyforscience.org/

ISEF Rules & Forms

Forms Required for <u>ALL</u> Projects:

- Checklist for Adult Sponsor (Form 1)
- Student Checklist (Form 1A)
- Research Plan/Project Summary
- Approval Form (Form 1B)
- Risk Assessment Form (Form 3)
- Participant Notice of Risk and Waiver

ISEF Rules Wizard:
https://ruleswizard.societyforscience.org/



Project Roles & Responsibilities

Student Researcher(s)

- Responsible for all aspects of the project
- Can compete in team of up to 3 students

Student(s) Parent/Guardian

- Must give permission for student participation
- May serve in other adult roles described below

Adult Sponsor (AS)

- May be a **teacher**, **parent**, professor, and/or professional scientist
- Must have a solid background in science, understand ISEF rules, and be willing to work closely with the student(s) throughout the duration of the project
- Adult Sponsor must stay consistent throughout the project

Qualified Scientist (QS)

- Should have earned doctoral or professional degree in a scientific discipline *related to the student's area of research*
- In some cases, professional experience can substitute for advanced degrees (check with DMRSEF Staff for approval)
- Qualified Scientist must be familiar with local and federal regulations governing the student's area of research
- **Adult Sponsors** can also serve as the **Qualified Scientist** if they meet the criteria described above
- If the QS is located in a different city/state/country that prevents them from directly overseeing the student's work, they may appoint a trained **Designated Supervisor (DS)**
- The **Designated Supervisor** must be trained in student's area of research, but does not need an advanced degree
- The **Adult Sponsor** may act as the **Designated Supervisor**

Common Paperwork Mistakes

- **Incomplete paperwork**
  - Double check your check boxes!
- **Incorrect Dates**: Most forms must be dated ***prior*** to when experiments are performed
  - **NOTE:** Forms 1C and 5B must be dated ***after*** Experimentation
- **Vague research plan**
- **Multiple Adult Sponsors:** The same adult must sign as the AS on all forms
- **Improper documentation of risk assessment and mitigation**
  - Don't forget form 3!
- **Animal research:** IACUC approval required ***before*** experimentation
- **Human research:** school IRB must approve research plan ***before*** experimentation begins
  - Participants 18 or above must give their **informed consent**
  - Participants under 18 must give **assent** and **parental written permission** may be needed as well

Regulatory Bodies and Project Pre-approval

- Sometimes projects need **pre-approval** before the start of experimentation
  - **Human Subjects**
  - **Animal Subjects**
  - **Potentially Hazardous Biological Agents (PHBAs) or other high-risk activities**
- ***Where*** you are conducting the project will determine ***who*** will need to preapprove
  - **Home/School/Field**
  - **Industrial Setting or Regulated Research Institute (RRI)**
- **School (Local) SRC/IRB**
  - No one on the board can be directly related to the student's project (i.e. teacher or parent)
  - Minimum of 3 members
    - An educator
    - A school administrator (preferably principal or vice principal)
    - A professional with the expertise to evaluate the physical/psychological risk of the study (nurse, psychologist, doctor, social worker, etc.)

4. Start Experimenting

- Start your paperwork (Many forms must be completed prior to the start of experimentation)!
- All forms can be found on the ***Forms and Rules*** **page of our website.**
- Use the ***ISEF Rules Wizard*** to determine which forms your project requires.
- The ***Denver Science Fair's Guide to ISEF Forms*** video playlist walks you through how to complete your paperwork in short videos.
- Gather your materials.
- ***Conduct your experiment.***
- Take good notes as you go, including pictures and videos of your experiment and procedures.

5. Complete Your Project

- Analyze your findings.
- Complete and double-check your paperwork.
- Determine the proper category for your project.
- Submit your project details and paperwork to DMRSEF.
- Look out for emails from the DMRSEF Regional SRC. 80-90% of projects require paperwork corrections. The SRC is here to help!
- **PROJECT SUBMISSION OPENS NOVEMBER 1, 2024**
- **FINAL PROJECT SUBMISSIONS ARE DUE JANUARY 17, 2025**

Registration is Due January 17th…
Then What?

DMRSEF Team:

- Assigns your project to SRC members to be reviewed
- Hosts workshops and Q&A sessions to help along the way

Participants:

- Finish analyzing data
- Begin building poster board
- Put together digital materials
- Practice, Practice, Practice!

Regional SRC Review

- The **DMRSEF SRC** is a group of scientists and educators that reviews EVERY project submitted to the fair prior to competition
- We read your research plans and check your forms to make sure you have followed all required rules and guidelines
- Our main concern is **SAFETY** – your safety as scientists, the safety of your human and/or animal subjects, the safety of the environment
- We are not here to stop you from competing in the fair! My goal every year is to have **ZERO** projects fail to qualify (FTQ)
- The SRC is here to help you get your paperwork over the finish line. You cannot compete until your SRC Reviewer has signed off on your project, so please be responsive to their emails and requests
- If at any point in the season you are in doubt about the rules, email denversciencefair@ucdenver.edu – **We want to help!**

6. Get Fair Ready

- Work with the SRC to correct any errors in your project/paperwork submission. **FINAL CORRECTIONS DUE BY: FEBRUARY 21, 2025**
- Familiarize yourself with virtual and in-person ***display and safety regulations***.
- Begin creating virtual AND physical display materials.
  ONLINE MATERIAL SUBMISSION OPENS: JANUARY 24, 2025
  ALL MATERIALS MUST BE UPLOADED BY: FEBRUARY 7, 2025
- Practice presenting and answering questions to stay familiar with your project.
- Keep an eye on your inbox for Display and Safety approval or corrections needed on your virtual display materials.

AK0

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Slide 39

AK0 Add new dates
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STUDENTS:

HEAD TO THE BREAKOUT ROOM FOR
PROJECT MINDSTORMING
WITH THE
STUDENT ADVISORY COUNCIL

Your role as a supporter

Reality check: What is a question you can reasonably answer in the next 3 months?

Time management: Registration is due in 104 days; the fair is in 146 days! Don't underestimate time to conduct experiment. Leave room for iteration and problem solving!

Depth of understanding: Get them talking about their work early and often, ask why, challenge their assumptions, encourage them to find answers, help identify resources.

Referee: Make sure their project complies with ISEF rules!

Cheerleader: Research involves a lot of dead ends, help them get past this frustration.

Scheduler: Encourage them to come to our pre-season events. We are here to help!

Supporting Student Researchers:

How do you engage your students in the research process?

What roadblocks can you expect to encounter and how do you overcome them?

How Can You Support the Science Fair?

Give Time

- Volunteer at the fair
- Volunteer as a mentor
- Join the Community Advisory Council or Operating Committee

Give Support

- Donate to our Crowdfunding Campaign
- Sponsor a Special Award (you or your company)

Give Connection

- Tell people about our science fair
  Join us on Social Media
- Connect us with community partners and organizations

DMRSEF

@DenverScienceFair

Denver Metro Regional
Science and Engineering Fair

@DenverScienceFair

@Denver Science Fair (DMRSEF)

@DMRSEF

#DMRSEF #DenverScienceFair

This is what a Scientist looks like

SIGN UP FOR THE DMRSEF NEWSLETTER

Website: clas.ucdenver.edu/denversciencefair
Email: denversciencefair@ucdenver.edu
Kayla Ahr: kayla.ahr@ucdenver.edu