



LA County Science & Engineering Fair



In-person Fair Sun., 3/10/2024 and Mon., 3/11/2024 at the **Shrine Expo Hall**
Virtual Awards Ceremony: Sunday, March 24th at noon



Longest running Science Fair in the West!

AGENDA

ALL links work best if you are signed into Google using Chrome or Firefox

- **Welcome and Introductions**
- **Padlet:** <https://padlet.com/afmaben/lacsef-teacher-student-resources-2023-24-403y08fvshedq>
 1. Why Sci Fairs; **Choosing a Topic**
 2. **Designing and Conducting Research Projects**
 3. Project **Displays** and **Interviews**
 4. Entering/Attending the **LA County Science & Engineering Fair**

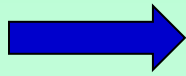


Why Do Science/Engineering Fairs?

- Students use **Open-ended Inquiry**
 - Students decide **what** to investigate, **how** to investigate it, **how** to interpret the results they generate and form **conclusions** or find **solutions**
- Incorporates most **NGSS SEPs**
- Enhances **collaboration/teamwork** (*NGSS instructional shift*)
- Uses higher-level **communication/presentation skills**
 - Develops **confidence**
- Fosters a **spirit of scientific inquiry, life-long passion** explore/discover new ideas and new knowledge



Begins with a School Fair

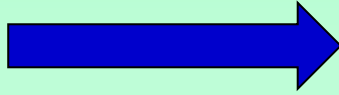


LA County Science & Engineering Fair

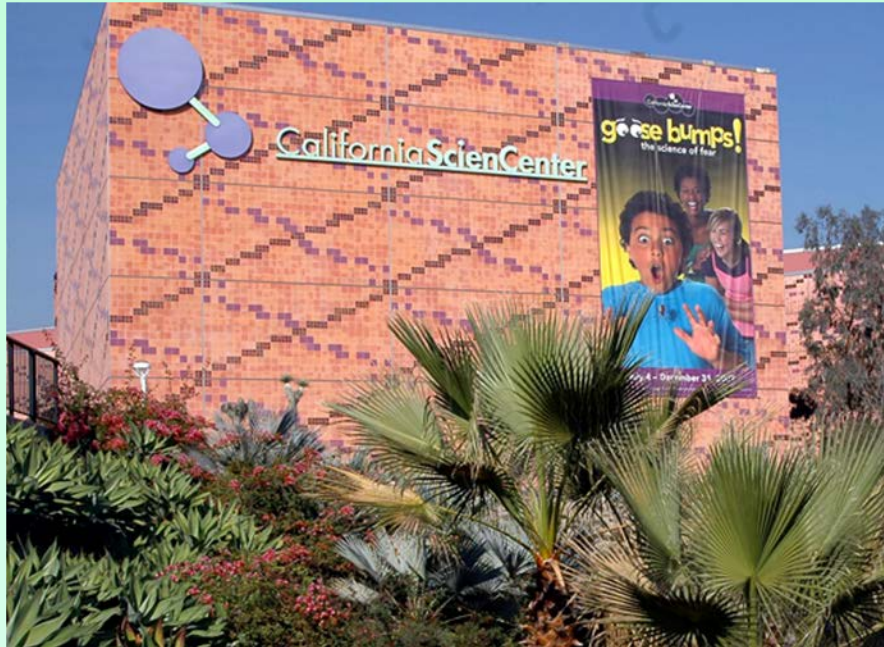
Top 13 projects per school can register



State Science Fair



International Science & Engineering Fair



Top **1st, 2nd & some 3rd**
in category per County
Fair can enter

- **Top 2-7** student projects in the Sr. Division may be selected for international competition!

Choosing a Topic

The HARDEST Part of a Project!

- Projects should be **student driven**.
- Project ideas ***should come from the students***, and the project should be driven by them.
- **Parents** should use their best judgment and provide some guidance, but it is important that **students consider the project their own**.



Choosing a Topic

Step 1 *Library/Online Research*

- **Make a list of 5 things** that seem interesting to you



Step 2 - **Pick a Topic That Matches Your Interests**

- **NEVER** have someone pick it for you! *It will seem like **work***



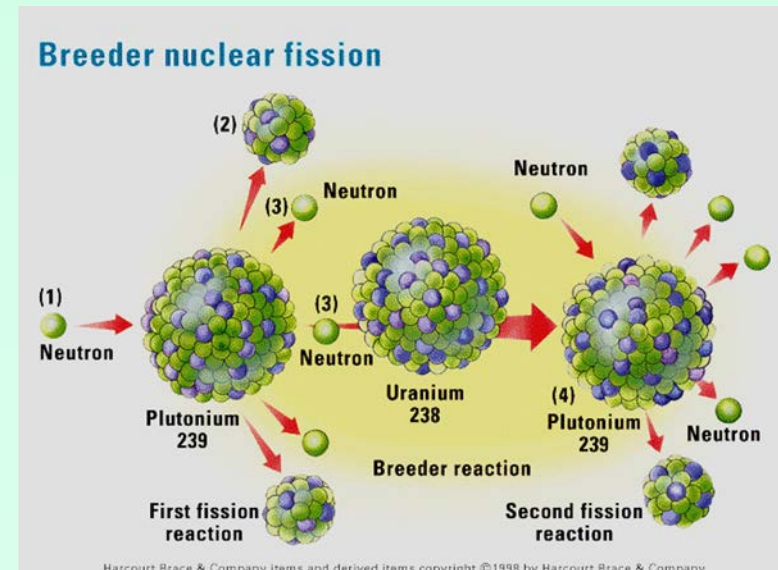
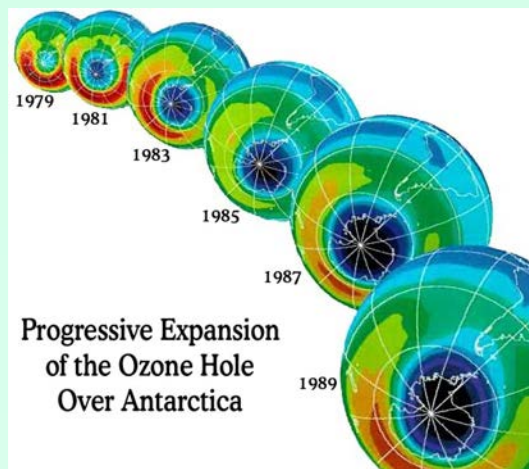
Choosing a Topic

- Step 3 - **Narrow your topic** so that it involves:
 - *Experimentation or Engineering Design or Observational Comparisons AND*
 - *Data collection*
- Should be **specific** enough to make into a problem & a research study



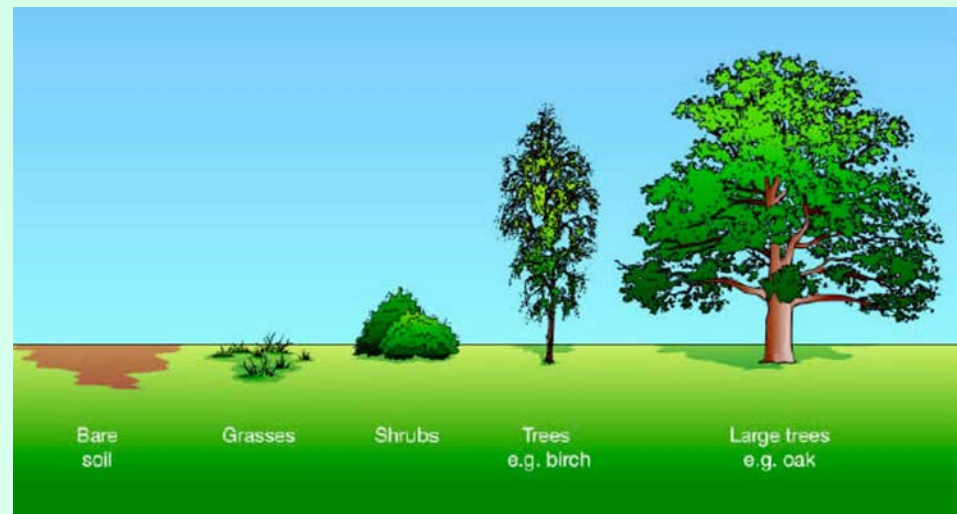
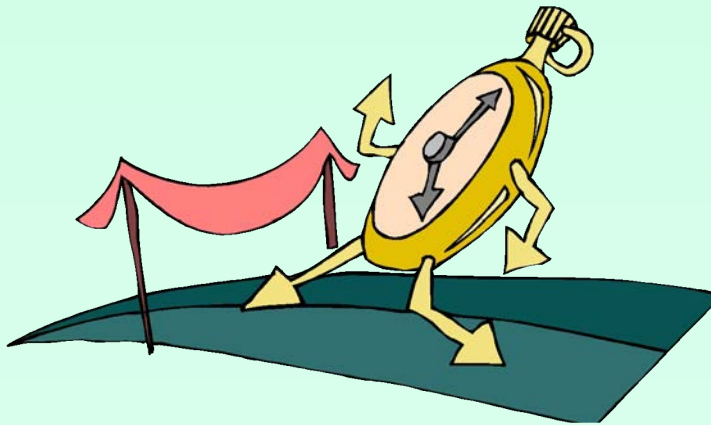
CAUTION!

- **Avoid topics** that are **too general**: they cannot be made into an experiment
- Instead, make general ideas **more specific**
(Ex: solving the Ozone hole → compare sunscreens/UV damage)
- **Avoid topics** that require **unavailable resources for experimentation**
(Ex: projects that need a cyclotron)



CAUTION!

- Avoid projects that require **too much time**
 - Look at your overall schedule, pick a topic that's **reasonable**
- **Ex:** Reforestation study after fires (takes years) to plant succession on burned/bare ground (3 months)



Still Struggling?

- **Ask the student:** “*What is your passion outside of school? What would you like to do if you had a whole day to do anything you like?*” (sports? video games? sleep? travel?)
 - **Ask questions** to help students imagine a project idea based on their interests
 - Together, **brainstorm** testable designs
 - **see PPT on “Choosing a Topic-Examples”
 - *Put your student(s) at ease* by being **open** and **approachable** – use personal examples
 - Doing a project of **their own choosing** will seem like **play!**



Things to Think About

Topics for Science & Engineering Projects in the time of Climate Change

- Think about suggested points of entry for doing science fair projects (i.e. office hours, asynchronous time, after-school)
- How difficult was it to come up with projects students can do at school OR at home?
- How can your school support necessary supplies for the students?
- How will you monitor [safe practices](#)?





ONLINE Registration

- Every LA County Middle School and High school receives a notice for entry to the LA County Science Fair in **August**.
- **To be a Site Coordinator**, you must be an adult designated by the site or district administrator, or a lab researcher at a sponsoring institution. When you enroll your school online, you will have to include your position at your school.
- [ONLINE Registration](#) for the **Site Science Fair Coordinator** and **School** or Sponsoring Institution opens **August 14, 2023** to **January 22, 2024**.
- [LACSEF Fee & Waiver form](#)



[Link to PPT](#)



Sample Timeline

*Get an early start (**Aug - Oct**)*

*Most school fairs are in early **February!***

1. Decide on a project **1 week**
2. Background research **1 week**
3. Hypothesis, project/prototype design **1 1/2 weeks**
4. Submit **project proposal** to teacher for approval **before** starting experimentation **1 week**

Link to 1-page Google doc on
[Sample Timeline](#)

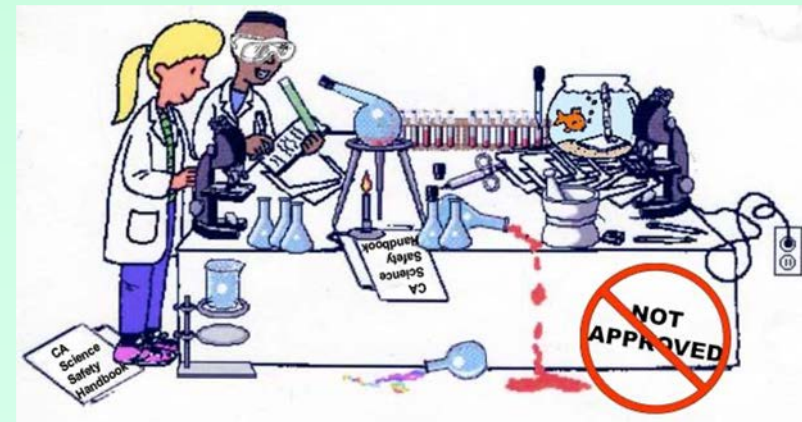




Sample Timeline

4b. Complete **Online Pre-approval Certification** **before** starting experimentation with:

- tissues/cell lines (*not at home*)
- **human subjects**
- live **vertebrate animals**
- hazardous materials
- microbes (*not at home*)



- Pre-Approval opens **August 21, 2023**

First timers: avoid choosing a project that needs pre-approval(s).



Sample Timeline

5. Experimentation 4 - 8 weeks
 - Keep a **log or notebook** for data check
 - Write 1st draft of **Introduction** (with citations/ references)
6. Results, **analysis** 1 - 2 weeks
7. Writing the project **report** 1 - 2 weeks
8. Upload required docs, for judging 1 day
9. Create 3-D Project Display 2 - 3 days



Teacher's Role - Facilitator

- To help students create a **workable, scientifically sound experimental design**
- Provide **asynchronous /class time** for students to work on projects
- To set a **reasonable timeline** for completion
- To encourage **creativity** / independent thinking
- To **periodically check** on student progress
- **Collaboratively read/revise** each student project proposal **BEFORE** LACSEF submission
- To arrange for a **public audience** and **peer review**



Just like Problem-based Learning!

Research Rules & Regulations

- All projects must present either an experiment exemplifying **scientific practices** or a project utilizing the **engineering process**.
- **Detailed regulations** for
 - project pre-approval
 - safety procedures
 - school/student entries
 - log books, documentation
 - display requirements &
 - judging **can be found on Padlet for now**



Rules and Regulations for the 2023-24 LACSEF

COVID Protocols

Due to the special circumstances brought on by the **COVID-19** pandemic, LACSEF students conducting projects that use **human participants** should include any potential for exposure to COVID-19 as a potential risk if participating in the study and how the student researcher is going to mitigate that risk. Examples of such mitigations include (but are not limited to):

- Consider virtual or online options and **avoid in-person projects**.
- Requiring all participants to wear a **face covering** and maintain 6 feet **social distance** while participating in the study.
- Requiring participants to **wash their hands** before and after participating in the study.
- **Disinfecting materials** being used by participants.



ISEF Covid Protocols pages: <https://www.societyforscience.org/isef/2021-resources/human-participant-research-with-covid-19-precautions/>
<https://www.societyforscience.org/isef/human-participant-research-with-covid-19-precautions/>

GROUP 1 Experimental Design (Science Projects): Pre-Experimentation

SCIENTIFIC PROBLEM (as a question)

TOPICS TO RESEARCH (things to know more about) **DON'T ADDRESS because of time**

1: 2: 3: 4:

INDEPENDENT VARIABLE The variable that you choose to test (time, pH, soil types, temps, materials, etc.)

Independent Variable I will be testing:

Items/amounts/concentration of the Independent Variable to be tested

Ex: water at pH 3	Ex: water at pH 5	Ex: water at pH 7	Ex: water at pH 9	Ex: water at pH 11
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DEPENDENT VARIABLE The variable that responds to **changes** in the experiment; what you will measure when you **test** your Independent Variable.

I will be measuring:

with the following units:

HYPOTHESIS I think (cause)

because (effect)

CONTROL GROUP (will not be tested, used for comparison)

VARIABLES THAT WILL BE CONTROLLED List all the variables will stay the same during the experiment:

1. 2. 3. 4.

PROCEDURES Methods to conduct the experiment, repeatable (number of trials, sample size, time, etc.)

1.
2.
3.
4.
5.

MATERIALS NEEDED (be specific)

1. 2. 3. 4.
5. 6. 7. 8.

EXPERIMENTAL SET-UP (describe or label/sketch your design)

Understanding Experimental Design

There are various **templates** for both MS & HS as well as **prior learning activities** in the "Experimental Design" column on the **LACSEF Padlet**

Ask a Question (science) or Define a Problem (engineering)



- A **creative process**

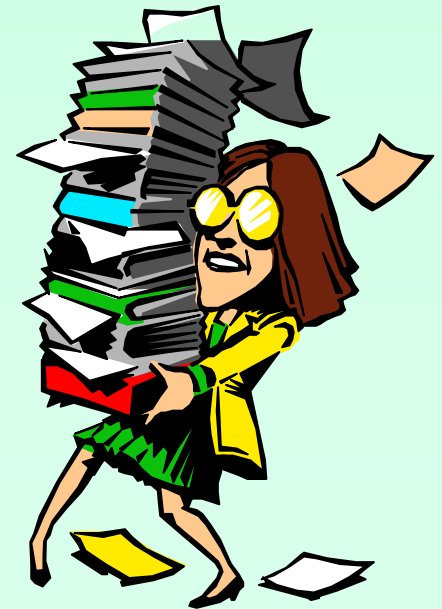
Ex: What is the effect of fertilizer on plant growth?

More Precise: “Which **AMOUNT** of fertilizer causes the **greatest increase in plant growth?**” is a narrower focus.

“Which **wind turbine design** will be the **most efficient** at the **least cost?**”

Conduct Background Research

- Before generating a **hypothesis or proposed engineering solution**:
 - **Conduct background research** to understand the scope of the study/design.
 - Use this research to **determine both the dependent and independent variables** of the study/design.



Science: **Create Hypothesis**

- **Must be testable**

Does it show **Cause & Effect**?

- **If** we do this...**then** this will happen...
- **Ex: If** 10 ml fertilizer per L of water is added to the bean plants, **then** the bean plants should grow taller than any other bean plants
- It is **objective**?
- Is it **CLEAR**?



Engineering: **Detail Requirements**

- **Detail Important Characteristics** that your solution must meet to succeed

- **Compare** YOUR idea with existing similar designs
- What are their **key features**?
- Will the cost **justify** the invention or re-design?
- Do you need to work in a team for **safety**?

Beginning Experimental Design

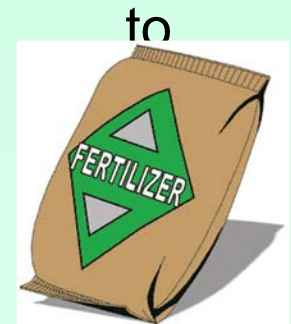
- Identify the Independent Variable (IV)

- What is the variable that you will purposefully change during the project?
- *Ex: Amount of Fertilizer*
- *Ex: different building materials*



- Identify the Dependent Variable (DV)

- What variable will be measured, in response changes in the IV?
- *Ex: Plant height, from base to highest leaf where it attaches to the stem.*
- *Ex: average cost/efficiency*



Science: Define the Groups



Name the Control Group

- What is the experimental group you will use for comparison?

Ex: Plants with no fertilizer added

Name the Variables to Control

- List everything that will be kept the same in the experiment

Ex: Brand of fertilizer, level of light, species of plant, time & amount of watering, type of soil & container

Engineering: Propose Solutions



Create Alternative solutions

- Comparison of costs, weight, efficiency against similar designs

Ex: water purifier at 1/2 the cost/weight

Name the Variables to Control

- List everything that will be kept the same during prototype testing

Ex: amount of force, thickness of structural material, number of trials, length of study

Design the Study

- Determine the number of trials or groups needed for validity
 - **Ex:** 5 bean plants for each concentration, 5 bean plants for the control
 - **Ex:** 10 trials for efficiency for each of 5 different building insulation materials



Design the Study

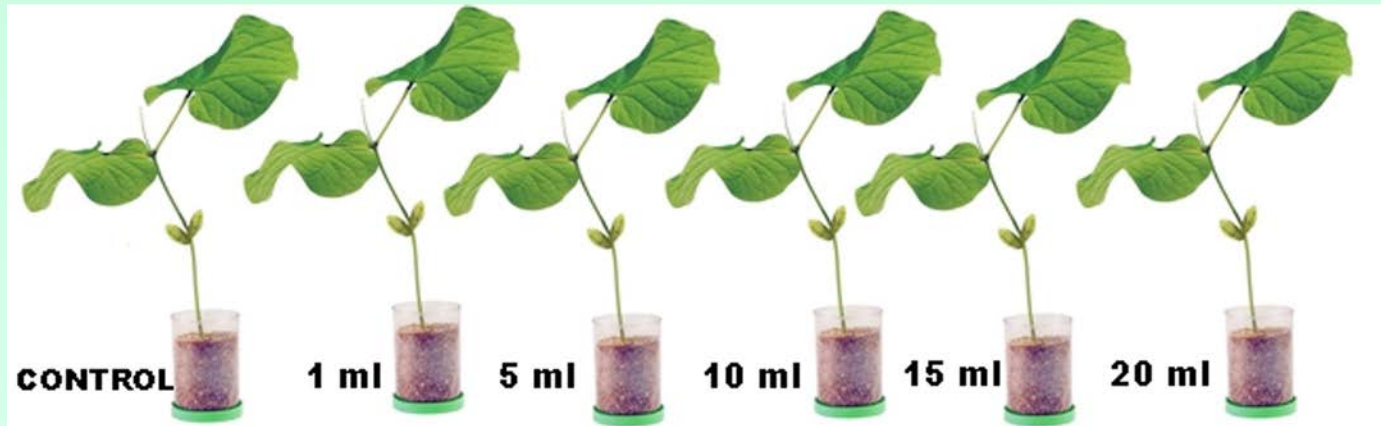
- Write the **Materials & Methods (Procedure)**
 - Don't number steps; **use paragraph form**
 - *Make them everything clear & repeatable*
- **Use diagrams** or a flow chart if needed

Fig. 2 Data from Sage seedlings grown with varying amounts of Fertilizer/day, over 40 days

	Amount of Fertilizer (ml)				
	50	100	150	200	250
# of plants reaching 30+ cm	0	0	4	2	0
# of plants reaching 20+ cm	0	2	4	6	1
# of plants reaching 10+ cm	2	8	2	2	7
# of dead plants	8	0	0	0	3

Draw Your Set-up

- Design and sketch/write about the experimental set-up, *with labels*



Set-up at beginning of experiment (each concentration group = 5 plants)

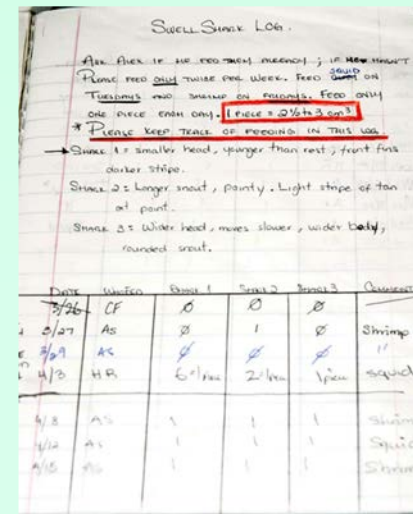
Method of Data Collection

- Take samples **randomly**
- Make sure there is a way to **show patterns/trends** in the data



Use a Log Book

- **Bound notebook**
- A **diary**, detailing all activities
 - Kept **in ink**, with no erasures
 - **Cross out** errors with a single line



Conduct the Experiment

- **Receive approval**, conduct the experiment
 - *Collect data in a table, with SI units.*
 - *Handle living specimens carefully*
 - *Don't contaminate samples*
 - *Record errors*
- **Data Analysis**
 - *Show any calculations*
 - *Make a labeled, graph*
 - *show trends*



Objectively Analyze Data

- **Common Statistics**

- Mean (Average)
- % Error
- Standard Deviation
- Chi Square
- T-tests
- Diversity Indices
- *Any statistical tests appropriate to your grade level*

Jr. Division

Jr. Division

Jr. Division

Sr.
Division

Sr.
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***See PPT on “Statistics” on Padlet for details**

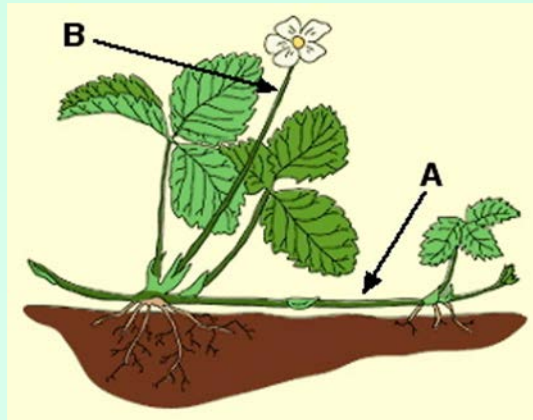
Come to a Conclusion

- **Summarize results** *and explain how the independent variable (the “cause” affected the dependent variable (the “effect.”)*
 - Include an **Error Analysis**: what happened and how it may have affected you results
- **Conclusion**
 - Brief summary of your findings
 - *Was your hypothesis validated by the data or was your design a success?*
 - *Why or why not?*



Refine and Retest

- If there is time, *improve on the design*
- *Re-test!*



Report the Findings

- **Share your research** with others through **peer review** and/ or **judging interviews**



More to Think About



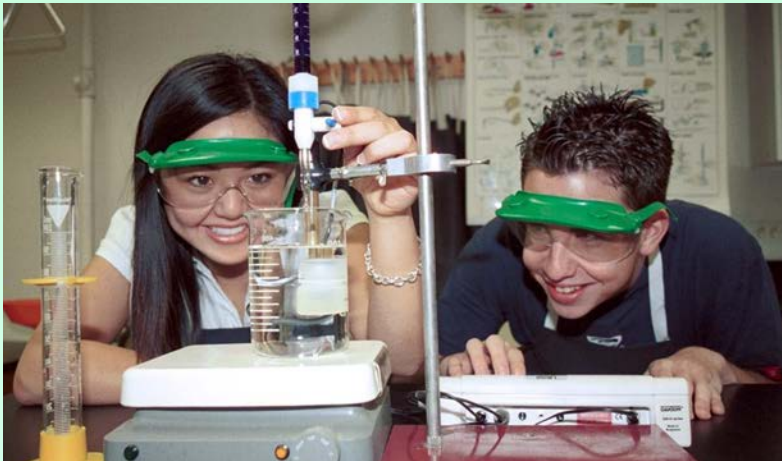
- **How difficult** will this be for your students?
- What **prior knowledge** do they need?
- How will you **scaffold the learning**, including new vocabulary?
- How will you **spread the process out**, **monitor** their asynchronous work?
- Is it possible to work in **virtual teams**?
- How can you get the **parents involved**?

There are various **templates** for both MS & HS as well as prior learning activities in the "Experimental Design" column on the [**LACSEF Padlet**](#)



Project Pre-Approval Certification

For projects involving tissues/cell lines, human subjects, live vertebrate animals, hazardous materials or microbes



The Pre-approval Process

- Before beginning, please **MAKE SURE TO CLICK ON** and **carefully read** the new **Pre-Approval General Info**
<https://www.lascifair.org/pre-approval/pre-approval-general-info>
and the **sub-pages** on regulations for projects
 - *tissue/cell lines*
 - *human subjects*
 - *live vertebrate animals*
 - *hazardous materials and/or*
 - *microbes*
- View PPT presentation on the [Pre-Approval process](#)
- [Pre-approval Deadline just CHANGED to Oct 30, 2023!](#)



Supervisor Qualifications

- Section I of our Rules and Regulations details the [qualifications of Supervisors](#). The SRC must check to make sure that all adults are qualified to fulfill the role(s) in which the students have listed them.
(Adults involved will receive auto-emails, to confirm supervising this project: they need to respond)



- The **Teacher/Advisor** is the student's **science teacher or lab researcher** in which the student is working.
- The **Biomedical Scientist** should have a professional **degree (doctorate or Master's with related experience)** in the area of science that pertains to the student's project.
- The **Designated Adult Supervisor** directly oversees the student's experiment. ***It can be the teacher or the parent.***
- The **Animal Care Supervisor** must be familiar with proper care and handling of animals involved in research. This can be the **Biomedical Scientist, Adult Supervisor, or animal care professional or Site Coordinator.**



The SRC Committee

- The LA County Science Review Committee (SRC) is responsible for pre-approval of targeted student projects.
- A minimum of **2 persons** will **pre-screen** each Research Plan that may include:
 - A **Biomedical Scientist** (*Ph.D., M.D., etc.*)
 - A **Science Teacher/Advisor** *that is not sponsoring that project at the LACSEF.*
 - A **Science Fair Committee member** *that is not sponsoring that project at the LACSEF.*



Fillable Templates for Students

The Pre-approval templates are now **FILLABLE!**

Please **download** the appropriate document to your device and enter your responses in the given boxes. Choose “Save” to save your progress. Once you complete the form, **get it approved by your adult supervisor and site coordinator BEFORE you go online** to complete the online pre-approval form. You can then copy/paste your responses in the appropriate sections

- *human subjects*
- *tissue/cell lines*
- *live vertebrate animals*
- *hazardous materials* and/or
- *microbes*



New: Working With Invertebrates

- Most invertebrates do not require a pre-approval. However, we recommend that students look for alternatives before experimenting with **higher invertebrates** such as octopus, squid, nautilus, lobsters, crabs, hermit crabs, crayfish etc. Projects that **require amputation** on higher-level invertebrates, like cephalopods, should not be conducted.
- If you need further clarifications, please us at: pre-approval@lascifair.org with a complete project proposal.



Human Consent

- **Before starting ANY project involving humans, every participant and/or their parent/guardian will need to receive a copy of the last 3 pages of the Human Subjects Form and sign her or his consent at the bottom.**

Students will have to complete the **entire** Human Subjects form **ONLINE** at the LACSEF pre-approval webpage.



Human Subjects form:

Human Consent Form

For your project, a Human Consent Form needs to be developed in consultation with your Site Science Fair Coordinator, Designated Supervisor, or Qualified Scientist. This form will provide information to your research subject (or parent/guardian) about your project and will document written informed consent, and/or parental permission. For project approval, we need to approve the main sections of the form here.

- Every participant and parent/guardian needs to receive this form and sign his or her consent at the bottom, both before starting the research project.
- You MUST identify that minors require written parental/guardian consent in order to participate.

LIST THE INFORMATION FOR YOUR PROPOSED FORM IN EACH BOX, FOR APPROVAL

Purpose of the Project

- Identify the goal of the project and why conducting the project is important.

If you participate, you will be asked to ('You' refers to your subjects, not yourself)

- Explain in detail exactly what your participants will be doing.

Time required for participation

- Identify the participant's total time commitment, how many trials will be done and how much time there will be between trials.

Your participation in this study is voluntary

You need to inform participants that their participation in this study is completely voluntary and that there will be NO negative consequences if they choose not to participate...

You need to inform participants that if they decide to participate, that they may stop participating at any time and may decide not to answer any specific question.

Risks to you ('You' refers to your subjects, not yourself)

- Explain what MIGHT happen, both psychologically and/or physically to the participant and how you will reduce the risk to keep your participants safe.

Benefits to you ('You' refers to your subjects, not yourself)

- Describe what the participant gets for participating. Financial compensation is not allowed. Think REAL benefits - there is always something.

Confidentiality of your name and any photos will be maintained by ('You' refers to your subjects, not yourself)

- STATE EXACTLY HOW CONFIDENTIALITY WILL BE MAINTAINED. (Example: use #'s or letters to refer to subjects in reports or display - only the researcher will know real names; no recognizable photos on board, etc.)

If you have any questions about this study, feel free to contact

Name of Adult Supervisor, Site Science Fair Coordinator, or Parent

Phone number of Adult Supervisor, Site Science Fair Coordinator, or Parent

Email address of Adult Supervisor, Site Science Fair Coordinator, or Parent

Certification References

Please provide the email addresses for the people who will be serving the following roles in your experiment. An email will be sent to each address with a link for the person to certify your project. You can see what [qualifications](#) each person needs on our website.

Sr Division Human Consent Forms

In addition, **Senior Division** students need to complete the fillable **ISEF Human Consent form** found [here](#). All participant forms have to be **brought to the fair**, with signatures.

Human Informed Consent Form

Instructions to the Student Researcher(s): An informed consent/assent/permission form should be developed in consultation with the Adult Sponsor, Designated Supervisor or Qualified Scientist. This form is used to provide information to the research participant (or parent/guardian) and to document written informed consent, minor assent, and/or parental permission.

- When written documentation is required, the researcher keeps the original, signed form.
- Students may use this sample form or may copy ALL elements of it into a new document.

If the form is serving to document parental permission, a copy of any survey or questionnaire must be attached.

Student Researcher(s): _____

Title of Project: _____

I am asking for your voluntary participation in my science fair project. Please read the following information about the project. If you would like to participate, please sign in the appropriate area below.

Purpose of the project: _____

If you participate, you will be asked to: _____

Time required for participation: _____

Potential Risks of Study: _____

Benefits: _____

How confidentiality will be maintained: _____

If you have any questions about this study, feel free to contact: _____

Adult Sponsor/QS/DS: _____ Phone/email: _____

Voluntary Participation:
Participation in this study is completely voluntary. If you decide not to participate there will not be negative consequences. Please be aware that if you decide to participate, you may stop participating at any time and you may decide not to answer any specific question.

By signing this form I am attesting that I have read and understand the information above and I freely give my consent/assent to participate or permission for my child to participate.

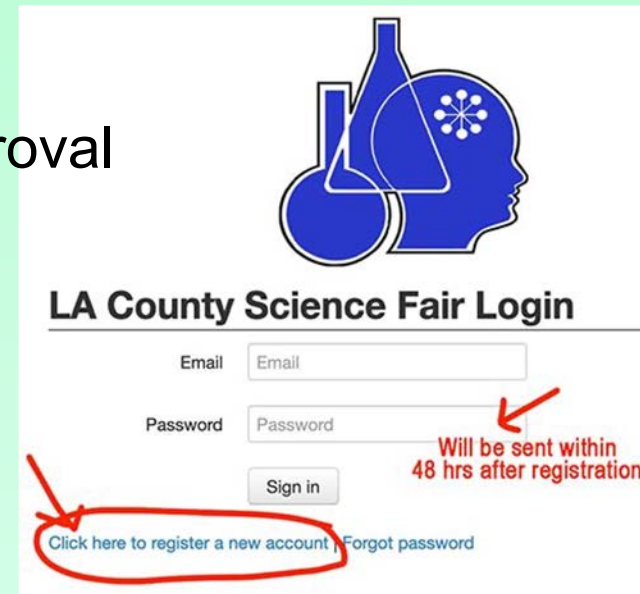
Adult Informed Consent or Minor Assent	Date Reviewed & Signed: _____ (mm/dd/yy)
_____	_____
Research Participant Printed Name: _____	Signature: _____
Parental/Guardian Permission (if applicable)	Date Reviewed & Signed: _____ (mm/dd/yy)
_____	_____
Parent/Guardian Printed Name: _____	Signature: _____

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International Rules: Guidelines for Science and Engineering Fairs 2023–2024, societyforscience.org/ISEF

Main Steps to Pre-approval

- **Site Coordinator** enrolls school online
- **30** projects can be **submitted** for pre-approval
- Selected **students login** to online registration, receive passwords within 48 hrs. Students log *back into* registration and enter proposals
- **Science Review Committee (SRC)** **reviews proposals** once all verifications have been submitted. Projects are accepted or rejected.
- **Site Coordinators** check their dashboards for verifications, project status and needs for re-submittal. ***Keep students notified.***
- Students may **re-submit** a proposal ONCE only. A second denial is **final**.



The image shows a screenshot of the 'LA County Science Fair Login' page. At the top is a logo featuring a blue silhouette of a head with a brain, overlaid with a chemistry flask and a molecular structure. Below the logo, the title 'LA County Science Fair Login' is displayed. The login form includes two input fields: 'Email' and 'Password', each with a corresponding label to its left. A 'Sign in' button is positioned below the password field. A red arrow points to the 'Sign in' button with the text 'Will be sent within 48 hrs after registration'. At the bottom of the form, there is a link that says 'Click here to register a new account' followed by a link for 'Forgot password'. A red circle and arrow highlight the 'Click here to register a new account' link.

[Detailed Pre-approval Process for Teachers Link](#)

When in Doubt, Pre-approve!

- There is **nothing worse** than having a student try to register their project and find out that it needed pre-approval **AND IT'S REJECTED.**
 - The Pre-approval process *ends* before Student Registration *begins*. **There are no exceptions.**
 - Make sure that you and the students have carefully read all the pages on ALL 5 categories of pre-approval.
 - If it involves human subjects (a student cannot perform experiments/surveys on themselves), it needs pre-approval....period.
 - Hazardous materials can be iffy - be careful!
- Alternatives can be experiments on plants or invertebrates or simple engineering.
- **WHEN IN DOUBT, SUBMIT A PRE-APPROVAL!!**



Monitoring Your Dashboard

- Once students have submitted a project for pre-approval, Site Coordinators and teachers **need to keep track of the status of student submissions.**
 - You can see what has been submitted,
 - what is awaiting verification from supervisors,
 - what has been denied and pending resubmission,
 - and what has been denied a second time.
- You need to go into the student submissions to **see what needs to be fixed** so you can advise the student.
- *This helps **prevent projects from being denied** by LACSEF because students did not fix their proposals.*



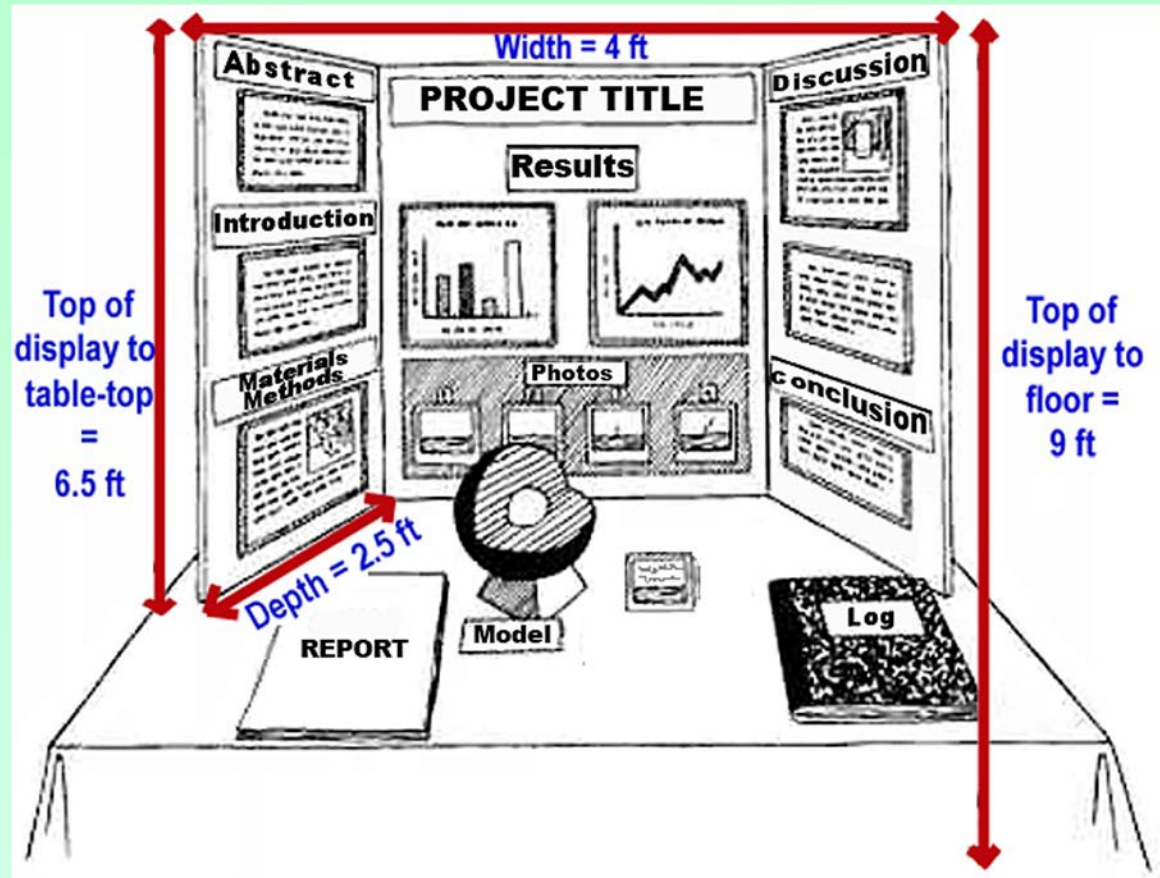
How to Create Award-Winning Displays



- **Details** on [“Science Fair Displays”](#) on Google Drive/Padlet

Mandatory Sections

- Abstract
- Introduction
- Materials & Methods
- Results
 - Data Tables
 - Graphs
 - Observations
- Discussion
- Conclusion (*optional*)
- Name/school on back



Displayed on table:

- Log Book/Journal
- Research Report w/References
- Acknowledgements (*optional*)

Have Your Log Book Present

- A "**journal**", detailing all activities: ~~cross-out~~, **don't erase** changes
- Include actual data
- Additional relevant materials



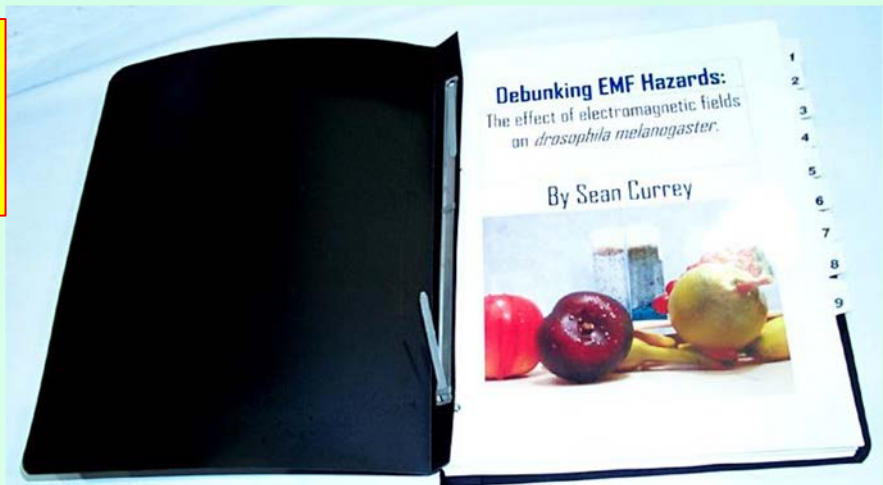
Log Books should be **hand-written** and 2-3 key pages scanned for upload

Link to [Log Book description/details](#)

Include a Formal Report

- ALL reports should be **typed**
- Follow format and sequence

Link to [Writing Reports](#) PPT



Display Regulations

- **Display fits** within the prescribed space
- Uses a **title descriptive of your study**
 - Subtitles may be used for clarification
- ★ **NO** photos showing **human subject faces** other than the student researcher.
- **NO** **live animals or plants** on display
- **NO** **tissues or microorganisms** on display (*use pictures or a model instead*)
- **NO** photos which show procedures **hurtful to animals**.



Remember...

- No matter how fancy & eye-catching the display...

★ *It can't take the place of **solid, well-documented and analyzed research!***



Research Report Writing



*** A connection to
Common Core ELA

Comprehensive Presentation on all aspects of the Formal Report, Graphing, Data Analysis, Citations and References are on the full **“Research Report Writing”** Google Slides and also on **Padlet**

STATISTICS for Research

Comprehensive Presentation on all aspects of statistical analysis for MS/HS projects are on the full [“Statistics for Research”](#) Google Slides, also on **Padlet**.

- Includes **Statistical Analysis**
- **Appropriate statistics** with slides for student practice
 - Mean (Average)
 - % Error
 - Standard Deviation
 - Chi Square
 - T-tests
 - Diversity Indices
 - Non-parametric stats



*** A connection to **Common Core MATH**



LA County Science & Engineering Fair

In-person Fair Sun., 3/10/2024 and Mon., 3/11/2024 at the **Shrine Expo Hall**
Virtual Awards Ceremony: Sunday, March 24th at noon



Comprehensive Presentation on all aspects of the fair itself
are on Padlet at **[“LA County Science Fair”](#)**



Who Can Enter?

- Awards and scholarships in **36 categories** ranging from Biology to Engineering to Zoology
- Open to **Grade 6-12** students attending LA County **Public, Charter** or **Private** Schools or are **home-schooled**.
- You can enter directly from your school/home school, *even if your school has no science fair* **OR** compete in a **local school or district science fair** **OR** be sponsored/mentored by a **research institution**.





Non-Discrimination Policy

- The Los Angeles County Science and Engineering Fair is an **equal opportunity** for all events, regardless of age, ancestry, color, disability (mental and physical), gender, gender identity, sexual orientation, medical condition, national origin, race and religious creed. *Judges & volunteers bear the responsibility to act as guardians and custodians of the students during their volunteering. Their familiarity with the students' special sensitivities is imperative to the overall Science Fair effort to achieve an **equal opportunity for all environment, free of discrimination.***



Created by Sharon Sara, 4th grade, Frisco, Texas



NEW: Team Projects

Enter up to 13 teams per school!

- No more than **THREE** people per team
 - Why does this **need** to be a **team** project?
 - Every team member should have **a unique contribution** to the and be able to justify their participation.





Key Fair Regulations

- Projects **MUST** be **PRE-SCREENED** by the teacher!
- Projects involving **tissues/cell lines, microbes, human subjects, vertebrate animals, hazardous chemicals** must have **LACSEF** online [pre-approval](#)
- Adhere to all federal, state, and local **laws**
- Work of the entrant and **work of others** is clearly distinguished
- A clear, concise **3 - 4 min video** explaining the project has to be uploaded for the **Judges to see** before interviewing.





Fair Categories

*** See [LACSEF Project Category details PPT](#) for more info

- **21 Junior Project categories**
- **15 Senior Project categories**



Projects needing NO Pre-approval!

Check out “[Project Categories](#)” PPT for more ideas

Projects involving:

- plants, unless the species is toxic
- observing animal behavior in the wild, with no manipulation
- invertebrates (shellfish, insects, worms, jellies, etc.)
- plankton studies (*ALL animals must be treated humanely!*)
- ecological sampling, simply observing species diversity and numbers, with **no human manipulation**
- low-risk engineering, with no hazardous components
- lab kits for rockets with contained propellants or uses air pumps.



Projects needing NO Pre-approval!

Check out “[Project Categories](#)” PPT for more ideas

Projects involving:

- dry ice; common lab equipment: calorimeters, bunsen burners, hot plates, scales, saws, drills, hammers (*with supervision*)
- plant tissue, cut hair samples, vertebrate tissue samples from businesses, food stores, restaurants or science supply companies
- most mathematical, computer coding/simulations
- geology (non-hazardous/non-toxic soils)
- astronomy, theoretical physics





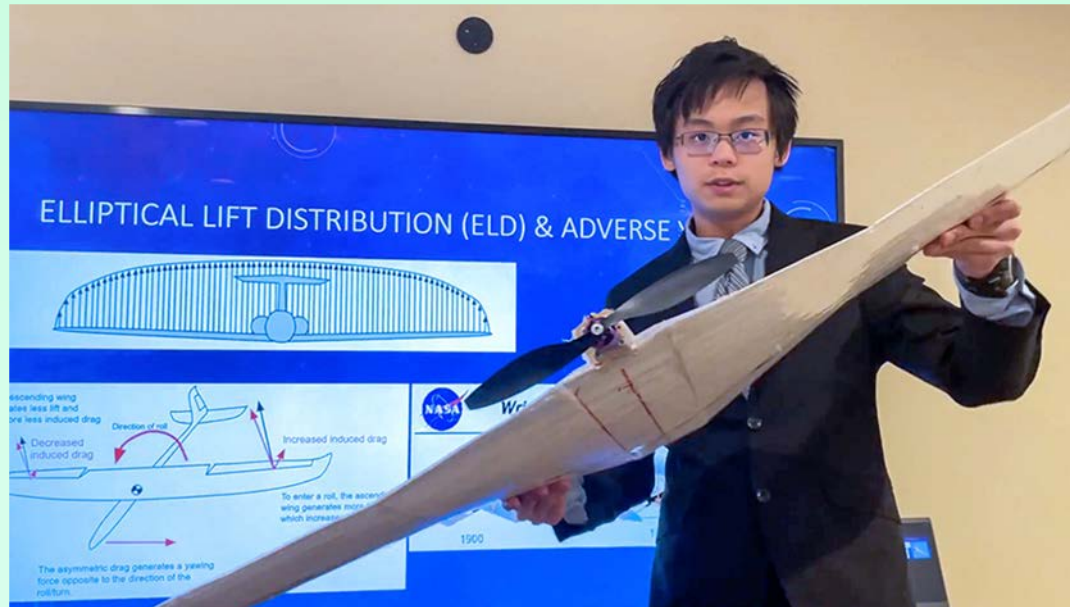
Student Online Registration



- Student online registration opens in **Dec 11, 2023** at:
<https://www.lascifair.org/student-project-registration/>
- Site Science Fair Coordinators must submit online student verification information and ***ADHERE TO ALL DEADLINES.***
- Site Science Fair Coordinators will be notified of **approval/rejection** of submitted Student Research Plans. **Check “Important Dates” for specifics**

Uploading Project Components

A **3-4 min video** about your project, 2-3 key **log/notebook** pages, a **Digital Slide presentation** and a PDF version of your **research report must be uploaded** to the LACSEF student registration site for the judges:



Detailed instructions for submission will be on the project registration site in January, 2024

Key Fair Deadlines 2023-2024

- **Oct. 30, 2023 (new date):** all information for **project pre-approval** must be submitted **ONLINE** by midnight
- **Nov. 20, 2023:** all **re-submissions** for **project pre-approval** must be submitted **ONLINE** by midnight (can be submitted earlier)
- **Jan.22, 2024:** last day to **enroll a school/institution** for the Fair
- **Feb 5, 2024:** last day for **students to register** for Fair
- **Feb 9, 2024:** last day for **Site Coordinators to approve** students projects





General Fair Schedule

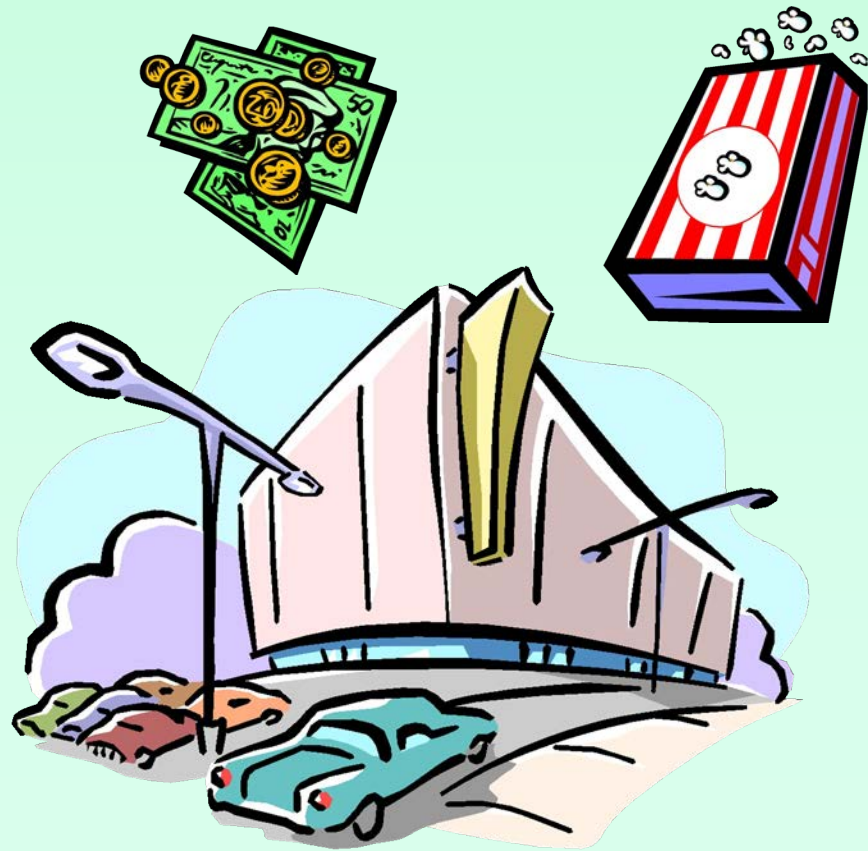
- Day 1** **Registration & Set up** **Sun. March 10, 2024**
- Project set-up 10am - 4:30pm
 - Public Open House 12pm - 5pm
 - Interactive Exhibits 12pm - 5pm
- Day 2** **Interviews & Judging** **Mon. March 11, 2024**
- All students must be present **8am - 4pm**
 - **Project Removal** **4pm**
- Day 3** **Special Awards Judging)** **Tues, March 12**
- *By appt only, on Zoom*; students will be notified
- Day 4** **Virtual Awards** **Sun, March 24, 2024**
- *(YouTube Live - info will be on Website, Facebook)*

Check <https://www.lascifair.org> for dates, locations and events.



The Day of the Fair

- Have **good directions** to the site
- Bring **money** for parking & food
- Arrive **early**
- Know where to **register**





The Day of the Fair

- Bring a **book or tablet** for waiting time
- Bring a **camera** to snap friends' projects





On-Site Registration





Interviews and Judging

Details on Judging will be finalized by Jan, 2024

Download "[Judging-Interviews LACSEF](#)" in Google Drive



Procedure

- Inside: filter paper, 12 mg of powder, & 1 more filter paper
- 20 trials per solution: 10 with the cups cleaned; 10 with the cups uncleaned



Judging Tips

- **Courtesy**: the judges will tell you when they are ready for you to begin. After your presentation, they may wish to see 3D Models or equipment you used.
- **Be Positive**
 - Be calm, confident and professional.
 - You've done the *very best* you could!



Download **"Interview Tips & Tools"** in Google Drive

What Judges Expect from Students

- ***Enthusiasm!*** An interview can be fun!
- **Pride** in your projects and accomplishments
- Give **as much information** as possible, ***BUT...***
 - Be able to explain your projects **clearly** and **concisely**
- To be able answer questions **appropriate to your grade level and age**



The Judges Will Want To Know:

- **How** was your project topic selected?
- Did you **receive help** and if so, *how much*?
- What has been **previously known** about the project's general subject area?
- What would the you do **if there were additional time** to spend on the project?
- **What have you learned** through the investigation?
- If this project was continued, what would be the **next step(s)**?



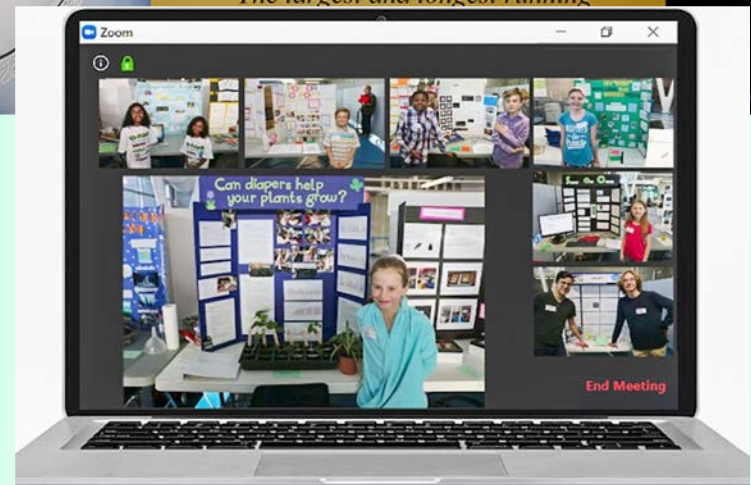


Virtual Awards Ceremony

Sunday, March 24th at Noon

Details to be announced in January, 2024:

Check the website and Padlet frequently!



Designed & Photographed by

Anne F. Maben

afmaben@gmail.com

Science & Education Consultant
Executive Board Member, LACSEF



for the

**Los Angeles County Science &
Engineering Fair**

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