

Synopsys Alameda County Science & Engineering Fair
Pre-Qualifying Fair application packet
For schools or school districts that advance winning projects to
Synopsys ACSEF

Student Name (First) _____ (Last) _____ Grade _____

Student email _____ *(Team leader) Home/cell phone _____

School Name _____ School District _____

This is an individual project _____ *This is a Team Project (maximum of 3 students) _____

2nd Student Name (First) _____ (Last) _____ Grade _____

3rd Student Name (First) _____ (Last) _____ Grade _____

Students: Complete this application and submit before January 30th **ONLY** if your project involves any of these: *Human test subjects, Vertebrate animal test subjects, microbes (including fungi, bacteria, virus, prions, etc. and rDNA), human or vertebrate animal tissues or bodily fluids, DEA controlled drugs.*

If your project involves anything else you will use the online registration and application AFTER you've been selected by YOUR fair to move on to the county Synopsys ACSEF competition.

Science Fair Coordinator/Teachers/Schools must mail all student packets in a bundle(s) to:

ACSEF PO Box 668 Pleasanton, CA 94566

My/our Project Involves (Check only those that are applicable to your project):

1. ___ **Human Subjects** *If checked you MUST complete one copy of **Form 4 & Form 4A**, and attach 1 copy of any surveys or tests the humans may take, **Add Form 2 and 1C** if performed at a university or professional lab (see link to form on last page of application)
 - a) ___ For my research project Human subjects will be asked to answer a survey or to take a test or do a physical activity ***if checked you MUST attach a copy of the survey and/or test questions and details of the physical activity**
2. ___ **Vertebrate Animals** *Animals with a vertebral column made of bone or cartilage. * If checked you MUST add **Form 5A and Form 2**

Name of animal species (i.e. deer, wild rabbits etc.) _____

Number of animals involved _____
2. ___ **Vertebrate animal project was completed at a university or professional lab-** If checked you MUST add **Form 5A, Form 2, Form 1C, and Form 5B** (see link to Form 5B & 1C form on last page of application)

Name of animal species (i.e. deer, wild rabbits etc.) _____

Number of animals involved _____
3. ___ **Microbes (including rDNA projects) – must be done at school lab for safety reasons*** If checked you MUST add **Form 6A and Form 2**. **Add Form 1C** if performed at a university or professional lab (see link to form on last page of application)
4. ___ **Human or Vertebrate animal tissues or bodily fluids were involved in research.** * If checked you MUST add **Form 6A and 6B, Form 2, Add Form 1C** if performed at a university or professional lab. (see link to form on last page of application)
5. ___ **DEA controlled drugs** * If checked you MUST add **Form 3, Form 2, Form 6 A, Add Form 1C** if performed at a university or professional lab. (see link to form on last page of application)

Form: Student Permission and Hold Harmless Agreement – This page REQUIRED from EACH student.

Photocopy this page before submitting to science fair.

As parent/guardian of (student first/last name) _____

I give permission for my child's participation in the Synopsys Alameda County Science and Engineering Fair (ACSEF), and assume all responsibility for the oversight and supervision of the scientific research or engineering project conducted by my child in association with the Fair.

My child and I are fully responsible for reading, understanding and adhering to the rules and ethics for participation. Failure to comply with the research rules and ethics, including misrepresenting one's work will result in rejection of my child's science research or engineering project application and/or disqualification of the child's project entry at the actual event even if the application was approved.

I understand that if my child is one of the high school Grand Prize winners they will earn a fully funded trip to Intel ISEF and will make themselves available to participate during the second week of May for 6 days of travel and competition which may be located outside of California. (see <https://student.societyforscience.org/intel-isef> for date details).

I understand that if my child is one of the middle school Grand Prize winners they will earn a fully funded invitation to participate at the California State Science Fair (CSSF) and will make themselves available to participate during the 2 day travel & competition held during April or May in Los Angeles (see www.usc.edu/CSSF) for date details.

I understand that if my child is one of the high school or middle school CSSF Qualifiers will receive an invitation to participate at California State Science Fair at my own expense except for the application fee which will be paid by Synopsys ACSEF. As parent/guardian I will make every attempt to allow my child the opportunity to fully participate during the 2 day competition in April or May in Los Angeles (see www.usc.edu/CSSF) for date details.

I understand that if my child is one of the middle school Broadcom Masters awardees, my child will receive an invitation to participate in the national Broadcom Masters competition at my own expense. As parent/guardian I will make every attempt to allow my child the opportunity to fully participate by insuring my child complete the application packet by the deadline indicated on the invitation.

I understand there is no guarantee that one or more first through fourth and honorable mention will be awarded in every category and I further understand that not all participants are guaranteed an award and that not all awards are associated with prize money. The individual scoring by the judges is confidential to fair organizers and is not made available to students, teachers or parent/guardians unless comments are released by the individual judges.

I agree to hold harmless the organizers and affiliates of the Synopsys Alameda County Science and Engineering Fair Association and their directors, employees, agents, volunteers, judges, contributors, sponsors and contactors against any liability and any claims resulting from my child's participation in the Diocesan Science Fair & Alameda County Science and Engineering Fair and any additional state, national or international fairs to which my child may earn an invitation to participate.

Parent/Guardian Printed Name _____ **email** _____ **Date** _____

Parent/Guardian Signature _____ **Phone number** _____

Note: Submission of this permission and hold harmless form, along with the required application package, does not connote acceptance of the child's project for Diocesan or ACSEF. The child and teacher sponsor will be notified of project acceptance upon safety review and approval of the child's application packet and research plan.

Form: Photo/Video/Media/Website Release This page REQUIRED from EACH student.

Photocopy this page before submitting to science fair

Student Name _____ School _____ Grade _____

Dear Parent/Guardian: On occasion, representatives from the media or the fair organizing committee wish to photograph, videotape, and/or interview students in connection with the science fair. Educating the public is one of the fair's objectives. The entire community benefits from knowing about the needs and abilities of our students and about the program we offer to children and families. In order to release student photos, video footage, comments and or post on the website or in materials about the fair, we need written permission to give your consent, please complete ONE of the sections below (YES or NO).

YES, I as parent/guardian of _____

give permission for my child to be photographed, videotaped, and/or interviewed by representatives from the media or the fair organization for the purpose of publicizing the science fair. I authorize the use and reproduction by the Diocesan or ACSEF or groups affiliated with the fair for use of photographs, video tapes, or interview without compensation to me/my child. All photographs/video recordings shall be the property, solely and completely, of the Diocesan or ACSEF. I wave any right to inspect or approve the finished photographs/videotapes, and the sound tract, script or printed matter that may be used in conjunction with them.

Parent/Guardian Printed Name _____ email _____ Date _____

Parent/Guardian Signature _____ Phone number _____

NO, I as parent/guardian of _____

DO NOT give permission for my child to be photographed, videotaped, and/or interviewed by representatives from the media or fair organizers

Parent/Guardian Printed Name _____ email _____ Date _____

Parent/Guardian Signature _____ Phone number _____

Form 1 Checklist for Adult Sponsor This page required **ONE PER PROJECT** One per project Photocopy this page before submitting to Science Fair

1. Student's Name(s):

2. Project Title:

3. I have reviewed the science fair rules <http://www.acsef.org/generalrule.html> and Dates <http://acsef.org/fair-week.html>

4. I have reviewed the student's research plan and materials and we have discussed the risks involved in the project.

5. The project involves

_____ Humans _____ Vertebrate Animals

_____ Potentially hazardous Biological Agents (circle all that apply)

(microbes) (rDNA) (Tissues/bodily fluids)

Teacher Approval: I have read and understand the risks and possible dangers involved in the Research Plan.

I have counseled the student researcher {s} and or parent on the safety measures needed for this research.

Teacher/Adult Supervisor's Printed Name _____

Signature _____ Date _____

Teacher/Adult Supervisor's email address: _____

Phone Number _____

Form 1A Student Checklist One per Project

1. **Name and email** of Student #1 _____ Grade ____

If on a TEAM:

2. **Name and email** of Student #2 _____ Grade ____

3. **Name and email** of Student #3 _____ Grade ____

4. Title of Project _____

5. School _____

Address of School (street, city, zip) _____

6. Adult Sponsor _____ Phone _____

7. Adult Sponsor email _____

8. Where will the experiment be performed ___School ___Home ___ College/Professional Lab

9. Name and Address of College/Professional Lab _____

10. Who will supervise the project at the College or Professional Laboratory?

Name/Email _____

Form 1B REQUIRED from EACH STUDENT participant

Teams EACH person must complete too!
Photocopy page before submitting to science fair.

1. To be Completed by the Student, Parent/guardian and Teacher

a. Student Acknowledgment:

- I understand the risks and possible dangers to me of the proposed research plan that follows.
- I have read the science fair rules <http://www.acsef.org/generalrule.html> and guidelines and will adhere to all rules when conducting research.
- I have read and will abide by the following Ethics statement:

"Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include plagiarism, forgery, use or presentation of other researcher's work as one's own, and fabrication of data. Fraudulent projects will fail to qualify for competition. **I have read and agree to the above:**

Student's Printed Name _____ Signature _____ Date _____

Parent/Guardian Approval: I have read and understand the risks and possible dangers involved in the Research Plan. I consent to my child participating in this research.

Parent/Guardian Printed Name _____ Signature _____ Date _____

Teacher Approval: I have read and understand the risks and possible dangers involved in the Research Plan. I have counseled the student researcher (s) and or parent on the safety measures needed for this research.

Teacher/Adult Supervisor's Printed Name _____ Signature _____ Date _____

Teacher email address: _____

STOP!! PART 2 and 3 IS FOR OFFICIAL USE ONLY STOP!! PART 2 and 3 IS FOR OFFICIAL USE ONLY

2. To be completed by the Synopsys ACSEF RC/IRB ONLY!!

a). Required for projects that need pre-experimental SRC/IRB approval BEFORE EXPERIMENTATION.

The SRC/IRB has carefully studied this project's Research Plan and all the required forms are included. My signature indicates approval before the student begins experimentation.

SRC/IRB Chair's Name _____ Date _____

Signature _____

b). Required for research conducted at all Regulated Research Institutions with no prior fair SRC/IRB approval.

This project was conducted at a regulated research institution (not home or high school, etc.), was reviewed and approved by the Research Institutional board before experimentation and complies with the Intel ISEF rules. ATTACH form (1C) and required institutional approvals (e.g. IACUC, IRB).

SRC/IRB Chair's Name _____ Date _____

Signature _____

3. SRC Approval **After Experimentation and Before Competition at County/State/National Fair**

I certify that this project adheres to the approved Research Plan and complies with allIntelISEF Rules.

SRC/IRB Chair's Name _____ Date _____

Signature _____

Written Research Plan Directions: NOTE – follow these directions when writing research plan

A complete Research Plan/Project Summary is required for ALL projects and must accompany applications.

The Research Plan/Project Summary is a succinct detailing of the rationale, research question(s), methodology, and risk assessment of your research project and should be completed before the start of your experimentation.

The research plan for All projects should include the following:

- a. What is the RATIONALE for your project? Include a brief synopsis of the background that supports your research problem and explain why this research is important scientifically and if applicable, explain any societal impact of your research.
- b. State your HYPOTHESIS, RESEARCH QUESTION(S), ENGINEERING GOAL(S), EXPECTED OUTCOMES. How is this based on the rationale described above?
- c. Describe in detail your RESEARCH METHODS AND CONCLUSIONS.
 - ***Procedures:** Detail all procedures and experimental design including methods for data collection. Describe only your project. Do not include work done by mentor or others.
 - ***Risk and Safety:** Identify any potential risks and safety precautions needed.
 - ***Data Analysis:** Describe the procedures you will use to analyze the data/results that answer research questions or hypotheses.
- d. Bibliography: List at least 3-5 major references (e.g. science journal articles, books, internet sites) from your literature review. If you plan to use vertebrate animals, one of these references must be an animal care reference.

Items 1-4 below are subject-specific guidelines for additional items to be included in your research plan/project summary as applicable.

1. Human participants research:

Participants. Describe who will participate in your study (age range, gender, racial/ethnic composition). Identify any vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).

Recruitment. Where will you find your participants? How will they be invited to participate?

Methods. What will participants be asked to do? Will you use any surveys, questionnaires or tests? What is the frequency and length of time involved for each subject?

Risk Assessment

⊆ Risks. What are the risks or potential discomforts (physical, psychological, time involved, social, legal, etc.) to participants?

How will you minimize the risks?

⊆ Benefits. List any benefits to society or each participant.

Protection of Privacy, Will any identifiable information (e.g., names, telephone numbers, birth dates, email addresses) be collected? Will data be confidential or anonymous? If anonymous, describe how the data will be collected anonymously. If not

anonymous, what procedures are in place for safeguarding confidentiality? Where will the data be stored? Who will have access

to the data? What will you do with the data at the end of the study?

Informed Consent Process. Describe how you will inform participants about the purpose of the study, what they will be asked

to do, that their participation is voluntary and they have the right to stop at any time.

2. Vertebrate animal research:

Briefly discuss potential ALTERNATIVES to vertebrate animal use and present a detailed justification for use of vertebrate animals

Explain potential impact or contribution this research may have

Detail all procedures to be used

◇ Include methods used to minimize potential discomfort, distress, pain and injury to the animals during the course of experimentation

◇ Detailed chemical concentrations and drug dosages

Detail animal numbers, species, strain, sex, age, source, etc.

○ Include justification of the numbers planned for the research

● Describe housing and oversight of daily care

● Discuss disposition of the animals at the termination of the study

3. Potentially hazardous biological agents research: Microbes, Tissues, Bodily fluids

Describe Biosafety Level Assessment process and resultant BSL determination

Give source of agent, source of specific cell line, etc.

Detail safety precautions

Discuss methods of disposal

4. Hazardous chemicals, activities & devices:

Describe Risk Assessment process and

results
Detail chemical concentrations and drug dosages Describe safety precautions and procedures to minimize risk
Discuss methods of disposal

5. Engineering Project Proposal Format

1. * **Background or Problem to be Addressed:** Describe a brief background of your subject or topic of consideration, and the problem your project is trying to address.
2. * **Engineering Goal:** The need/goal should be described in a simple statement that includes what you are designing (the product), who it is for (customer), and what it does (function). The engineering goal template is: "The design and construction of a (product) for (customer) to do (function)."
3. * **Design Criteria and Constraints:** Criteria define the product's physical and functional characteristics (shape, size, weight, speed, ruggedness, and ease of manufacture). Constraints are factors that limit the engineer's flexibility (cost & time).
4. * **Evaluate alternative designs:** Your research into possible solutions to a defined problem will reveal what has already been done by others to satisfy similar needs. You should consider at least two or three alternative designs and consider using available technology, modifying current designs, or inventing new solutions.
5. **Build a prototype of best design.** Use your alternative analyses to choose the design that best meets criteria considering the constraints, then build a prototype. A prototype is the first full scale and usually functional form of a new type or design.
6. **Test and evaluate the prototype against important design criteria to show how well the product meets the need/goal.** Develop a test plan describing what you will test, how you will test, and how you'll perform analysis. You must test your prototype under actual or simulated operating conditions.
7. **What will you do to: Analyze test results, make design changes and retest.** Testing may disclose some deficiencies in your design. Make corrections and retest OR prepare an analysis of what went wrong and how you intend to fix it.

Form: Research Plan & Materials – This page required ONE PER PROJECT

Type a Word Document using the directions from the previous 2 pages then use this page as the cover page

Project Title _____

Project is Science Research Engineering Project

Project requires pre-experimental approval by fair safety committee (Human Subjects/Vertebrate animals/Microbes/Human or Vertebrate animal tissues or bodily fluids/DEA controlled Drugs)

Yes No

Form 2 Qualified Professional/Designated Supervisor This page required for Vertebrate animal, microbes/tissues/DEA controlled drug projects **ONE PER PROJECT**

Photocopy page before submitting to Science Fair

MUST BE COMPLETED BY THE QUALIFIED PROFESSIONAL (not the student)

Student Name(s) _____

Qualified Professional Name _____

Email: _____ Phone: _____

Educational Background: _____ Degree(s) _____

Experience/Training as relates to the student's area of research:

Current job position: _____

Name of institution/company: _____

Address of institution/company: _____

1. I have review the science fair rules <http://www.acsef.org/generalrule.html> Yes No
2. Will any of the following be used?
 - a. Human participants Yes No
 - b. Vertebrate Animals Yes No
 - c. Microorganisms, rDNA, Tissues including blood and blood products Yes No
 - d. DEA – controlled drugs Yes No
3. Was this study a sub-set of a larger study? Yes No
4. Will you directly supervise the student? Yes No
 - a. If no, who will directly supervise and serve as the Designated Supervisor?
Name _____
 - b. Experience/Training of the Designated Supervisor:

Qualified Professional: I certify that I have reviewed and approved the Research Plan prior to the start of the experiment. If the student or Designated supervisor is not trained in the necessary procedures, I will ensure his/her training. I will provide advice and supervision during the research. I hav a working knowledge of the techniques to be used by the student in the Research Plan. I understand that a Designated Supervisor is required when the student is not conducting experimentation under my direct supervision.

Qualified Professional Signature _____ Date _____

Designated Supervisor (To be completed if the Qualified Professional cannot directly supervise).

I certify that I have reviewed the Research Plan and have been trained in the techiques to be used by this student, and I will provide direct supervision.

Designated Supervisors printed name _____

Signature _____ Date _____

Email _____ Phone _____

Form 3 Risk Assessment Photocopy page before submitting to Science Fair **ONE PER PROJECT**
Required for projects using hazardous chemicals, activities or devices.

Student Name(s) _____

To be completed by the student researchers(s) in collaboration with the Designated supervisor/Qualified Scientist.

All questions must be answered, additional pages may be attached.

1. Identify and access the risks involved in this project (example: chemical burns, wounds, or falls could result)
2. Describe the safety precautions and procedures that will be used to reduce the risks (example: adult supervision, use chemicals outdoors or under a fume hood/follow MSDS directions, etc.)
3. List all hazardous chemicals, drugs, activities, or devices that will be used.
4. Describe the disposal procedures that will be used (when applicable) Hint – for chemicals refer to the MSDS.
5. List the source(s) of safety information. (example: MSDS, teacher trained me to do the following etc.).

To be Completed and signed by the Adult supervisor (or Qualified Professional)

Supervisor's printed name _____

Signature _____

Date _____

Position & Institution _____

Phone or email contact information _____

Experience/Training as relates to the student's area of research _____

Human Participants Form 4 ONE PER PROJECT

Photocopy page before submitting to science fair.

Use of Humans required Fair safety committee approval before starting experiment.

Student Name(s) _____

Adult Supervisor Name _____ email/phone _____

1. I have attached my Research Plan.
2. I have attached any surveys or tests I plan to use.

Human Informed Consent Form 4A

This form gives your volunteers information about your experiment so they can make an informed decision to be involved or not. This Form will be handed out to your volunteers and must be signed by them and their parent/guardian.

Purpose of project: _____

If you participate you will be asked to: _____

Time required for your participation: _____

Potential Risks of your participation: _____

Potential Benefits of your participation: _____

How we will keep your identity unknown: _____

If you have questions about this experiment, please contact:

Adult Supervisor Printed Name: _____

Phone/email _____

Form 5A Vertebrate Animal Research conducted at school, home or field *Use only if Vertebrate animals are involved in the study. ONE PER PROJECT

Student Name(s) _____

1. Common Name (or Genus, species) and number of animals used.
2. Describe completely the housing and husbandry to be provided. Include the cage/pen size, number of animals per cage, environment, bedding, type of food, frequency of food and water, how often animal is observed, etc. Add an additional page as necessary.
3. What will happen to the animals after experimentation?
4. Attach a copy of wildlife licenses or approval forms if applicable.
5. The Intel ISEF vertebrate animal rules require that any death, illness or unexpected weight loss be investigated and documented by a letter from the qualified scientist, designated supervisor or a veterinarian. If applicable, attach this letter with this form when submitting your paperwork to the SRC prior to competition.

Form 6A Potentially Hazardous Agents (Microbes/Tissues/Bodily Fluids) ONE PER PROJECT

•These types of experiments must be performed at SCHOOL or in a laboratory setting with trained adult supervision (science teacher/personnel).

Student Name(s) _____

1. Identify the microbes being used (scientific name) (source) (quantity) and the biological risk group (BSL-1 low risk, BSL-2 higher infectious risk)
2. Describe the site of experiment: (school classroom, school lab, professional lab, college lab)
3. Describe the procedures used to minimize risk (personal protective equip., fume hood, etc.)
4. Describe the method of disposal of all cultured materials and other potentially hazardous biological substances

Adult Supervisor: This section must be completed and signed by the adult overseeing the project.

1. What training did you provide the student(s)?
2. What is your training as it relates to the student's area of research?

Adult Supervisor Printed Name _____

Signature _____ Date _____ email _____

Additional Forms required for projects ONLY if applicable:

Form 1C – Project was performed at a college or professional laboratory. Please obtain this form at the following link:

<https://member.societyforscience.org/Document.Doc?id=16>

Form 5B – Project involves vertebrate animals and was conducted at a college or professional laboratory. Please obtain this form at the following link:

<http://ndsciencefair.org/isef%20forms/isef%20forms/Form%205B%20-%202016.pdf>

Form 6B – Project involves fresh or frozen bodily fluids, blood or blood products, tissues, primary cell lines, human or other primate established cell lines and tissue cultures. Must accompany Form 6A

<https://member.societyforscience.org/Document.Doc?id=22>

Form 7 – Project is a continuation of a previous year’s experiment. To qualify as continuation project these projects must show that the additional research is a substantive expansion from prior work (e.g. testing a new variable or new line of investigation). *Repetition of previous experimentation with the same methods and research question, even with an increased sample size, is NOT an acceptable continuation project. Please obtain this form at the following link:**

<https://member.societyforscience.org/Document.Doc?id=23>