| SRC | 1C | 4 | 7 |
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# 2012 PROJECT AND PAPER APPLICATION FORM

## Synopsys Silicon Valley Science and Technology Championship

**(SCVSEFA Use Only)**
Received: _____ Paid: _____
Reviewed: _____ Data Entry: _____

**See www.science-fair.org for Handbook with Application Instructions.**
Complete this 5-page Application Form and give it to your teacher to submit along with your submission check made out to SCVSEFA (see below).
Postmark deadlines for projects ***requiring*** SRC Pre-approval: **November 11, 2011 for grades 9-12** and **January 6, 2012 for grades 6-8**.
Postmark deadline for projects ***NOT requiring*** SRC Pre-approval is **January 27, 2012**. A student may participate in only one project.

**Project Title** (please print LEGIBLY) _____

**Scientific Category** (check one): BIOLOGICAL: ❑ Botany ❑ Environmental Sciences ❑ Zoology ❑ Behavioral/Social ❑ Medicine/Health/Gerontology ❑ Biochemistry/Microbiology
PHYSICAL: ❑ Chemistry ❑ Physics ❑ Earth/Space Sciences ❑ Engineering ❑ Computers/Mathematics ❑ Bioinformatics

**TEACHER:** ❑ Mr. ❑ Ms. ❑ Dr. First Name _____ Last Name _____ Email (REQUIRED) _____

**INDIVIDUAL OR TEAM MEMBER #1:** First _____ Middle _____ Last Name _____
Home Street Address _____ Parent/Guardian's Phone: (___)___-____
City _____ State **CA** ZIP _____ ❑ Female ❑ Male US Citizen? ❑ Yes ❑ No
Student e-mail _____ Parent/Guardian's e-mail _____
School Name _____ Grade (circle one) 6 7 8 9 10 11 12 Have you entered a project previously? ❑ Yes ❑ No
Parent #1 Employer (optional) _____ Parent #2 Employer (optional) _____
Do you have a special need or disability that you would like us to accommodate? ❑ No ❑ Yes Describe need/disability _____

**TEAM MEMBER #2:** First Name _____ Middle _____ Last Name _____
Home Street Address _____ Parent/Guardian's Phone: (___)___-____
City _____ State **CA** ZIP _____ ❑ Female ❑ Male US Citizen? ❑ Yes ❑ No
Student e-mail _____ Parent/Guardian's e-mail _____
School Name _____ Grade (circle one) 6 7 8 9 10 11 12 Have you entered a project previously? ❑ Yes ❑ No
Parent #1 Employer (optional) _____ Parent #2 Employer (optional) _____
Do you have a special need or disability that you would like us to accommodate? ❑ No ❑ Yes Describe need/disability _____

**TEAM MEMBER #3:** First Name _____ Middle _____ Last Name _____
Home Street Address _____ Parent/Guardian's Phone: (___)___-____
City _____ State **CA** ZIP _____ ❑ Female ❑ Male US Citizen? ❑ Yes ❑ No
Student e-mail _____ Parent/Guardian's e-mail _____
School Name _____ Grade (circle one) 6 7 8 9 10 11 12 Have you entered a project previously? ❑ Yes ❑ No
Parent #1 Employer (optional) _____ Parent #2 Employer (optional) _____
Do you have a special need or disability that you would like us to accommodate? ❑ No ❑ Yes Describe need/disability _____

**Fee:** $15 per student or $30 per team payable to SCVSEFA. It is non-refundable if project fails to qualify for any reason. The processing fee **must** accompany this application form.
We reserve the right to limit the number of entries based on Teachers' experience (see web site). Mail forms to: SCVSEFA, P.O. Box 307, Los Altos, CA 94023

# Student Checklist (1A)

**This form is required for ALL projects.**
Please print or type all information as requested

1) a. Student/Team Leader _____ Grade: _____
E-mail: _____ Phone: _____
Demographic Information (optional): ❑ White (non-Hispanic) ❑ Hispanic Latino ❑ Asian
❑ Black/African American ❑ Hawaiian/Pacific Islander ❑ Native American/Alaska Native

b. Team Member #2 _____ Grade _____
E-mail: _____ Phone: _____
Demographic Information (optional): ❑ White (non-Hispanic) ❑ Hispanic Latino ❑ Asian
❑ Black/African American ❑ Hawaiian/Pacific Islander ❑ Native American/Alaska Native

c. Team Member #3 _____ Grade _____
E-mail: _____ Phone: _____
Demographic Information (optional): ❑ White (non-Hispanic) ❑ Hispanic Latino ❑ Asian
❑ Black/African American ❑ Hawaiian/Pacific Islander ❑ Native American/Alaska Native

2) Title of Project: _____

3) School _____ School Phone: _____
School Address: _____

4) Adult Sponsor/Teacher: _____ Phone/E-mail: _____

5) Is this a continuation from a previous year? ☐ Yes ☐ No
**If Yes:**
a) Attach the previous year's ☐ **Abstract** **and** ☐ **Research Plan**
b) Explain how this project is new and different from previous years on ☐ **Continuation Form (7)**

6) **This year's** laboratory experiment/data collection will begin: **(must be stated (mm/dd/yy)**
ACTUAL Start Date: _____ ACTUAL End Date: _____
OR ☐ upon SRC preapproval date.

7) Where will you conduct your experimentation? **(check all that apply)**
☐ Research Institution ☐ School ☐ Field ☐ Home ☐ Other _____

8) List name and address of all **non-school <u>work</u> site(s)**:
Name: _____ _____
Address: _____ _____
_____ _____
Phone: _____ _____

9) **Complete a Research Plan and attachment (See page F3) and attach to this form.**

**As you write your research plan make sure you follow the Minimum Quality Standards listed on the website for your type of project. More details are available in the handbook and on the web site at <u>http://www.societyforscience.org/document.doc?id=14</u> (check out page 2 of the ISEF Form 1A online).**

# Research Plan and Attachment

**Required For All Projects**

A complete research plan must accompany the Student Checklist Form (1A)

Additional pages must be included

## A. QUESTION (SCIENCE) OR PROBLEM (ENGINEERING) BEING ADDRESSED:

What is the question you want to answer or the problem you want to solve? If you are designing and building an engineering invention, what need are you trying to fill?

## B. SCIENTIFIC HYPOTHESIS OR ENGINEERING GOAL (see Handbook and/or website for details)

**Science Project:** Based on what you have read, make an educated statement of what you think might be true.

**Engineering Project:** If you are designing and building an engineering invention, state the engineering goals you will try to reach. (See page 5 of handbook for guidance)

## C. METHOD OR PROCEDURES

Using additional sheets, describe in great detail the methods and equipment you will use. Include any chemical consentrations or drug dosages as well as a list of any organisms or tissues and their sources. Insert the extra pages inside this Application form.

- If your project requires people to answer questions, to fill in a survey or questionaire, or to look at pictures, you must also attach a copy of the questionaire or pictures that will be used.
- If using vertebrate animals, alternatives to their use must be explored and discussed in the research plan.
- For engineering projects, outline how you plan to design and test your project. Attach a diagram of any construction apparatus planned, including electrical circuits. Make sure you include a list of your design criteria.
- Projects involving rockets must comply with California State Law—see www.science-fair.org/src for details and forms.
- For Team projects, explain the role and responsibility of each team member. Submit one Application Form per team. In addition, include one Form (1B) for each team member.

## D. BIBLIOGRAPHY

List the authors and titles of five (high school) or three (middle school) science or engineering books or articles that you have read and found useful for your research subject. Example: Author's Name. Year of publication. "Quoted Title" of magazine article (magazines only). Underlined Title of book or magazine. *Date, volume,* and *number* of magazine issue. *Page numbers* read. If you use a website: *www.urlname.ext, name of topic from the home page, author, and date read.*

1. _____
2. _____
3. _____
4. _____
5. _____

If your project uses animals, you must provide an additional animal-care reference.

6. _____

# Checklist for Adult Sponsor (1)

This completed form is required for ALL projects and must be completed before experimentation
Full text of the rules and copies of all forms are available at www.societyforscience.org/isef

**To be completed by the Adult Sponsor in collaboration with the student researcher:**

Student's Name: _____

Project Title: _____

1) ☐ I have reviewed the ISEF Rules and Guidelines.

2) ☐ I have reviewed the student's completed Student Checklist (1A) and Research Plan.

3) ☐ I have worked with the student and we have discussed the possible risks involved in the project.

4) ☐ The project involves one or more of the following and requires prior approval by an SRC, IRB, IACUC or IBC:

☐ Humans

☐ Vertebrate Animals

Potentially Hazardous Biological Agents:

☐ Microorganisms ☐ rDNA ☐ Tissues

5) Forms to be completed for **ALL Projects:**

☐ Adult Sponsor Checklist (1) ☐ Research Plan

☐ Student Checklist (1A) ☐ Approval Form (1B)

☐ Regulated Research Institutional/Industrial Setting Form (1C) (when applicable)

☐ Continuation Form (7) (when applicable)

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6) **Additional forms required if the project includes the use of one or more of the following** (check all that apply):

☐ **Humans** (Requires prior approval by an Institutional Review Board (IRB); see full text of the rules.)

- ☐ Human Participants Form (4) or appropriate Institutional IRB documentation and any photos, surveys, etc. which may be used.
- ☐ Sample of Informed Consent Form (when applicable and/or required by the IRB)
- ☐ Qualified Scientist Form (2) (when applicable and/or required by the IRB)

☐ **Vertebrate Animals** (Requires prior approval).

- ☐ Vertebrate Animal Form (5A) - for projects conducted in a non-regulated research site (SRC prior approval required.)
- ☐ Vertebrate Animal Form (5B) - for projects conducted at a Regulated Research Institution. (Institutional Animal Care and Use Committee (IACUC) approval required prior experimentation.)
- ☐ Qualified Scientist Form (2) (Required for all vertebrate animal projects at a regulated research site or when applicable)

☐ **Potentially Hazardous Biological Agents** (Requires prior approval by SRC, IACUC or Institutional Biosafety Committee (IBC).

- ☐ Potentially Hazardous Biological Agents Risk Assessment Form (6A)
- ☐ Human and Vertebrate Animal Tissue Form (6B) - to be completed in addition to Form 6A when project involves the use of fresh or frozen tissue, primary cell cultures, blood, blood products and body fluids.
- ☐ Qualified Scientist Form (2) (when applicable)
- ☐ Risk Assessment Form (3) Required for projects involving protists, archae and similar microorganisms and for projects using manure for composting, fuel production or other non-culturing experiments (6A, 6B and 2 are not required)

☐ **Hazardous Chemicals, Activities and Devices** (Prior approval strongly recommended).

- ☐ Risk Assessment Form (3)
- ☐ Qualified Scientist Form (2) (required for projects involving DEA-controlled substances or when applicable)

| Adult Sponsor's Printed Name | Signature | Date of Review (Must be prior to experimentation.) |
|---|---|---|
| Phone | Email | |

# Approval Form (1B)

**Each participant is required to complete this form.**

## 1) REQUIRED FOR ALL PARTICIPANTS.

### a) Student Acknowedgment:

- I understand the risks and possible dangers to me of the proposed research plan.
- I have read the ISEF Rules and Guidelines and will adhere to all International 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 in affiliated fairs or the ISEF.**

| Student's Printed Name | Signature | Date Acknowledged (Must be prior to experimentation.) |
|---|---|---|

**b) 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's Printed Name | Signature | Date of Approval (Must be prior to experimentation.) |
|---|---|---|

**Student's school information and/or photographs may be published to promote the Synopsys Championship**

Official use only

## 2) TO BE COMPLETED BY THE SRC (Safety Review Committee)

**(REQUIRED FOR PROJECTS REQUIRING PRIOR SRC/IRB APPROVAL. SIGN 2a OR 2b AS APPROPRIATE.)**

**a) Required for projects that need prior SRC/IRB approval BEFORE experimentation**

(humans, vertebrates or potentially hazardous biological agents)

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

SRC/IRB Chair's Printed Name

Signature

Date of Approval (Must be prior to experimentation.)

**OR**

**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 proper institutional board before experimentation and complies with the ISEF Rules. **Attach (1C) and required institutional approvals (e.g. IACUC, IRB)**

SRC/IRB Chair's Printed Name

Signature

Date of Approval

**NOTE:** If a stamp is used, it must be initialed by the chairperson.

## 3) FINAL ISEF AFFILIATED FAIR SRC APPROVAL. (REQUIRED FOR ALL PROJECTS)

**SRC Approval After Experimentation and Shortly Before Competition at Regional/State/National Fair**

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

| Regional SRC Chair's Printed Name | Signature | Date of Approval |
|---|---|---|
| State/National SRC Chair's Printed Name *(where applicable)* | Signature | Date of Approval |

# Minimum *Quality Standards*

Find the type of project you are doing from the list below and review the minimum requirements for project acceptance. Make sure that the information described in the requirements list is included in the Research Plan attachment of your application.

## Types of Science Fair Projects

Science Project: investigates the effects of changes or answers the question "Why?"
Engineering Project: solves a need or problem, and includes measurements of success.
Product Testing Project: tests and compares similar items using measurable endpoints.
Demonstration Project: shows how something works [not accepted at this fair].

## Science Project - minimum requirements

1. Subject: defines a testable question that begins Why?... or What is effect of a change in X on Y?
   (for example, 'What is the effect of a change in the amount of sunlight on the growth of tomato plants').
2. Bibliography: include references from your literature research.
3. Hypothesis based on your library research and knowledge. It is your best estimate of what will happen.
4. Experimental design
   - Define a control (a "standard" group) to which all test groups will be compared.
   - Define test groups where only one variable differs from the "control" group.
   - Define the measurable endpoint(s).
   - Each test group should contain a minimum of 3 objects being tested (seed, plant, rat, etc.). A group size of at least 10 is required for projects with human participants.
   - Plan to change only one variable in each test cycle. However, change the variable in several ways (several concentrations of a chemical, several temperatures, or several time points etc.).
   - Report measurements in metric units when possible.
   - Repeat the test more than once to see if your results are reproducible.

## Engineering Project - minimum requirements

1. Clearly define the problem or need the engineering project will solve.
2. Include bibliography from your literature research.
3. List design criteria and design constraints
   - Design criteria = physical and functional characteristics of the design (shape, weight, etc).
   - Design constraints/limitations (cost, time, available materials, etc).
4. Clearly state success criteria. What will you measure to see if your design worked?
5. Report measurements in metric units where possible.

## Product Testing Project - minimum requirements *[Grades 6 through -9 only]*

1 Clearly identify what kind of item (soap, fabric, etc.) you plan to test.
2. Define a test group of at least three similar items (Grades 6 and 7) or four similar items (Grades 8 and 9).
3. Include test criteria that:
   - Define what will be measured.
   - Describe how you will take measurements.
   - Report measurements in metric units, when possible.
   - Define criteria for "the best" (cleanest, largest, coldest, etc).
   - Repeat the test more than once to see if your results are reproducible.

## Demonstration Projects show or explain "how something works".

Demonstration Projects are not accepted at the Synopsys Championship. What interests you about your project? Can you channel your interest into a Science, Engineering, or Product Testing Project? Ask your teacher for help. A demonstration often can be turned into an experimental science project by asking how something (another factor) affects the functioning of the item. Also, if a student likes to build things, a demonstration might become an engineering project.