

# 2021 Application Instructions - Illustrated

This page will walk through the steps in the science fair application process. The green boxes outline what you will see on the web, especially on your Project Page.

## Step 1: Complete the Online Application

The **online application** must be completed in one sitting, so gather the information you'll need, especially names and email addresses, before you begin.

### 2021 Synopsys Championship: Generate an Application Form

#### How Many Students?

To begin, tell us how many students are working on the project. Select one of the links below.

[One student](#)

[Two students](#)

[Three students](#)

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- List your teacher as the Adult Sponsor only if he/she has agreed to sponsor your project.
- Select an RRI category if you are doing your research at a Registered Research Institution like a university, hospital, government or industrial lab OR under the supervision of a PhD level mentor with research experience in your field of study. Read about [RRIs](#) and [Who Can Sponsor](#).
- We recommend using a non-school email address, if possible. SCVSEFA messages are sometimes blocked by school sites

## Step 1 (continued): Your Project Page

After you SUBMIT your online application, you will see the Project Page with your **3-character Project Code**, instructions, and links to important pages. DO NOT SHARE THIS PAGE WITH ANYONE ELSE. It contains information about you and your project.

### 2021 Synopsys Championship Project C12

You have successfully started the application process for the 2021 Synopsys Championship. Follow Steps 1–6 to complete your application.

Please read the [ISEF Rules and Guidelines](#) before you start your project.

As an ISEF affiliated fair, the Synopsys Championship follows [ISEF Rules](#) and uses **forms** that appear on the [ISEF web site](#). SCVSEFA also has requirements and forms that are specific to the Synopsys Championship.

#### General advice:

- Review forms and instructions and gather the information you will need, especially names and addresses, for registration.
- List your teacher as the Adult Sponsor only if he/she has agreed to sponsor your project.
- **Download and save each form** before you fill it out, if possible. Why? (1) You can revise later before submitting. (2) You can apply a digital signature.
- Digital signatures are an option if you are using Acrobat Reader DC or similar software.
- Note that some forms need to be signed and dated prior to experimentation.
- Treat the links to your Project Page, Forms folder and, later, your Judging folder like passwords and do not share them. They contain information about you and your project.

### Step 1: Bookmark This Page or Email Its Web Address to Yourself

This is your **Project Page**. It has your Project Code and links to other important pages. **Do not share this page with anyone else. It contains information about you and your project.**

**This Project Page is your guide to completing the application.** You will need to return to it. Bookmark this page, or email its web address to yourself, or do whatever else will help you return when necessary. For convenience, here is the web address for your page:

- The link to your Project Page will begin with: <https://www.science-fair.org/database...>
- Remember to bookmark the page or email the link to yourself

# Step 2: Download and Save your Project Application Form

Follow the link in your Project Page to your Project Application Form, which has all the information you entered in Step 1.

## Step 2: Download and Save Your Project Application Form

We generated your **Project Application Form** with your registration information already filled in. This PDF will be the first form in your complete application. Click on the provided link and **download and save the PDF with a name that includes your 3-character Project Code C12**, e.g., C12-Page1.pdf.

This is **your** form. Do not upload anyone else's Project Application Form.

- [Your Project Application Form](#)

Check the accuracy of your Project Application Form and be ready to upload it. Are there errors? If you need to correct anything, start over with a new application. Use the new Project Code in naming your new PDF and any other forms.

- The Project Application Form looks like this and has your **3-character Project Code** in the title:
- Save this PDF with a name that starts with your Project Code, e.g. C12-page1.pdf.
- Check the accuracy of your Project Application Form. If you need to correct anything, start over with a new application. Then use the new Project Code in naming your new PDF and any other forms.
- This is YOUR form. Do not upload anyone else's Project Application Form.

The form is titled "2021 PROJECT APPLICATION FORM — FOR PROJECT CODE: C12" and is for the "Synopsis Silicon Valley Science and Technology Championship". It includes a barcode at the top left and a header for "SCVSEFA Use Only" with fields for "Received", "Paid", "Reviewed", and "Data Entry". The form contains instructions for users who are not yet registered, a warning to watch for project status updates, and a section for "Title" and "Teacher" information. The "Teacher" section lists "Testing the do-ability of the 2021 application" and "Mrs. Katherine Jarvis (PSP) kjarvis@gmail.com". There are two sections for "Category" and "Field of Study" with checkboxes for various scientific and engineering disciplines. The "Student" section lists "Kathy S Jarvis" with her address and contact information. At the bottom, there is a paragraph of information about the application process and a URL: <https://www.science-fair.org/database/p.php?h=4278e7585578e6588e61a0baef901b38aef4134>.

This is the address for your Project Page.

## Step 3: Download and fill in required forms

There are 3 required ISEF forms, 3 required SCVSEFA forms plus your research plan and one or more additional forms, depending on your project.

### Step 3: Download and Fill In These Forms

You will be filling in and uploading some completed forms.

- You may fill in and print the forms, sign the paper copies, and scan them back into your computer as PDFs.
- Or you may fill in the forms and apply a digital signature (if you have one set up in Acrobat Reader DC or similar software).

Naming:

- After you have completed your forms, name them using your three-character Project Code C12 as a prefix, for example: C12-form1C.pdf .
- For forms that need to be filled in separately by team members, include your initials in the file names to ensure that each member's files have different names.

There are seven more forms that you **must** download.

- You may print and sign paper forms and then scan them to PDFs.
- But you may also fill in the forms and apply a digital signature. You will see the digital signature box after you download the PDF.
- Handwritten forms are discouraged with the exception of signatures, dates, and small edits/corrections.
- Incorporate your three-character Project Code in document names, for example: C12-1A.pdf.
- For forms that need to be filled in separately by team members, include their initials in the file names to ensure that each member's forms have different names.
- If a form requires multiple signatures, you may submit multiple, signed copies. Incorporate the signer's initials in the file name to distinguish it.
- All the [ISEF Forms](#) are available on the [ISEF web site](#).

There are seven more forms that you **must** download.

a. **Checklist for Adult Sponsor (1)**

The SRC **strongly recommends** pre-approval for projects involving Hazardous Chemicals, Activities, and Devices. The Teacher/Sponsor's Date of Review must be prior to experimentation.

b. **Student Checklist (1A)**

The Team Leader completes this for a team project.  
List home address(es) where your team will do its experimentation.

c. **Approval Form (1B)**

Required for each member of a team, with signatures dated prior to experimentation.

d. **Student Permission and Hold Harmless Agreement** — required for each team member.

e. **Photo/Video/Website/Media Release Form** — required for each team member.

f. **Ethics Statement** — Required for each team member.

**For a Team Project, the Team Leader is responsible for the uploads of 4 signed forms that are required for each Team Member:** Approval Form (1B), the Student Permission and Hold Harmless Agreement, the Media Release Form, and the Ethics Statement.

g. **Research Plan**

Review SCVSEFA's [Research Plan Instructions](#) and [Minimum Quality Requirements](#).

Depending on your project, download and complete a Research Plan that's appropriate for your project: [Science Research Plan](#), [Engineering Research Plan](#), or [Product Testing Plan](#). You may also need the [Research-Plan-Human-Participants](#) if you plan to test your engineering project using people.

a. **Checklist for Adult Sponsor (1)**

The SRC **strongly recommends pre-approval** for projects involving Hazardous Chemicals, Activities and Devices. The Teacher/Sponsor's Date of Review must be prior to experimentation.

Be sure to include any Additional Forms that are specified here.



**Checklist for Adult Sponsor (1)**  
This completed form is required for ALL projects.

To be completed by the Adult Sponsor in collaboration with the student researcher(s):

Student's Name(s): \_\_\_\_\_  
Project Title: \_\_\_\_\_

- I have reviewed the ISEF Rules and Guidelines, including the science fair ethics statement.
- I have reviewed the student's completed Student Checklist (1A) and Research Plan/Project Summary.
- I have worked with the student and we have discussed the possible risks involved in the project.
- The project involves one or more of the following and requires prior approval by an SRC, IRB, IACUC or IBC:  
 Humans  Potentially Hazardous Biological Agents  
 Vertebrate Animals  Microorganisms  rDNA  Tissues
- Items to be completed for **ALL PROJECTS**  
 Adult Sponsor Checklist (1)  Research Plan/Project Summary  
 Student Checklist (1A)  Approval Form (1B)  
 Regulated Research Institutional/Industrial Setting Form (IC) (when applicable; after completed experiment)  
 Continuation/Research Progression Form (7) (when applicable)

**Additional forms required if the project includes the use of one or more of the following (check all that apply):** (see full text of the rules.)

- Humans**, including student designed inventions/prototypes. (Requires prior approval by an Institutional Review Board (IRB); see full text of the rules.)
  - Human Participants Form (4) or appropriate Institutional IRB documentation
  - 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, see full text of the rules.)
  - Vertebrate Animal Form (5A)- for projects conducted in a school/home/field 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 IBC, see full text of the rules.)
  - Potentially Hazardous Biological Agents Risk Assessment Form (5A)
  - 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)
  - The following are exempt from prior review but require a Risk Assessment Form 3: projects involving protists, archae and similar microorganisms, for projects using manure for composting, fuel production or other non-culturing experiments, projects using color change coliform water test kits, microbial fuel cells, and projects involving decomposing vertebrate organisms.
- Hazardous Chemicals, Activities and Devices** (No SRC prior approval required, see full text of the rules.)
  - Risk Assessment Form (3)
  - Qualified Scientist Form (2) (required for projects involving DEA-controlled substances or when applicable)
- Other**
  - Risk Assessment Form (3)

I attest to the information checked above and that I have read and agree to abide by the science fair ethics statement.

Adult Sponsor's Printed Name \_\_\_\_\_ Signature \_\_\_\_\_ Date of Review (mm/dd/yy) \_\_\_\_\_  
Phone \_\_\_\_\_ Email \_\_\_\_\_

International Rules: Guidelines for Science and Engineering Fairs 2020-2021. [www.science.org/ISEF2021](http://www.science.org/ISEF2021) Page 37

**b. Student Checklist (1A)**

The Team Leader completes this for a team project.  
List home address(es) where your team will do its experimentation.

**Student Checklist (1A)**  
This form is required for ALL projects.

1. a. Student/Team Leader: \_\_\_\_\_ Grade: \_\_\_\_\_  
 Email: \_\_\_\_\_ Phone: \_\_\_\_\_  
 b. Team Member: \_\_\_\_\_ c. Team Member: \_\_\_\_\_
2. Title of Project: \_\_\_\_\_
3. School: \_\_\_\_\_ School Phone: \_\_\_\_\_  
 School Address: \_\_\_\_\_
4. Adult Sponsor: \_\_\_\_\_ Phone/Email: \_\_\_\_\_
5. Does this project need SRC/IRB/IACUC or other pre-approval?  Yes  No Tentative start date: \_\_\_\_\_
6. Is this a continuation/progression from a previous year?  Yes  No  
 If Yes:  
 a. Attach the previous year's  Abstract and  Research Plan/Project Summary  
 b. Explain how this project is new and different from previous years on  Continuation/Research Progression Form (7)
7. This year's laboratory experiment/data collection:  
 \_\_\_\_\_  
 Actual Start Date: (mm/dd/yy) \_\_\_\_\_ End Date: (mm/dd/yy) \_\_\_\_\_
8. Source of Data:  
 Collected self/mentor  Other Describe/url: \_\_\_\_\_
9. List name and address of all non-home and non-school work site(s):  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone/ email: \_\_\_\_\_
10. Complete a Research Plan/Project Summary following the Research Plan/Project Summary instructions and attach to this form.
11. An abstract is required for all projects after experimentation.

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**Research Plan/Project Summary Instructions**  
A complete Research Plan/Project Summary is required for ALL projects and must accompany Student Checklist (1A).

You may leave the Instructions sheet that is attached to this PDF.



**Approval Form (1B)**  
A completed form is required for each student, including all team members.

1. To Be Completed by Student and Parent
  - a. Student Acknowledgment:
    - 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 this research.
    - I have read and will abide by the science fair ethics statement.

Student researchers are expected to maintain the highest standards of honesty and integrity. Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include but are not limited to 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 and ISEF.

Student's Printed Name	Signature	Date Acknowledged (mm/dd/yy) <small>(Must be prior to experimentation.)</small>
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  - b. Parent/Guardian Approval: I have read and understand the risks and possible dangers involved in the Research Plan/Project Summary. I consent to my child participating in this research.

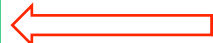
Parent/Guardian's Printed Name	Signature	Date Acknowledged (mm/dd/yy) <small>(Must be prior to experimentation.)</small>
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2. To be completed by the local or affiliated Fair SRC  
(Required for projects requiring prior SRC/IRB APPROVAL. Sign 2a or 2b as appropriate.)

<ol style="list-style-type: none"> <li>a. Required for projects that need prior SRC/IRB approval BEFORE experimentation (humans, vertebrates or potentially hazardous biological agents).</li> </ol> <p style="font-size: x-small; margin-top: 5px;">The SRC/IRB has carefully studied this project's Research Plan/Project Summary and all the required forms are included. My signature indicates approval of the Research Plan/Project Summary before the student begins experimentation.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; border-bottom: 1px solid black;">SRC/IRB Chair's Printed Name</td> <td style="width: 20%; border-bottom: 1px solid black;">Signature</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Date of Approval (mm/dd/yy) <small>(Must be prior to experimentation.)</small></td> <td></td> </tr> </table>	SRC/IRB Chair's Printed Name	Signature	Date of Approval (mm/dd/yy) <small>(Must be prior to experimentation.)</small>		<p style="text-align: center; font-weight: bold; font-size: small;">OR</p> <ol style="list-style-type: none"> <li>b. Required for research conducted at all Regulated Research Institutions with no prior fair SRC/IRB approval.</li> </ol> <p style="font-size: x-small; margin-top: 5px;">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 (IC) and any required institutional approvals (e.g. IACUC, IRB).</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; border-bottom: 1px solid black;">SRC Chair's Printed Name</td> <td style="width: 20%; border-bottom: 1px solid black;">Signature</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Date of Signature (mm/dd/yy) <small>(Not on other experimentation)</small></td> <td></td> </tr> </table>	SRC Chair's Printed Name	Signature	Date of Signature (mm/dd/yy) <small>(Not on other experimentation)</small>	
SRC/IRB Chair's Printed Name	Signature								
Date of Approval (mm/dd/yy) <small>(Must be prior to experimentation.)</small>									
SRC Chair's Printed Name	Signature								
Date of Signature (mm/dd/yy) <small>(Not on other experimentation)</small>									
3. Final ISEF Affiliated Fair SRC Approval (Required for ALL Projects)
 

SRC Approval After Experimentation and Before Competition at Regional/State/National Fair  
I certify that this project adheres to the approved Research Plan/Project Summary and complies with all ISEF Rules.

Regional SRC Chair's Printed Name	Signature	Date of Approval (mm/dd/yy)
State/National SRC Chair's Printed Name <small>(where applicable)</small>	Signature	Date of Approval (mm/dd/yy)

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**c. Approval Form (1B)**

Required for each member of a team, with signatures dated prior to experimentation.

d. **Student Permission and Hold Harmless Agreement** - required for each member of a team

**Santa Clara Valley Science & Engineering Association  
Student Permission and Hold Harmless Agreement**

I, \_\_\_\_\_, as the parent/guardian of \_\_\_\_\_, approve my child's participation in the Santa Clara Valley Science & Engineering Fair (Synopsis Championship), and assume responsibility for the oversight of the scientific research conducted by my child in association with the teachers/mentors as listed in my child's application packet.

I understand the Synopsis Championship is affiliated with the International Science & Engineering Fair (ISEF), and that the ISEF rules, which are publicly available from the ISEF webpage, <https://www.societyforscience.org/isef/international-rules/>, apply fully to the Synopsis Championship competition. My child and I are fully responsible for reading, understanding and adhering to the ISEF rules. Failure to comply will result in rejection of my child's science project application and/or disqualification of the child's project entry at the actual event even if the application was approved.

I understand that Synopsis Championship high school division grand prize winners are invited to compete at the ISEF and that middle school grand prize winners can compete at the California Science & Engineering Fair (CSEF).

I agree to hold harmless the Synopsis Silicon Valley Science & Technology Outreach Foundation, Santa Clara Valley Science & Engineering Fair Association and their employees, agents and contractors against any liability and any claims resulting from my child's participation in the Synopsis Championship, and the subsequent CSEF and ISEF events.

Date: \_\_\_\_\_ Parent/Guardian Signature: \_\_\_\_\_

Note: Submission of this permission and hold harmless form, along with the required application packet and processing fee, does not connote acceptance of your child's project for the Synopsis Championship. Your child will be officially notified regarding his/her project acceptance (after review and approval of the application) by a posting of the word 'Approved' on the website, [www.science-fair.org](http://www.science-fair.org), (where the project will be listed by teacher). Please use the Project Status link on the SCVSEFA homepage. The application processing fee is NOT refundable.

Synopsis Championship 2021 rev. 8/8/2020

e. **Photo/Video/Website/Media Release Form** - required for each member of a team

Check ONE box



**Photo/Video/Website/Media Release Form  
Santa Clara Valley Science & Engineering Fair Association**

Dear Parent/Guardian:  
On occasion, representatives from the media or the Santa Clara Valley Science & Engineering Fair Association wish to photograph, video record, and/or interview students in connection with their participation in the Science and Engineering Fair. Educating the public is one of our organization's objectives. The entire community benefits from knowing about the needs and abilities of our students and about the program we offer to students and families in Santa Clara County.

In order to release student photos, video footage, comments and/or post on the Science Fair web site or in brochures and fundraising materials, we need written permission. To give your consent, please complete the form below and submit it with your student's science fair application.

I, \_\_\_\_\_ parent/guardian of \_\_\_\_\_

give my permission or  DO NOT give my permission

for my child to be photographed, recorded on video, and/or interviewed by representatives from the media or the Santa Clara Valley Science & Engineering Fair for the purpose of publicizing the Science & Engineering Fair.

I authorize the use and reproduction by the Santa Clara Valley Science & Engineering Fair Association or anyone authorized by SCVSEFA of any and all photographs and/or video recordings taken of my child, without compensation to me/my child or other family members. All of these photographs/video recordings shall be the property, solely and completely, of the Santa Clara Valley Science & Engineering Fair Association. I waive any right to inspect or approve the finished photographs/video recordings, and the sound track, script or printed matter that may be used in conjunction with them.

Parent/guardian signature: \_\_\_\_\_ Date: \_\_\_\_\_

I am 18 years of age or older and I give my consent without reservations to the foregoing on my own behalf.

Student signature: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

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f. **Ethics Statement** – required for each team member.

**Synopsys Santa Clara Valley Science and Engineering Championship**  
**SRC Ethics Statement - from SSP/Regeneron ISEF Rules for All Projects**  
<https://www.societyforscience.org/isef/international-rules/rules-for-all-projects/#ethics>

**Ethics Statement**  
 Student researchers, as well as adults who have a role in their projects, are expected to maintain the highest ethical standards. These include, but are not limited to:

- **Integrity.** Honesty, objectivity, and avoidance of conflicts of interest are expected during every phase of the research. The project should reflect independent research done by the student(s), and represent only one year's work.
- **Legality.** Compliance with all federal, country, state and local laws is essential. All projects must be approved by a Scientific Review Committee (SRC), and when necessary must also be approved by an Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), and/or Institutional Biosafety Committee (IBC).
- **Respect for Confidentiality and Intellectual Property.** Confidential communications, as well as patents, copyrights, and other forms of intellectual property must be honored. Unpublished data, methods, or results may not be used without permission, and credit must be given to all contributions to research.
- **Stewardship of the Environment.** It is the responsibility of the researcher(s) and the adults involved to protect the environment and its organisms from harm. All projects involve some amount of risk. Everyone is expected to recognize the hazards, assess the risks, minimize them, and prepare for emergencies.
- **Animal Care.** Proper care and respect must be given to vertebrate animals. The guiding principles for the use of animals in research includes the following "Four R's": Replace, Reduce, Refine, Respect.
- **Human Participant Protection.** The highest priority is the health and well-being of the student researcher(s) and human participants.
- **Potentially Hazardous Biological Agents (PHBAs).** It is the responsibility of the student and adults involved in the project to conduct and document a risk assessment, and to safely handle and dispose of organisms and materials.

**Rule #2 from SCVSEFA Rules** [https://science-fair.org/rules-and-requirements/](https://science-fair.org/rules-and-requirements/requirements/)  
 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 and ISEF. SCVSEFA and the Society for Science and the Public reserve the right to revoke recognition of a project subsequently found to have been fraudulent.  
*Students who have their projects removed from competition for fraud or misconduct may not enter the Synopsys Championship the following year.*

I have read and I understand the SCVSEFA/ISEF Ethics Statement.

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Synopsys Championship rev. 10/5/20

g. **Research Plan**

Review SCVSEFA's [Research Plan Instructions](#) and [Minimum Quality Requirements](#).

Depending on your project, download and complete a Research Plan that's appropriate for your project: [Science Research Plan](#), [Engineering Research Plan](#) or [Product Testing Plan](#). You may also need the [Human-Participants Research Plan](#) if you plan to test your engineering project using people.

**Science Research Plan**

Science Project Detailed Research Plan Page 1 of 2

**Science Project Detailed Research Plan**

Please complete the information/questions begun/seen below in red ink. Save this document to your computer, and add a printed hardcopy to your application.

Date: \_\_\_\_\_  
 Student Name: \_\_\_\_\_

**Project Title:** (What is the effect of XXXX (changing variable) on YYYYY (your measured end point)? Choose a title that identifies the purpose of your project. The title can include the nature of the study, the species used, and the place of field studies. It should reflect the principal objective of the investigation.

**My project Title is:** \_\_\_\_\_

**Hypothesis:** Based on your reading and information research, organize everything you have discovered, and then make an estimate of what will happen. Knowing certain things are true, you then predict what might happen if you change something. Your experiment, when successful, will allow you to determine if your hypothesis was correct or not.

**My project Hypothesis is:** \_\_\_\_\_

**Materials:** List all necessary biological agents, chemicals, reagents, major instruments, and software which will be used.

**My project Materials are listed below:** \_\_\_\_\_

**Methods:** Describe the general methods to be used, and why are you using the methods you have chosen? Why have you chosen the described controls? Examples would be spectroscopy, photometric methods, direct measurement, volume displacement, voltage, energy output, etc. **WHAT IS YOUR MEASURED END POINT(S)?**

**My general project methods are:** \_\_\_\_\_

**Detailed Experimental Procedure:** State your DETAILED methods, so that others could repeat your work exactly. Include details, giving exact specifications and quantities. Your apparatus will describe how you plan to do your experiment, changing only one variable at a time and keeping all the other parameters the same. Describe your control so that you can compare results of your experiment with a standard for which the variable is unchanged. Make sure that you have three or more seed/participants/animals in each of the control and experimental groups. Even better, have several experimental groups (e.g., more than one concentration of chemical you are testing, more than one time point, etc.) Make measurements in metric units when possible. Repeat the test more than once to see if your results are reproducible.

**My DETAILED project methods are:** \_\_\_\_\_

**Methods of Data Collection:** If you used a published method, reference the method, but describe any changes you made to it. If you used experimental organisms, identify them by genus and species. If you used a standard instrument, it suffices merely to name it, but if you devised a new or special method, describe it completely.

**My project uses the following method of data generation:** \_\_\_\_\_

**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 web site: www.urlname.ext, name of topic from the home page, author, and date read.

Science Project Detailed Research Plan Page 2 of 2

**My bibliographic references are the following:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



# Engineering Research Plan

Detailed Research Plan Page 1 of 2

**Engineering Project Detailed Research Plan**

Please complete the information/questions begun/seen below in red ink. Save this document to your computer, and add a printed hardcopy to your application.

Date:  
Student Name:  
Project Title:

Parts of the generic engineering project are listed below with descriptions to the students in the boxes. Students may provide a detailed research plan by describing their specific project in response to each box below.

**Engineering Goal:** PROBLEM BEING ADDRESSED: All engineering projects solve a problem or fill a need. This goal should be a simple statement that describes the product being designed, the customer or need it satisfies. Example: "The goal is to design a solar powered lawn mower for inexpensive automated lawn care for homeowners"

**My Project Goal is:**

**Design Criteria:** Design criteria define the product's required performance. Examples: "It will have a minimum speed of 10 KPH". The output will be within 15% of the mean of the experimental data". "It must withstand 15 repetitions of a 10N impact". The International System of units (SI) required.

**My Project Design Criteria are the following:**

**Constraints:** Constraints are factors that limit the engineer's flexibility such as size, cost, and time limitations. Examples: "It must fit in a box no larger than 10x20x50 cm" "The maximum cost is \$50" "The software must run in real time on a Raspberry Pi"

**My Project Constraints are the following:**

**Provide your chosen design.** For hardware, provide a sketch. For software, provide a flowchart. Indicate the components you will develop, and the libraries you are using.

**My Project Design is shown below: insert photos, diagrams, or illustrations below.**

7/31/17

Detailed Research Plan Page 2 of 2

**Test and evaluate your prototypes against the design criteria listed above to show how well the product meets the need/goal.** Provide a test plan describing how you will test the design criteria and constraints you listed above. How will you analyze the data? If the product requires human testing please fill out and append <https://science-fair.org/wp/wp-content/uploads/2015/10/Research-Plan-Human-Participants.docx>

**I test and analyze my prototypes using the following methods:**

**Bibliography:** List at least five (5) major references (e.g. science journal articles, books, internet sites & dates of review) from your literature review. If you plan to use vertebrate animals, one of these references must be an animal care reference.

- 1.
- 2.
- 3.
- 4.
- 5.

# Product Testing Plan

Product/Process Detailed Research Plan GRADES 6-8 ONLY Page 1 of 2

Please complete the information/questions begun/seen below with red ink. Save this document to your computer, and add a printed hardcopy to your application.

Date:  
Student Name(s):  
Project Title:

**Project Question:** The question should address the comparison of at least 3 (4 in grade 8) materials/ products/ reagents, methods or conditions (for ex. different temperatures) in order to figure out which of the 3-4 comparators is the most effective or the best as determined by a quantifiable (measurable) end point(s). (Sample Question: Which purification technique is the most effective in purifying tap water?)

**My project addresses the following question:**

**Rationale for the Study or Experiment:** Why did you choose this project? (Give a very brief summary of the research leading to the project or question.)

**I chose this project because:**

**Hypothesis:** Based on your literature research, of all available information on this subject make a prediction on what will be best of the 3 or 4 comparators you are studying and the reason why you think so. (Sample hypothesis: If UV destroys bacteria best, then the UV purification method will purify water the best). Use an "If.... then...." statement.

**My project hypothesis is:**

**Materials:** List of specific biological agents, chemical reagents, instruments, software, etc. along with the source from where they will be obtained.

**My project uses the following list of materials:**

**Experimental Methods/ Procedures:**  
Procedure (step-by-step procedure with details including exact specifications and quantities).

- Your plan should clearly state which 1 variable you are changing and which ones you are keeping constant (only 1 variable should be changed at a time).
- Clearly define a control experiment (where the variables are unchanged) to which to compare the results from your experiments.
- Have a minimum of 3 products/processes (grades 6-7), or 4 products/processes (for grade 8) for comparison.
- The entire experiment must be done at least two times, preferably 3 times, to ensure the repeatability of the results.

Product/Process Detailed Research Plan GRADES 6-8 ONLY Page 2 of 2

Answers to the following questions will help you describe your methods and Procedures.

**Product/ Processes being compared:** (list 3 for grades 6-7, or 4 for grade 8) -  
**My project compares the following products/processes:**

- 1.
- 2.
- 3.
- 4.

**Control(s)** = constant conditions of experiment (examples are temperature, time, soil type, current, etc)-  
**My project Control is:**

**Variables** =parameters of the experiment which will be changed (one at a time) to assess the "best" or "more efficient" products or processes-  
**My project variables are:**

**Endpoints** = what parameters will be measured to prove one product/process better than another? (examples are distance, length, volume, mass, speed, wavelength, power output, etc. or any of the above parameters per unit of cost). Include the units by which the endpoint is measured (samples are **cm(length)**, **squared cm (area)**, **cubic cm (volume)**, **degrees, watts, days, etc.**)

**My project endpoints are:**

**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 web site: [www.website.com](http://www.website.com), name of topic from the home page, author, and date used.

**My project bibliographic references are:**

- 1.
- 2.
- 3.
- 4.
- 5.

## Step 3 (continued): Download and fill in Additional Forms

Use your teacher/sponsor's Form 1 check list as a guide to the forms you may need.

The [ISEF Rules Wizard](#) is also a good guide.

### Additional Forms

Some projects require additional forms. How do you know if yours does? The [Checklist for Adult Sponsor \(1\)](#) lists when you will need to use additional forms, such as 1C, 2, 3, 4, 5A, 5B, 6A, 6B, and 7. The [ISEF Rules Wizard](#) can also help.

If an additional form is required, download it from [Additional Forms](#), fill it in and, if necessary, have it signed. When your application is reviewed, the Science Review Committee will notify you if other forms are needed.

Pay attention to signature dates – some must precede experimentation.

In the case of a form that requires multiple signatures, you may submit multiple, signed copies.

Most of these forms, like the frequently-used Risk Assessment Form (3), require at least one signature.

**Risk Assessment Form (3)**  
Must be completed before experimentation.

Student's Name(s) \_\_\_\_\_  
Title of Project \_\_\_\_\_

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**To be completed by the Student Researcher(s) in collaboration with Designated Supervisor/Qualified Scientist:** (All questions must be answered; additional page(s) may be attached.)

- List all hazardous chemicals, activities, or devices that will be used; identify microorganisms exempt from pre-approval (see Potentially Hazardous Biological Agent rules).  
\_\_\_\_\_
- Identify and assess the risks and hazards involved in this project.  
\_\_\_\_\_
- Describe the safety precautions and procedures that will be used to reduce the risks.  
\_\_\_\_\_
- Describe the disposal procedures that will be used (when applicable).  
\_\_\_\_\_
- List the source(s) of safety information.  
\_\_\_\_\_

**To be completed and signed by the Designated Supervisor (or Qualified Scientist, when applicable):**  
I agree with the risk assessment and safety precautions and procedures described above. I certify that I have reviewed the Research Plan/Project Summary and the International Rules, including the science fair ethics statement and will provide direct supervision.

Designated Supervisor's Printed Name _____	Signature _____	Date of Review (mm/dd/yy) _____
Position & Institution _____	Phone or email contact information _____	
Experience/Training as relates to the student's area of research _____		

Page 30 International Rules: Guidelines for Science and Engineering Fairs 2020-2021, [societyforscience.org/ISEF2021](http://societyforscience.org/ISEF2021)

SRC may request a Form 2 to be filled out by your supervisor/mentor.

## Step 4: Upload completed forms to your Forms Folder

Follow the directions and links on your Project Page to drag and drop your completed forms into your Forms folder.

### Step 4: Upload Your Completed Forms to Your Forms Folder

After you have filled in your forms, you will upload the signed, completed forms to Your Forms Folder, including:

- Your bar-coded Project Application Form, using a file name that includes your Project Code, e.g. C12-Page1.pdf
- 7 required forms (1, 1A, 1B, Permission, Media Release, Ethics, Research Plan), similarly named, e.g. C12-Plan.pdf
- Additional forms, as required, e.g. C12-1C.pdf

The link to Your Forms Folder is below. This is your own folder.

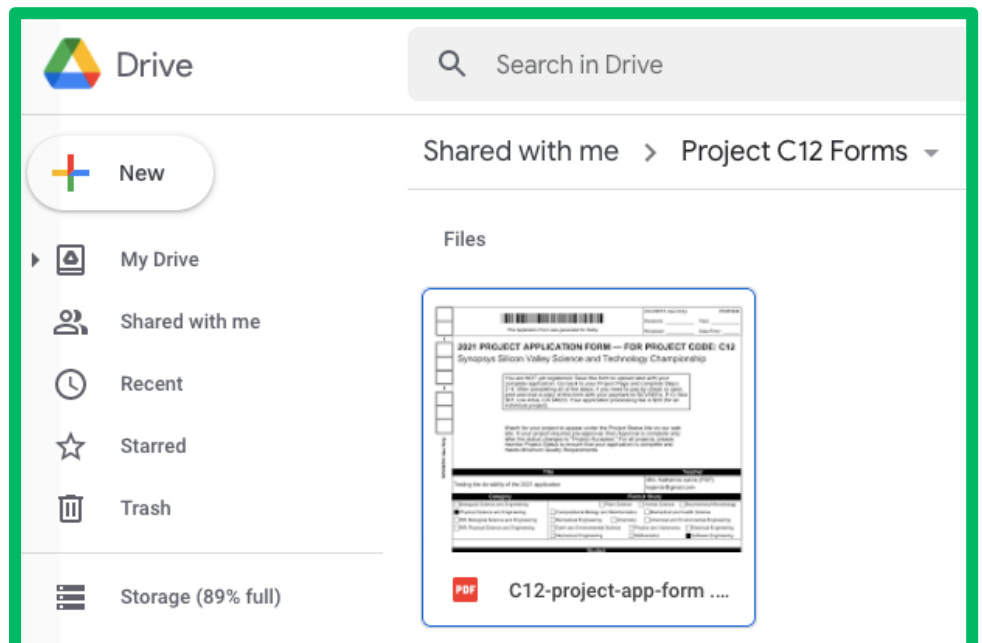
Your Forms Folder:

[your folder link will appear here]

**Do not share this link with anyone except your team members.** The folder contains information about you and your project.

Go to Your Forms Folder. Upload your completed and signed forms by dragging and dropping the files into your open Forms Folder. **Note: after uploading your forms, they may not be visible in the Forms Folder until you refresh the browser page.**

- At this point you may want to grant access to your Forms Folder for your teacher or member(s) of your project team to upload forms.
- Use the people-plus icon, add their email addresses and make them Editors.
- Rename their documents, as needed, to include the Project Code and team member's initials.



## Step 5: Pay and Submit

- Wait until all the forms have been uploaded, especially Form 1 signed by your teacher/sponsor.
- PayPal will notify SCVSEFA that a payment has been made.
- “Pay with Cash or Check” applies if you, your school or another organization will pay by US mail.
- SCVSEFA appreciates timely payment but will not hold up an application until the fee is received.
- Your teacher will let you know if you should use a voucher code instead of paying SCVSEFA yourself.
- “Other” is a way to advise us of a special circumstance regarding payment.


### Step 5: Pay and Submit

- Have you finished filling in your forms?
- Have they been signed?
- Have you uploaded the signed forms into [Your Forms Folder](#)?

If you have uploaded all of your forms to your Forms Folder, then you are ready to Pay and Submit. Do not pay until after you have uploaded all of the necessary forms.

**The application processing fee is \$20 for an individual project or \$30 for a team project.**

**Submit your application by Nov 30, 2020 for projects that need SRC pre-approval and by Jan 25, 2021 for all other projects.**

<p><b>Pay With PayPal</b></p> <p>Process Forms for Individual Project C12</p> <p><a href="#">Pay Now</a></p> 	<p><b>Pay With a Voucher</b></p> <p>Process Forms for Individual Project C12</p> <p>Voucher Code <input type="text" value="voucher code"/></p> <p><a href="#">Use Voucher</a></p>
<p><b>Pay With Cash or Check</b></p> <p>After uploading all of your forms into <a href="#">Your Forms Folder</a>, mail a printout of your <a href="#">Project Application Form</a> along with cash or check to</p> <p><b>SCVSEFA PO Box 307 Los Altos, CA 94023</b></p>	<p><b>Other</b></p> <p><a href="#">Contact the Fair Manager</a></p>

## Step 6: Check Project Status

- SCVSEFA does not send email when projects are accepted or approved. You need to **Check Project Status** using the link on the SCVSEFA home page.
- **If your project requires pre-approval, watch for its status to change to Project Accepted before you begin experimentation.**
- For all projects, monitor Project Status to ensure that your application is complete and meets Minimum Quality Requirements.
- If your project is Pending, Incomplete or Not Qualified, check with your teacher and watch your email for a message from the SRC.
- If your project is not on the list, send a message to Fair Administration or SRC via the [Contact Page](#).

The image shows a screenshot of the SCVSEFA website's navigation menu. The menu is organized into three sections. The first section, on a dark blue background, lists: Home, About, Fair Week, Rules & Registration, Students, Teachers, Judges, and Volunteers. The second section, on a medium blue background, is titled 'QUICK LINKS' and lists: Application Instructions, Online Registration, Required Forms, and Additional Forms. The third section, on a light grey background, contains a single green button with a white checkmark icon and the text 'Check Project Status'. A red oval highlights this button, and a red arrow points from the text 'Check Project Status' in the first bullet point of the text on the left to this button.