Liberty Elementary

Science & Engineering Project

2022-2023

Student's Guide to Science and Engineering Fair

What is a science project?
A science project is an active "fun" approach to science, something you do rather than something you only read about or watch someone else do.
A science project is an investigation of a question about a science topic that interests you. The difference between this kind of project and other ways of working on a problem is the use of a systematic plan called the Scientific Method, or the Engineering & Design Process.

What is the Scientific Method?
The Scientific Method is a way of working on a problem using a series of related steps. In brief, these steps are as follows:

Step 1: Identify and state the problem (usually as a **question**) and purpose of the investigation.

Step 2: **Research** the question - find out what is already known about the problem from reading and talking to experts. This gives you a place to start and helps ensure your project is original.

Step 3: Form a **hypothesis**- write a statement expressing your predicted answer to your research questions. Include the research that led you to form this statement.

Step 4: Plan an **experiment** that will test your hypothesis. Your experiment should compare a control group or situation with a test group or situation. Describe how you will do the experiment (your procedure or **method**). List your **materials**. The order in which you do the procedure is called your protocol.

Step 5: Do the experiment. Record all your information, observations, measurements, charts and graphs in a **journa**l. Display your **data** as graphs, histograms, and data tables.

Step 6: State your **conclusion**— tell what happened in the experiment, whether your experiment supported or refuted the hypothesis. Tell what you learned.

Selecting a Project Topic

Selecting a project often appears to be a difficult task. Fortunately, projects do not need to be highly complex in order to be successful. When choosing your subject, pick a question that interests you, as you may be working on it for a while! If you are more interested in building something that can solve a problem, read the information on Engineering Projects.

- Look at the world around you
- Hobbies
- Something that bothers you and can be changed
- Something that can improve the world

Find subjects that interest you and start to formulate questions about them. Narrow the questions down to something you might be able to investigate within a few months.
If you need ideas for science projects here are some suggestions:

For inspiration, check out a web site like:

- http://www.sciencebuddies.org/ - The ScienceBuddies.org website has a worksheet which suggests projects based on your expressed interests.
- http://www.societyforscience.org/ISEF/
- http://ei.cornell.edu/student/
- http://science.howstuffworks.com/
- http://www.TryEngineering.org

However, do not copy projects or only make minimal changes to a project. Your project should be **original.**

Make sure your project is not a demonstration. You should be able to identify the variables that you will test and be able to record quantitative data. Also remember sample size is important; is this a project you will be able to do multiple times to gather enough data to make your findings reliable?

ENGINEERING AND INVENTION PROJECTS GUIDE

The Engineering Design Process is different from the Scientific Method. Instead of testing a hypothesis, students test a design created to meet a specified need. The Engineering & Design Process is more cyclical than the Scientific Method, which can be linear. The main components of the Engineering & Design Process are:

1. Define a need (what, for whom, why)
2. Establish criteria and constraints
3. Research, evaluate alternatives, test plan
4. Construct a prototype
5. Test against established criteria
6. Failure analysis, improve design, and re-test
7. Final documentation

Minimum Quality Standards

Types of Science Fair Projects:

Science Project: investigates the effects of changes or answers the question "Why?" using scientific procedures/protocols in the solution of a clearly defined problem (including background study, organized procedures, appropriate sampling, orderly recording and analysis of data, and the formation of logical conclusions).

Engineering Project: The project has a clear objective relevant to the needs of the potential user. The product, or process, has been tested and is both workable and feasible economically and ecologically. It solves a need, or problem, and includes measurements of success.

Mathematics and Computer Project: The project has a clear objective and has been thoroughly tested and the process is well documented to both practical and workable outcome(s).

Demonstration Project: shows how something works [NOT accepted at the fair].

Science Inquiry Project - Minimum Requirements

1. Researcher defines a testable question that begins with "Why… or What is effect of a change in X on Y? (for example, What is the effect of a change in the river current flow rate on salmon migration and spawning rates?).
2. Bibliography includes references from your literature research.
3. Hypothesis is based on library research and knowledge. The hypothesis is the researcher's best estimate of what will happen.
4. Experimental design
    - Describe and set up a control (a "standard" group) to which all test groups will be compared.
    - Describe the test groups where only one variable in each test group differs from the "control" group. Each test group can use a different test variable such as a different % test solution per group. Each variable should be decided upon using good logic.
    - Describe the measurable endpoint(s). The endpoints (or outcomes), determined for each test group, are the quantitative measurements required by the objectives.
    - Each test group should contain a minimum of 10 of the same type of objects being tested (seeds, plants, worms, etc.). A group size of *at least* 20 is required for projects with human participants.
    - Plan to change only one variable in each test cycle (trial). However, change the variable in several ways several concentrations of a chemical (1%, 3%, etc.), several temperatures, or several time points (5 minutes, 10 minutes, etc.).
    - Quantitative data (numerical) only. Not qualitative (descriptions e.g. color, smell etc.).
    - Report measurements in metric units when possible.
    - Repeat the test a minimum of 5 times to see if your results are reproducible.

Engineering Project - Minimum Requirements

1. Clearly define the problem or need the engineering project will solve.
2. Establish criteria and design constraints
    - Physical and functional characteristics of the design (shape, weight, etc.).
    - Design constraints/limitations (cost, time, available materials, etc.).
3. Research, evaluate alternatives, test plan
4. Construct a prototype or computer model etc.
5. Test against established criteria
6. Failure analysis, tweak, and re-test as many times as possible
7. Final documentation
8. Include bibliography from your literature research.

Product Testing Project *[Grades 4 - 5 only] *not allowed for grade 6 and above*

1. Clearly identify what kind of item (candles, hair products, etc.) you plan to test.
2. Define a test group of at least five (5) similar items
3. Include test criteria that:
   *Defines what will be measured.
   *Describes how you will take measurements.
   *Define criteria for changing qualitative measurements into quantitative measurements. Such as "on a scale of 10 = (cleanest is 10, moderately clean is 8, less than moderately clean is 6, not clean at all is 1.).
   An important first step in qualitative analysis and observer impression is to discover patterns. Try to find frequencies, magnitudes, structures, processes, causes, and consequences which can be changed to numerical data.
   *Report measurements in metric units, when possible.
   *Repeat the testing a minimum of 10+ times to see if the results are reproducible.

Demonstration Projects

Demonstration Projects are NOT accepted at the science fair because they only show or explain how something works. **However** - think about what interests you about your demonstration project?

Can you channel your interest into a Science, Engineering, Human Subjects or Product Testing project? **For instance,** if you were planning to build a robot from a kit that when built according to the directions will be able to bounce a ball - You could change it up by building the robot BUT reprogram it so instead of bouncing a ball it does something else not intended by the kit.

Ask your teacher or adult mentor for help in converting a demonstration project into a science or engineering project.

CVUSD Project Display Information

REQUIRED Items:

I. Project Presentation

a. You will give a presentation in-class to your classmates and teacher.

II. A Backboard, Digital Quad Chart, or .pdf of an actual backboard

a. The quad chart summarizes the project in a single page for a quick overview by the judges.
b. Please see complete instructions with format requirements and recommendations, as well as sample templates on the last pages.

III. Abstract (Grade 6 only)

a. 250 word maximum
b. Should include purpose, procedure, data, conclusions

IV. Research

This page represents research conducted by the student(s) about the Science Project topic. The research is designed to help students better become experts at explaining why their hypotheses are true or false. Research should be from valid sources. Students should compare multiple texts to validate accuracy of information.

The information should be in the students' own words. Here are some examples of how the Science Topic is connected to the research conducted.

Science Fair Topic	**Research**
What is the best light source for plants to grow?	Research what plants need to grow; the photosynthesis process.
What materials are best to keep people cool?	Research heat absorption or reflection of different colors and fabrics.
What fruit makes the best conductor of electricity?	Research how the fruit's structure helps it be a conductor. How electricity travels through different substances.
Does salt water heat up quicker than non-salt water?	Research solutions and the properties of solutions; how salt affects temperature.

Students may conduct research through: Internet, books, interviews, etc… The research should be related to your experiment topic as illustrated above. The research should be accompanied by a bibliography of sources used.

(***Note: Do Not place articles and print outs from Internet Web pages in your research. Students need*** **to read those items and synthesize the information into their own words.)**

V. Lab Notebook Image/Journal

The science journal should include the data you collected while conducting the experiment. It should include dates and times you performed each of the steps in your experiment. **All measurements should be recorded in metric form (millimeters, centimeters, liters etc**.)

The journal/notebook should include drawings, diagrams, designs, etc. used to organize your experiment. A photo could be uploaded as an image of the journal.

Audio Visual Presentations/Photographs

Any photograph/visual image/chart/table and/or graph is allowed if:

1. It is not deemed offensive or inappropriate. The decision made is final.
2. It has a credit line of origin ("Photograph taken by…" or "Image taken from…" or "Graph/Chart/Table taken from…"). (If all images, etc. being displayed were taken or created by the student or are from the same source, one credit line prominently and vertically displayed is sufficient.)
3. It is from the Internet, magazine, newspaper, journal, etc., and a credit line is attached. (If all photographs, etc. are from the same source, one credit prominently and displayed is sufficient.)
4. It is a photograph or visual depiction that does not provide any public disclosure or identifying information of human subjects, regardless of the method or modality of that public disclosure (i.e., pictures, videos, etc.). Human participants and the project researcher must have their faces covered.

Items/Materials Not Allowed on Quad Chart/Display Board

Any items that are acknowledgements, self-promotions or external endorsements *(such as naming the research institution, mentor or patent pending statements)* and/or are intended for distribution including:

1. The use of logos including known commercial brands, institutional crests or trademarks, unless integral to the project and approved by CVUSD.
2. Personalized graphic/logo that is developed to indicate a commercial purpose or viability of an established or proposed business associated with the project, unless student-created in which it can be displayed on the board only once.
3. Any reference to an institution or mentor that supported research.
4. Any reference to patent status of the project.
5. Postal addresses, World Wide Web, email and/or social media addresses, QR codes, telephone and/or fax numbers of a project or student.
6. Awards won in previous competitions.

7. Active Internet or email connections as part of displaying or operating the project.

Digital Presentation Instructions (no backboard or physical notebook/journal)

You may prepare your presentation using any software tools that you desire, but the final document submitted for display to the judges and the public must satisfy the following requirements.

Format Requirements

1. The Project Presentation must be a single PDF document limited to no more than 12 pages.
2. You must use a page size no larger than either American standard 8½"X11" or European standard A4.
3. The PDF document must open with default magnification "Fit Page" so that **the entire page is visible at the same time**. Recognizing that almost all judges will view your presentation on screens that are wider than they are tall, you should create all pages in Landscape mode.
4. Your PDF document must not have instructions to open in "full screen mode." Eliminating this mode automatically precludes page transitions and embedded videos or animations, so do not attempt to include these in your Presentation. (There is provision elsewhere in your submission for an optional video if you need something to move in order to illustrate your project.)
5. The page background color must be white.
6. Text color must be predominantly black, but limited color for emphasis is acceptable.
7. All text should be readable easily when viewing the entire page at once. The smallest allowable font size of body text is 14 pt. *Exception:* You may use a smaller font size, down to 10 pt., for figure captions or photo credits.

Format Recommendations:

1. Do not use non-standard fonts or colors to "stand out from the crowd" or to be entertaining. It is recommended that you use a font such as Arial, Calibri, Helvetica or Century Gothic.
2. Page titles should all be the same size. That size should be larger than headings within each page. In turn, headings should be larger than body text. For readability, we recommend body text be no smaller than 18 pt.
3. Avoid long expository paragraphs. State your points succinctly.
4. Use bullets to set out individual points of interest. Use numbered lists when the ordering of points of interest is important (*e.g.*, instructions to be followed in order, or items needing a reference anchor for citation elsewhere in your Presentation).
5. All body text should adopt a common font style and size. Similarly, all heading text should adopt a common font style and size. There is no recommendation for the style and size relation between body and heading text.

Project Presentation Templates

Choose one of the following templates to create your presentation. Do not include information not specified in this template. If you are submitting a continuation project, include only information related to this year's research unless otherwise directed in the

instructions below. You may include graphical elements as they would explain or illustrate your work and can be contained within the overall page limits.

Each of the seven (7) required sections in each template must start on its own page. Each section may use as many pages as you want, as long as all formatting instructions above (such as page count) are satisfied.

TEMPLATE I: Science Projects
TEMPLATE II: Engineering Projects

Project Presentation Template: **Science Project**

1. Project ID and Title
   - The following should be included:
     - Project Title
     - Finalist Name (s)
     - School(s)
     - City, State, Province, Country
2. What is your research question?
   - Explain what is known or has already been done in your research area. Include a brief review of relevant literature. If this is a continuation project, a brief summary of your prior research is appropriate here. Be sure to distinguish your previous work from this year's project.
   - What were you trying to find out? Include a description of your purpose, your research question, and/or your hypothesis.

3. Explain your methodology and procedures for carrying out your project in detail.
   - What did you do? What data did you collect and how did you collect that data? Discuss your control group and the variables you tested.
   - DO NOT include a list of materials.

4. What were the result(s) of your project?
   - Include tables and figures which illustrate your data.
   - Include relevant statistical analysis of the data.

5. What is your interpretation of these results?
   - What do these results mean? Compare your results with theories, published data, commonly held beliefs, and expected results.
   - Discuss possible errors. Did any questions or problems arise that you were not expecting? How did the data vary between repeated observations of similar events? How were results affected by uncontrolled events?

6. What conclusions did you reach?
   - What do these results mean in the context of the literature review and other work being done in your research area? How do the results address your research question? Do your results support your hypothesis?
   - What application(s) do you see for your work?

7. References
   - This section should not exceed one page. Limit your list to the most important references.
   - List the references/documentation used which were not of your own creation (i.e., books, journal articles).

Project Presentation Template: **Engineering Project**

1. Project ID and Title
   - The following should be included:
     - Project Title
     - Finalist Name (s)
     - School(s)
     - City, State, Province, Country
2. What is your engineering problem and goal?
   - What problem were you trying to solve? Include a description of your engineering goal.
   - Explain what is known or has already been done to solve this problem, including work on which you may build. You may include a brief review of relevant literature.
   - If this is a continuation project, a brief summary of your prior work is appropriate here. Be sure to distinguish your previous work from this year's project.

3. Explain your methods and procedures for building your design.
   - What did you do? How did you design and produce your prototype? If there is a physical prototype, you may want to include pictures or designs of the prototype.
   - If you tested the prototype, what were your testing procedures? What data did you collect and how did you collect that data?
   - DO NOT include a separate list of materials.

4. What were the result(s) of your project?
   - How did your prototype meet your engineering goal?
   - If you tested the prototype, provide a summary of testing data tables and figures that illustrate your results.
   - Include relevant statistical analysis of the data.

5. What is your interpretation of these results?
   - What do these results mean? You may compare your results with theories, published data, commonly held beliefs, and/or expected results.
   - Did any questions or problems arise that you were not expecting? Were these problems caused by uncontrolled events? How did you address these?
   - How is your prototype an improvement or advancement over what is currently available?

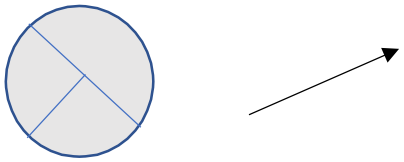
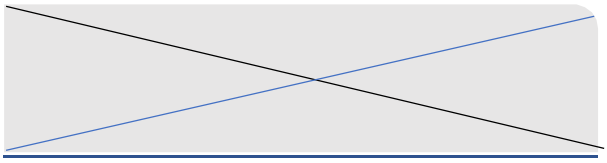
6. What conclusions did you reach?
   - Did your project turn out as you expected?
   - What application(s) do you see for your work?

7. References
   - This section should not exceed one page. Limit your list to the most important references.
   - List the references/documentation used which were not of your own creation (i.e., books, journal articles).

Quad Chart Instructions

A "quad chart" is a single page divided into four quadrants providing a high-level summary of the project. It is intended to be more visual than detailed in order to quickly introduce your judges to what is important about your project. Follow the model below that corresponds to the Project Presentation template you selected.

1. You must use a page size no larger than either American standard 8½"X11" or European standard A4.
2. The page background color must be white.
3. Text color must be predominantly black, but limited color for emphasis is acceptable.
4. The minimum allowable font size is 14 pt. *Exception*: You may use a smaller font size, down to 10 pt., for figure captions or photo credits.
5. All four quadrants of your Quad Chart should each be the same size with a single border line delimiting each, as in the examples below. The Title section should be only as tall as necessary to include your project title and other identifying information (see section on Quad Chart Title).
6. The Quad Chart should not include a bibliography, references, or acknowledgments.

Science Project Quad Chart	
Q1: Research Question • • • •	Q3: Data Analysis & Results 
Q2: Methodology • • • • • •	Q4: Interpretation & Conclusions • • • 

Engineering Project Quad Chart	
Q1: Engineering Problem & Project Objectives	Q3: Data Analysis & Results
Q2: Project Design	Q4: Interpretation & Conclusions

Quad Chart Title:

- Line one is the title of your project and Project Number
- Line two is your name, school, city, state, country

Quadrant 1: Research Question/Engineering Goal

- This should be a summary of material in #2 of the Project Presentation Template.
- Please state the research question or engineering problem being addressed
- A leading core graphic or visual is encouraged, but not required.

Quadrant 2: Methodology/Project Design

- This should be a summary of material in #3 of the Project Presentation Template.
- Please provide a succinct, bulleted summary of the methodology/project design

Quadrant 3: Data Analysis & Results

- This should be a summary of material in #4 and #5 of the Project Presentation Template.
- It is advised that this quadrant should primarily be a graphic representation of relevant data and results.
- Text should be kept to a minimum.

Quadrant 4: Interpretation & Conclusions

- This should be a summary of material in #5 and #6 of the Project Presentation Template.

In-Class Presentation

Here is your chance to tell your class about your project. Present your summary on the important points of your project. Be sure to present a clear and organized video.

During your presentation you might need to answer the following questions for your teacher and classmates:

1. Where did you get the idea for your project?
2. What interests you the most about the subject you chose?
3. Why is your project important in today's society? (How will it help people today?)
4. In general, what were your results and conclusions?

Here are additional questions you can answer within your presentation:

1. What special skills or equipment did you have to learn to use to develop your project?
2. What is special or distinctive about your project?
3. Explain briefly and simply the goal of your project.
4. Explain why you formulated your particular hypothesis.
5. Were you able to support your hypothesis? Explain.
6. What are some possible sources of error in your project?
7. If you were to do this again, what would you do differently?
8. Is there a practical application for the information you gained from this experiment? If so, what is it?
9. What problems did you encounter in developing and/or conducting your experiment? How did you overcome them?
10. In your research, what did you find that was already known about your project?
11. What resources did you use to acquire the information you needed to set up your project?
12. What questions, if any, were created as a result of your work?

13. What are the three most interesting things you learned when doing this project?

Judging Standards

1) Project Creativity - Originality of the problem, uniqueness of approach and interpretation of data should be commensurate with the student's grade level. Ingenious use of equipment and materials is considered regardless of the expense of the items involved.
2) Scientific Thought/Engineering Project Goals/Mathematics and Computer Project Goals
    a. Scientific Method/Process:
        i. The project shows depth of study and effort in employing scientific procedures/protocols in the solution of a clearly defined problem (including background study, organized procedures, appropriate sampling, orderly recording and analysis of data and the formulation of logical conclusions).
    b. Engineering Project Goals:
        i. The project has a clear objective relevant to the needs of the potential user. The product or process has been tested multiple times and is both workable and feasible economically and ecologically.
3) Thoroughness
    a) The study is complete within the scope of the problem. Scientific literature has been searched, experiments repeated, and careful records kept. And given credit when citation is needed.
4) Skills
    a) Credit is given for special skills needed for the construction or use of equipment and for mathematical, computational, observational, and design skills.
5) Clarity
    a) The purpose, procedures and conclusions are clearly explained orally and through the display. The DIGITAL RESEARCH NOTEBOOK is well organized, neat and accurate. Sources of ideas, data, and assistance are clearly identified.

Items to be judged:

1. Project Presentation (PowerPoint or Backboard)
2. Quad Chart/Display Board
3. Research
4. Lab Notebook/Journal (includes research, data, and scientific notes)
5. Project Abstract

Science & Engineering Fair Judging Guideline Descriptors – Combined

SCIENCE PROJECT CRITERIA	*ENGINEERING PROJECTS*
3 pts. - Clear & focused purpose	Describes a practical need or problem to be solved.
Student should indicate the rationale for their project that ideally serves some greater purpose. There should be a clear idea why the project is useful.	
3 pts. - Identifies contributions to field of study	Definition of criteria for proposed solution.
Should explain how the project further relates to an area of need or [Eng.] what their criteria for success is. How do they know that they've got the desired results?	
4 pts. - Testable using scientific method	Explanation of constraints. The project had a clear objective.
Is their methodology sound? Were all the parts of the scientific method evident? [Eng.] What constraints did the project work under. What did they have to account for?	
5 pts. - Well-designed procedure and data collection methods	Exploration of alternatives to answer need(s) or problem(s).
Did they collect data in a reasonably scientific way? Was it well thought out or haphazard? Did they collect appropriate scientific measurements and not opinions? [Eng.] Did they explore alternative solutions for their problem? Were there discussions of what other things they could have modified/changed to achieve a similar effect?	
5 pts. - Variables and controls are defined, appropriate, and complete	Solution is identified, and a prototype/model is developed
Did they define what they were trying to test? Did they test and/or measure too many things? [Eng.] Did they develop an actual prototype and determine a solution.	
5 pts - Systematic data collection and analysis	Prototype demonstrates intended design.
Was there sufficient data collected to support the conclusion? Was the data collected at appropriate intervals? Was it reviewed along the way? [Eng.] Did the prototype emulate the design as planned? Is it proportional? Does it model appropriately what was intended?	
5 pts - Reproducibility of results	Prototype has been tested in multiple conditions/trials.

Could this experiment be replicated getting similar results by someone else using their procedure? Are the instructions vague? [Eng.] Were there multiple trials or prototypes tested? Was the prototype tested under a variety of conditions where applicable?

5 pts - Appropriate application of mathematics and statistical methods	Prototype demonstrates engineering skills and completeness.

Was there any analysis of the data that was age appropriate (average, rate, trends, %, etc.)? [Eng.] Does the prototype show a degree of engineering skill or creative ideas/use of materials?

5 pts - Scientific/Engineering Journal to Adequately support the project and research	Scientific/Engineering Journal to adequately support the project and research.

Is there a journal to support that contains notes and data that support the intent of the project?

5 pts. - Project demonstrates significant creativity	Project demonstrates significant creativity .

How creative was it? Did the student reproduce something that has consistently been done over the years?

5 pts. - Logical organization of material	Logical organization of material.

Was the project well laid out? Did the presentation make sense? Could you easily follow along with their methodology?

5 pts. - Clarity of graphics and legends	Clarity of graphics and legends.

Were graphs and charts used appropriately? Are they labeled with appropriate measurements, titles, axis labels, etc.?

10 pts. - Supporting documentation displayed including research, graphs, bibliography, and photos	Supporting documentation displayed including research, graphs, bibliography, and photos

Do they have research, bibliography, and/or photos? Is the research appropriate to project? Is the research synthesized or just copied?

Discouraged Projects

First and Foremost, ANY PROJECT IN VIOLATION OF SIMSEF, ISEF OR CALIFORNIA EDUCATION RULES AND REGULATIONS WILL NOT BE ACCEPTED.

Avoid Science Fair Projects That Are Unlikely to be Accepted

1. Effect of colored light, music, or talking on plant growth (OK in 4th grade if variables included)
2. Crystal growth
3. Effect of cola, coffee, etc. on teeth
4. Effect of music, video games, etc. on blood pressure
5. Strength/absorbency of paper towels (discouraged because seen often)
6. Most consumer product testing of the "Which is best?" type
7. Astrology projects
8. Maze running (unless there are variables and controls).
9. Any project that boils down to simple preferences.
10. Effect of color on taste.
11. Optical Illusions
12. Reaction Times (OK with variables and 10 per group)
13. Planaria worm regeneration (unless project has variables and >10/group)
14. Detergents vs. Stains
15. Basic solar collectors or ovens (OK if engineering design variables included)
16. Acid rain projects (To be considered, thorough research into the composition of acid rain and a scientifically accurate simulation of it would be necessary.)
17. Basic flight testing, e.g., planes, rockets (OK if variables are included)
18. Battery life comparisons (plug-in and run-down type)
19. Any project involving the distillation of alcohol. (NOT PERMITTED)
20. Pyramid power
21. Color choices of goldfish, etc.
22. Basic chromatography
23. Wing, fin shape comparison (OK if mass is taken into consideration)

Avoid Projects that Lack a Measurable Endpoint

Results should be expressed in units of growth, size, mass, speed, time, volume, frequency, replication rate, chemical product analysis, etc.

Avoid Overly Common Projects

The following projects may meet all requirements but often do not win awards because they are too commonly encountered by judges. With frequently done

projects, acceptance may be granted if they have an original twist with exceptional thoroughness and solid scientific method.

1. Comparison of plant growth in different fertilizers
2. Rusting of nails in different pH solutions.
3. Comparison of strength in different bridge designs.
4. Strength of paper towels.

Projects Taken from the Internet

Projects taken directly from the Internet are considered plagiarism and may be disqualified. Judges may identify projects similar to examples posted on the internet and they will be ranked low for creativity. Examples of projects from sites such as http://www.sciencebuddies.org/ are good sources of inspiration, but the idea for your project **should be original.**

Scientific fraud and misconduct are not condoned at any level of research or competition. This includes 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 SIMSEF. SIMSEF reserves the right to revoke recognition of a project subsequently found to have been fraudulent.

Science Backboard Sample

Engineering Project Backboard Sample