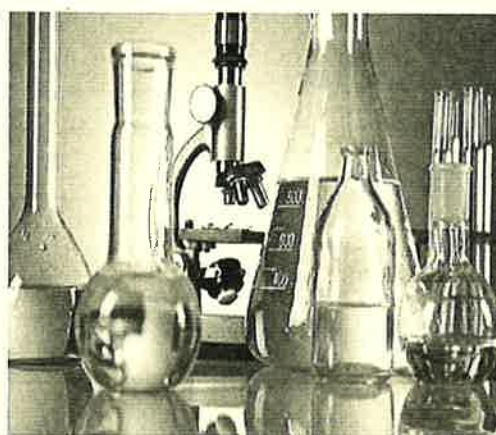
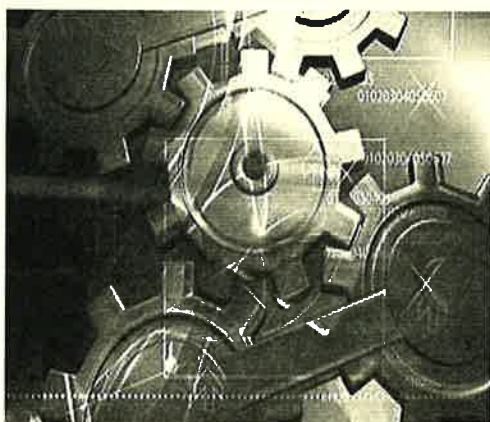
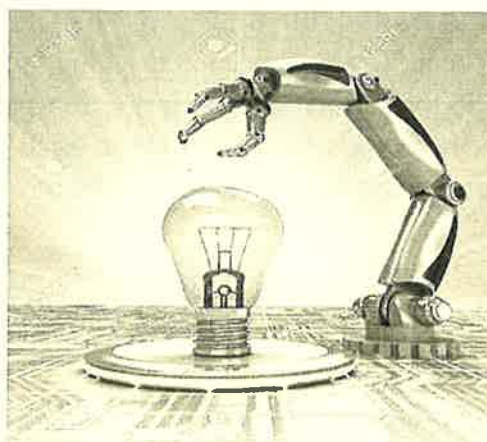
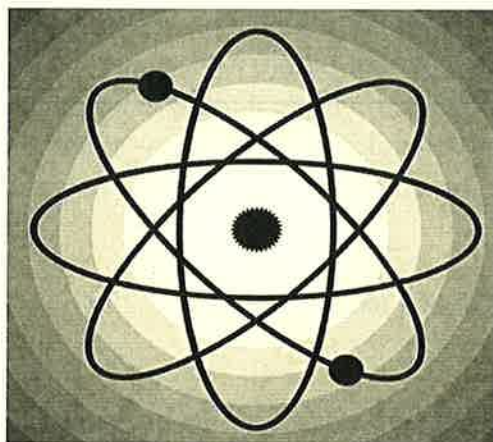




Fremont Unified School District 2019 Science & Engineering Fair Rules and Information



GRADES TK – 8

Fremont Unified School District 2019 Science & Engineering Fair

This packet is provided to help students and parents understand the rules required for a Science or Engineering Project. These guidelines will assist students in carrying out a Science Project based upon scientific investigation or an Engineering Project based on the engineering design process.

- **When: Saturday, May 11, 2019 1:00 p.m. to 3:30 p.m.**
- **Location: Centerville Junior High School Multi-purpose Room, 37720 Fremont Blvd.**
- **School-site specific due dates:** Check with your school site teacher, newsletter, or principal for these important dates.
- **Getting projects to Centerville:** It is the responsibility of the student and their parents/guardians to bring the projects to **Centerville Junior High School Multi-purpose Room on Friday, May 10, 2019 from 4:30 - 6:30 p.m.** Projects delivered after this time will not be eligible for judging. (Please Do Not arrive at the Multi-purpose Room before 4:30 p.m.)
- **Awards ceremony: Saturday, May 11, 2019 at 3:00 p.m.** District ribbons will be awarded for first, second, and third place winners at each grade level and by category (Science Investigation or Engineering Project.) All other projects will receive a participation ribbon.

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|----------------------------|
| IMPORTANT DEADLINES |
|----------------------------|

Be sure to check with your teacher or the School Site Science Fair Coordinator for your school's deadlines.

My project is due at my school on _____.

My School Site Science Fair is on _____.

School Winners List/Entry Forms are due to District on April 11, 4:30 p.m.

Questions? Contact Nicole Bryant, Elementary Education, (510) 657-2350 ext. 12-605.

RULES AND GUIDELINES

All Students

- Students may work on projects **individually** or in **groups of two to three students**.
- Number of projects a school site can send to the FUSD Science Fair:
 - Each elementary site may submit **one Scientific Investigation Project entry per grade level TK-5** and one **Engineering Design Project entry per grade level TK-5**.
 - For grade 6, each site may submit **up to 2 Scientific Investigation Projects** and **2 Engineering Design Projects**.
 - Junior high sites may choose up to **5 Scientific Investigation Project entries** and **5 Engineering Design Projects**.
- The project should include **all steps of the scientific method or the engineering design process**.
- Scientific Investigation Project has a control (a "standard" group) to which all test groups will be compared.
- **A Project Logbook is mandatory** and should reflect the child's ability level. Pictures are allowed and encouraged for the younger grades. See http://www.sciencebuddies.org/science-fair-projects/printable_project_logbook.pdf
- **Project Abstract:** Students should write a one-paragraph summary of the steps in the project and record this in their Science Logbook and on the Project Display Board. Student's Abstract should be age appropriate. See <http://acsef.org/subpages/abstracthelp.html>

Grades 6-8

- The project includes 3-5 bibliographical references showing the student has done a literature review of projects related to the topic.
- For the Science Investigation Project:
 - Each test group should contain a minimum of 5 objects being tested.
 - Project must be repeatable. The best way to do this is to have several experimental sets (such as 3 control groups, 3 sets of A, 3 sets of B, etc. ...)

| | | | | | | | | | |
|--------------------------------------|----|--------------|---------|---------|---------|---------|---------|---------|-------------|
| SCIENCE FAIR DIVISIONS | TK | Kindergarten | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Junior High |
| ENGINEERING PROJECT DIVISIONS | TK | Kindergarten | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Junior High |

PROJECT CONSTRUCTION

The work on the project must be done by the student(s). Parents may provide guidance and advice, but projects should reflect the student's ability. Parental guidance is encouraged at the **K-5 level**; however the project is not a parent project. Parental help such as construction requiring power tools or hazardous tools is permissible.

NOTE TO PARENTS: What can you do to help your child with the project?

1. Provide moral support and encouragement, especially when your child is struggling.
2. Help with tasks such as sawing a piece of wood, bending wire, cutting the cardboard; and spelling.
3. Help them with ideas on where to find information in the library or online that pertains to the project.
4. **Above all, PLEASE DO NOT DO THE PROJECT FOR YOUR CHILD.** Age-appropriateness will be part of the judging criteria.

CHOOSING A PROJECT:

1. Choose an interesting project.
2. Choose a project with a clearly defined, testable question that can be answered by an experiment or an engineering problem/solution for which a prototype can be designed, built, and tested.
3. Choose a project that can be researched thoroughly in the time available.
4. Consider what materials are available when choosing a project.
5. Choose a project with an appropriate difficulty level.
6. Consider the project from the standpoint of how it can be handled in an original way.
7. Before starting, check your projects against the PROJECTS TO AVOID at <http://acsef.org/subpages/projectstoavoid.html>.

STUDENT CHECKLIST FOR A GOOD PROJECT DISPLAY

1. Size of the project can be a three-panel display. It may be **no larger than 36" high x 48" wide** and it must stand alone or it will be disqualified.
2. The display should be colorful (paint, colored paper, etc.)
3. The title should be in large letters clearly seen and should describe your project (approximately two-inch-high letters).
4. Attach the Project Entry Information Form on the backside of the center panel of the project. Be sure your child's name, school and grade level are written clearly.
5. Pictures, charts, graphs, or tables that help explain your project should be neatly displayed with your project.
6. Projects with dangerous materials will cause the project to be disqualified!

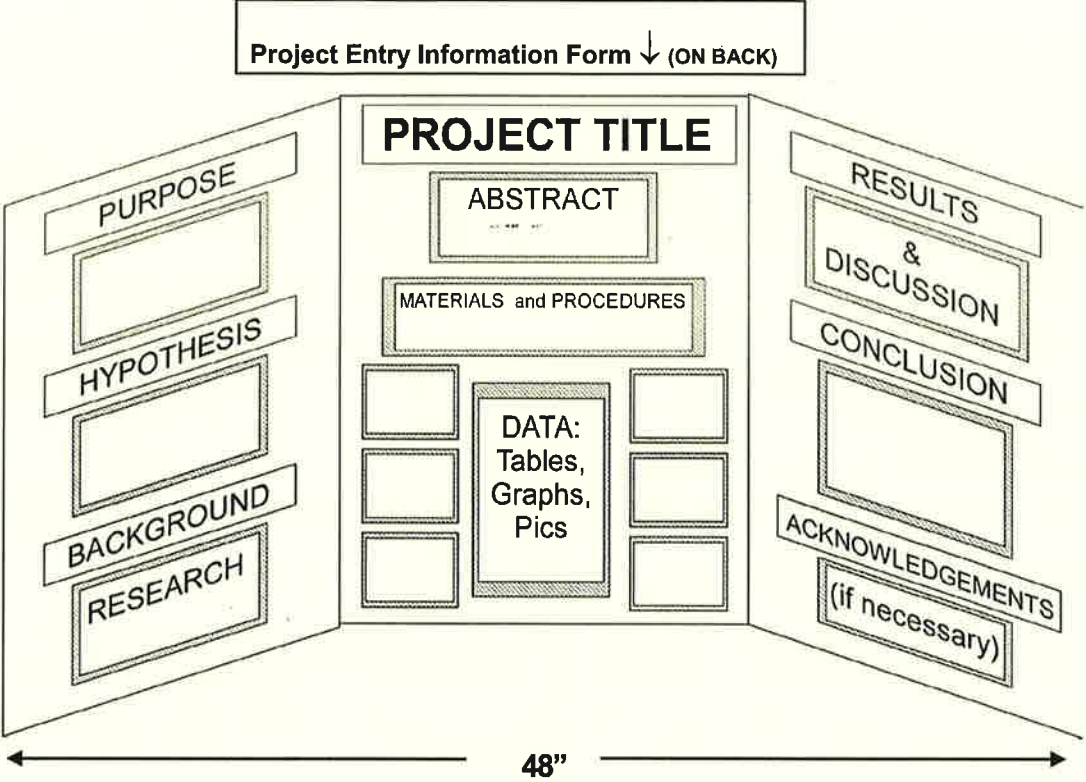
SUGGESTIONS PROJECT CARE - ATTENTION PARENTS!

Normal wear and tear on projects is to be expected during the time the Science & Engineering Fair is open to the public. Each exhibitor, therefore, is advised to protect his/her project as completely as possible. Note: Beware of using expensive and/or movable equipment. Be sure to securely fasten the logbook to the project. You should retain a copy of the logbook in case the original is misplaced or lost. The Science & Engineering Fair Committee cannot be responsible for losses. Exhibitor must assume all risks as to damage of their project or parts therein. Minimal security will be provided.

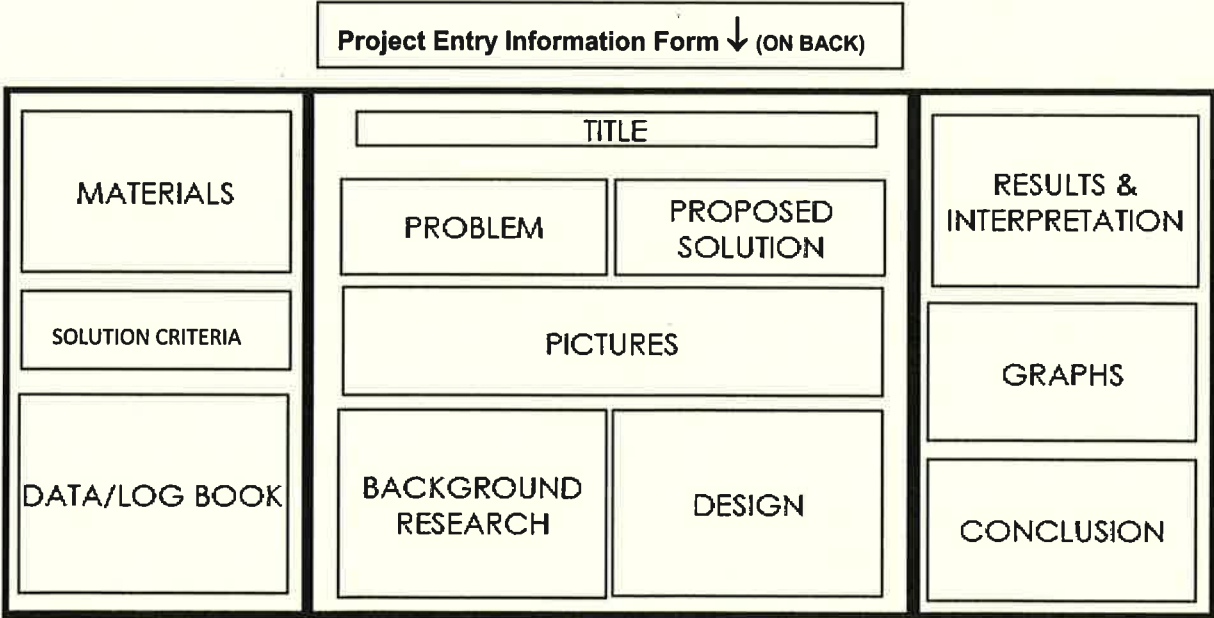
PROJECTS USING THE FOLLOWING ARE NOT PERMITTED:

- Human test subjects (this includes surveys) Vertebrate test subjects (animals with backbones)
- Tissues of a vertebrate
- Microorganisms (bacteria, viruses, and fungus)
- Research that was started or performed in a university or professional lab
- Lab-grade chemicals or devices that could shock, burn or wound the student
- Prescription drugs
- Alcohol and tobacco
- Activities that involved a level of risk above and beyond what a student of that age would encounter

SAMPLE SCIENCE INVESTIGATION DISPLAY



SAMPLE ENGINEERING PROJECT DISPLAY



Materials that can be used for the project panels are three sides of a large cardboard box, heavy cardboard, 1/2 or 1/4 inch Masonite, peg board, plywood, Scholar Science Display Board (2-ply board with prescored foldout panels), or wall paneling.

Strong backing and sides are necessary and must be supplied by the exhibitor. The project must stand by itself and can not be fastened to the table or walls. Projects that do not stand by themselves or are oversized - larger than 36" height x 48" width – (when fully unfolded) will be disqualified.

Provide a suitable battery for projects requiring electricity. Electrical outlets will not be available to you.

Projects requiring participation by visitors (push buttons, levers, etc.) will be acceptable, but they must be so designed that they do not require operation or explanation by the exhibitor. All items must be firmly attached so that they can not be easily picked up and carried away by visitors.

Dangerous chemicals, drugs, open flames, explosives, high voltage electricity, strong acids, strong bases, or volatile chemicals, or bio-hazardous materials such as blood, agar, molds and mildew are not allowed. Do not bring hypodermic needles, syringes, etc. for your project display. If any of these items are displayed, the project will be disqualified. **Projects with dangerous materials will be disqualified.**

- See http://www.sciencebuddies.org/science-fair-projects/project_guide_index.shtml

The Scientific Investigation process:

Using this process students will: write a question; form a hypothesis; plan an experiment; gather the materials needed; perform the experiment; examine the results through data analysis; write up a conclusion telling what was learned and how this knowledge can be applied to real world situations.

Avoid Science Projects that are Models: A Model, Display, or Collection shows how something works in the real world, but doesn't really test anything. Examples of display or collection projects include "The Solar System" or "How an Electric Motor Works"

| Science Investigation Project Criteria | |
|---|----------|
| SCORING: 1-Beginning Steps 2-Nearing Proficient 3-Proficient 4-Advanced | |
| Research Problem ____ Abstract ____ Purpose or question ____ Research/Background Information ____ Hypothesis | (16 pts) |
| Experimental Design ____ Methods/Procedure- Reflects use of scientific method, logical, ingenuity in approach ____ Materials ____ Record Observations and Results ____ Analyze Results ____ Conclusion(using Claim, Evidence, Reasoning format) and Discussion - Clearly presented, states strong and weak points, accurate ____ Logbook- neat, organized, reflects child's ability level | (24 pts) |
| Display ____ Age appropriate, stands alone, neat, ingenuity in display | (4 pts) |
| Total | ____/44 |

The Engineering Design process:

Using this process students will: define a need for the product; connect the need to a design goal; establish the requirements needed for product development; write up a procedure with preliminary designs; gather the materials needed; build a prototype (a model of the product) according to the designs; test the prototype; redesign, if necessary, to meet the stated design goal; and connect or apply the value of the prototype to real world situations.

The engineering design results have to be useful and apply to real world situations, issues, or ideas. The prototype cannot be made from a kit. It must be created by the student.

| Engineering Project Criteria | |
|--|----------|
| SCORING: 1-Beginning Steps 2-Nearing Proficient 3-Proficient 4-Advanced | |
| Research Problem _____ Description of a practical need or problem to be solved _____ Establish requirements or criteria for proposed solution | (8 pts) |
| Design and Methodology _____ Exploration of alternatives to answer need or problem _____ Preliminary design solution _____ Development of a prototype/model _____ Test prototype and redesign as needed | (16 pts) |
| Execution: Construction and Testing _____ Prototype demonstrates intended design _____ Prototype has been tested in multiple conditions/trials _____ Prototype demonstrates engineering skill and completeness _____ Logbook- neat, organized, reflects child's ability level | (16pts) |
| Display _____ Age appropriate, stands alone, neat, ingenuity in display | (4 pts) |
| Total | _____/44 |



Fremont Unified School District 2019 Science & Engineering Fair

This form is to be glued to the back of your display.

Project Entry Information Form

Name of Student(s): _____

School: _____

Grade: _____

Classroom Teacher: _____

Science Teacher: _____

Category:

Science Investigation

Engineering Project

Title of Project: _____

