

Science Fair Information

Display Guidelines

Those students who hope to progress to the District-Wide Science-Engineering Fair must meet the rules on the back. All exhibits must have a backdrop. Tables will be provided if desired, but exhibits may also be freestanding on the floor. The total height of the presentation should not exceed 8 feet (including the height of the table). The recommended side-to-side width is 36 inches and the maximum front-to-back depth is 18 inches. Projects must be able to stand on their own.

General Rules

1. **All exhibits must have the student's name, school and grade on the BACK of the project board.** This name is for identification purposes only, and should not be visible to the judges.
2. **All projects must follow these rules and guidelines.**
3. All projects should be done under adult supervision. The student should do the work. An adult may help with preparation of the experiment, when it would be unsafe for the student to do this work. (For example: using power tools.)
4. The display of anything that could be hazardous to the public or the facility is prohibited. This includes, but is not limited to, the following:
 - a. Live animals may not be displayed.
 - b. No animal or animal parts may be displayed with the exception of hair, teeth, nails and feathers.
 - c. No hazardous chemicals may be displayed.
 - d. Liquids, **including water**, must be contained.
 - e. Containers of commercial products that are displayed must be empty: food products, cleaning products, etc.
 - f. No open flames will be permitted.
 - g. No extension cords will be provided.
 - h. No cultures of mold or bacteria may be displayed.
 - i. No food may be displayed.
 - j. Glass containers and most glass equipment will not be allowed.
5. Special precautions apply when working with animals and some chemicals:
 - a. Behavior studies are preferable over physiological studies of animals.
 - b. No animal may be deprived of food or water at any time for any reason.
 - c. Animals may not be exposed to any conditions that may be harmful.
 - d. Animals may not be sacrificed for the purpose of experimentation.
 - e. Animals must be provided quality care after the experiment is concluded.
 - f. No dissection or surgical procedures may be used.
 - g. When surveys are used with human subjects:
 - No individuals should be identified.
 - Questions should not be very personal.
 - h. Substances contaminated with fungi, bacteria or other microorganisms should be disposed of in a sanitary method at the conclusion of the experiment. These contaminated substances may not be displayed at the Science Fair.
 - i. Hazardous substances should not be used. Controlled substances, such as prescription drugs, tobacco, and alcohol should not be used.

Benefits for Students

We believe that there are many benefits to students who participate in Science-Engineering Fairs. Some of them are:

- **Increased Science Knowledge** – When is the right time to start a student’s exposure to Science and Scientific Methods? The answer is – early. A basic understanding of Science is an essential part of life.
- **Experience with the Scientific Method** – We encourage the use of a specific method in seeking an answer to a scientific question (their Purpose Statement). In life there are many different methods to choose from. This experience of following logical steps to find an answer is a tool that is valuable no matter that a student may choose to do for a job.
- **Display Preparation** – Preparing a display to show their project, the students gain valuable knowledge and experience in giving a non-verbal presentation.
- **Interview Skills** – In the interviews with science and engineering professionals (at least 3 per student), the students gain experience in giving oral presentations. This is also an opportunity for them to actually meet and talk with these professionals. This could have a profound effect on career decisions these students make.
- **Learning is Fun** – Through the process of researching their topic, performing their experiments, and documenting their work, students can experience the thrill of discovery and the fact that learning can be fun.
- **Interactions with other Students and their Projects** – At the Science-Engineering Fairs, students have the opportunity to talk with other students from other schools. It is an opportunity to meet other students and to see their projects

Judging

A panel of at least three judges should judge students’ projects. Judges are professionals with a Science or Engineering background. Judges should use objective criteria to determine that the student knows the science behind their work, understand how the experiment works, followed the scientific method, and accurately documented their findings. Judges interview the students, typically for about 5 minutes, individually (one on one). Students within a grade are judged as a group.

Judging Process

1. Each judge evaluates every project in a grade. They are scored on a scale of 0 to 10 on ten different criteria.
2. These values are totaled.
3. The scores are then put in order from highest to lowest score (in a group for a specific judge).
4. The scores are then normalized. This is to avoid problems with judge variance. Some judges don’t give anything higher than a 6; others don’t give anything lower than a 5.
 - The normalized scores start at 1 and go up.
 - If there is a tie, then the tying projects get the same normalized score.
 - If there is a tie, then an appropriate number of scores are skipped.
5. These normalized scores are totaled for all the judges for each project.
6. The project with the lowest normalized score is the top project.
7. Judges break any ties by talking about the tying projects and ordering them.

8. Judges then discuss the top three projects in each grade to be sure that they agree with the normalized results. This improves the quality and standardization of the judging process and eliminates the consequences of unusual results.
9. Judges score sheets are not shared with the students.
10. Judges decisions are final. Their score sheets should be shredded after the fair.

Awards

Each school can provide recognition that meets the needs of their situation. This award structure has been used by a number of schools in the past, and is the one used by the District-Wide Fairs.

Participation Ribbons

Every student participating in the fair, whether competitively or not, receives a participation ribbon. They are usually green and say Honorable Mention on them. Often they are custom made with the school's name and logo on them, but this is not necessary.

Place Ribbons or Medals

Each grade is judged as a group. First, Second, and Third Place ribbons or medals are presented to the top three projects in each grade. Ribbons are the traditional blue, red, and white, and medals, if used, are gold, silver, and bronze. Ribbons are often custom made with the schools' name and logo on them, but this is not necessary. Medals can be engraved with the name of the school and date.

Best of Show Awards

Although not required, most fairs also give First, Second, or Third Place Best of Show awards. These may be trophies, medals, fancy ribbons or mementos. These are awarded to the best projects regardless of grade. One year, the First Place Best of Show at my local elementary school went to a second grade student! Some schools also have a plaque that is used to commemorate the First Place Best of Show winners. Their name, the project's title, and the year are engraved on the plaque.