

**THE NATIONAL ORGANIZATION FOR THE PROFESSIONAL
ADVANCEMENT OF
BLACK CHEMISTS &
CHEMICAL ENGINEERS (NOBCChE)
GULF COAST CHAPTER

RULES AND GUIDELINES

FOR THE SCIENCE FAIR COMPETITION

GRADES 4, 5, and 6**

**The purpose of this publication is to provide teachers and
Science fair coordinators with the guidelines for the
NOBCChE Science Fair Competition
for students in grades 4-6.**

Elementary Division Science Fair Categories

Science Fair Categories (Elementary Division)

Botany
Chemistry
Earth/Space Science
Environmental Science
Zoology

Rules/Regulations

The rules and regulations for participating in the NOBCCChE Science Fair competitions are located on pages 6-8. The information should be shared with teachers in your school who will be working with science fair students. This information should also be shared with students interested in entering the science fair competition.

Entry Form

The Science Fair Entry Form reserves a space for a science fair exhibit. Entry forms must be received by the deadline. Schools may enter a total of 16 first, second, and/or third place winning projects in the elementary division. Schools will be allowed to enter additional projects space permitting. Availability spaces will be filled on a first-come, first-served basis.

Judging/Recognition

Each science fair exhibitor will receive a Certificate of Participation. Judges may select a first, second, and a third place winner in each category. The first, second, and third place winner in each category will receive a medallion and a Certificate of Award. A Grand Prizewinner will be selected from the first place winners. The Grand Prizewinner will receive a trophy and a certificate. Other projects selected for special recognition will receive an honorable mention ribbon. The Grand Prize and first place winners will be invited to the NOBCCChE Student and Teacher Recognition Banquet in June 2006.

- A team of judges will judge each science fair project. The decisions of the judges will be final.
- Judges may select a first, second, and third place winner in each category in each division.
- The exhibitor must be present at the time of judging and prepared to make an oral presentation to the judges explaining his/her project.

What is meant by a science, mathematics or engineering project?

It is a study in any field that interests you and for which you have the equipment to deal with adequately. Do not think expensive equipment (i.e., cyclotrons, electron microscopes, or polymerase chain reaction instruments) is needed for good experiments. If you have access to such equipment, that is fine, if you do not, remember that some of the best experiments have been done with equipment salvaged from junkyards, attics and basements.

The most interesting types are experimental projects where students try to reach conclusions through data obtained in laboratory or field investigations; and investigative projects where students conduct a survey or research a problem. Students doing experimental and investigative projects attempt to answer a question by designing and conducting an experiment or correlation study in which important variables are controlled.

For engineering, a clear distinction should be made between gadgeteering and a genuine contribution. A “Rube Goldberg” device may be ingenious, but if it is not the most acceptable way to solve a problem to the potential user or unreliable in its functioning, then it cannot really be considered a valuable creative contribution.

There are basic steps that a student should follow in preparing a science fair project:

- | | |
|--|-----------------------------------|
| 1. Conduct research to select a topic | 6. Plan the project |
| 2. Select a topic | 7. Conduct experiments |
| 3. Research selected topic | 8. Record data and keep a journal |
| 4. Do a bibliography | 9. Analyze data/draw conclusions |
| 5. State a hypothesis/Identify variables | 10. Prepare the exhibit |

The following four-level system, arranged from lowest level to highest level, is a guide for science fair sponsors. It is suggested that all four levels be included at the school level. This will allow for the participation of more students in this type of learning experience. During the judging process, Level 1 projects should be judged together, Level 2 projects should be judged together, and so on. Level 3 projects may be entered, if something new is investigated. Level 4 projects should be entered in the NOBCCHE Science Fair.

Level 1 - Poster Projects

A diagram, illustration, table, chart, or other display of science information found in books, laboratory manuals, or other printed materials.

Level 2 - Hobby Collection and Collection Projects

A chart, illustration, model, collection, or report based on investigation by the student. In this level, students' own thoughts must be apparent in the data, organization, and/or interpretation of the project.

Level 3 - Model Building and Demonstration Projects

A working model based on the understanding of a science principle or a demonstration and explanation of an experiment.

Level 4 - Experimental and Investigative Projects

An attempt to answer a question by designing an experiment or correlation study in which important variables are controlled.

RULES AND ENTRY GUIDELINES

Please read all the guidelines for the NOBCCChE Science Fair before entering projects. Projects eligible to enter into an administrative district science fair are eligible to enter the NOBCCChE Science Fair.

Projects entered in the NOBCCChE Science Fair must not violate any of the rules.

Entry forms received after the deadline will not be accepted. A violation of any rule will result in the disqualification of the exhibit.

Before you begin...

- Prior to starting any experimental research, every potential science fair exhibitor must write a research plan. The research plan should state what question is going to be answered and the hypothesis (If...Then). The plan should include (a) problem and hypothesis, (b) methods or procedures. Details of safety measures, animal care measures, survey questions and populations, if applicable, should be included.
- Prior to starting any science fair project, every potential science fair exhibitor must complete the Designated Adult Supervisor Form (page 10). The designated adult supervisor may be a teacher, a parent, or other adult.
- Students are strongly encouraged to use the International System of Units (SI) system of units for projects entered in the NOBCCChE Science Fair.

Science Fair Rules

- (1) No student may enter more than one project. Students must be enrolled in public, parochial, or private school, grades 4, 5, or 6, to be eligible to compete in this science fair.
- (2) Exhibits may consist of a demonstration model, an experiment, or investigation that have a scientific objective. No project involving live vertebrate animal experimentation will be eligible.
- (3) All exhibits must have a freestanding backdrop.
- (4) The work presented must be the work of only one student.
- (5) The exhibitor must be present and prepared to make an oral presentation explaining his/her project.
- (6) The size of the exhibit must not occupy a space in excess of 122 cm (48 in.) wide (side to side); 76 cm (30 in.) deep (front to back); and 274 cm (9 ft.) high. If the project is to be displayed on a tabletop, then the maximum height for the display itself is approximately 198 cm (6 ft., 6 in.). If the display requires electricity for demonstration purposes, the entrant must furnish a good quality, 9-foot, properly grounded electrical cord. Projects exceeding these dimensions will be disqualified.

- (7) The title of the exhibit must be visible at least ten (10) feet from the viewer.
- (8) The name of the student, school and school district must NOT appear on the project, notebook, report, log, and/or journal.
- (9) A bibliography must be attached to the front of the backdrop. Encyclopedias and textbooks are not considered major sources. Use a correct format for a bibliography. (Refer to page 11)
- (10) No live animals, open flames, preserved animal, chemicals, dangerous equipment, cell cultures, bacteria, molds, microorganisms, soil, liquids (including water), and solvents may be exhibited at the fair. However, if approved to use in research, pictures may be used on the display. **DO NOT BRING ANY MATERIALS USED IN THE PROJECT.**
- (11) NOBCCChE reserve the right to disqualify projects deemed hazardous by the fair officials.
- (12) An Informed Consent Form (page 11) is also required for all projects involving human subjects, including surveys, and for projects that might involve violation of privacy act, or potential risk (physiological projects, sensitive surveys).
- (13) Students may use commercially available products, hair samples or baby teeth acquired at home, plant tissue and established cell or tissue cultures.
- (14) When consumable alcohol and tobacco products and drugs (prescription or over-the-counter) are used in projects, substance must be obtained by and used under the direct supervision of adult project supervisor.
- (15) If deemed necessary, a qualified scientist may be used to evaluate the procedure and or safety of an experiment. The qualified scientist must sign the bottom of the Designated Adult Form. For cell cultures, bacteria, and molds studies, a qualified scientist is required.
- (16) Students should follow safety rules related to the handling of living organisms and chemicals. Books on safety may be checked out from the public library.
- (17) Approval is needed for the following project:
 - Projects involving dangerous chemicals or equipment, cell cultures, microorganisms, environmental sampling, and human subjects, including surveys.
 - Soil and water projects in which culturing of unknown organisms is the object of the project or when samples would be likely to contain pathogens or hazardous materials procedures that are invasive and nutritional studies with potential physiological symptoms.

- All projects involving drugs, whether prescription or over-the-counter drugs, require approval. Approval will not be given for research that includes illegal drugs.
- Projects where students are using their own blood.

Entry Guidelines

- (18) Submit a Science Fair Entry Form for each exhibit. In the following order, staple the research plan and Designated Adult Supervisor Form to the back of the Entry Form. Students competing in an administrative district science fair may replace NOBCCHE forms (except the Entry Form) for the forms included in the HISD science fair booklet.
- (19) Copies of the Informed Consent Forms, if applicable, should be turn in on the date of the competition.
- (20) A laboratory notebook, log, or journal must be displayed with each project.
- (21) The exhibitor is responsible for setting up the display during the designated time for set-up. The exhibitor is also responsible for dismantling the display after the competition has been completed.

CONSENT FORM

Note: Complete this form for all projects involving human subjects, including surveys. Required for subjects under 18 years of age. Use a separate form for each test subject. The project must be approved by the IRC before test subjects are asked to sign this form.

To be completed by Student Researcher, if applicable:

Name: _____

School: _____

Title of Project: _____

1. What are the research procedures in which the subject will be involved?

2. What are the possible discomforts or risks that may reasonably be expected by participating in this research?

3. What procedures will be used to minimize risks?

Directions: Before participating in this investigation/survey, please indicate that the student researcher has informed you, by checking each of the statements below:

- _____ The researcher has explained the procedure(s) and possible discomfort/risks to me.
- _____ I know how to contact the researcher if I decide to discontinue my participation in this research.

I understand the conditions stated above and consent to participate in this project.

Test Subject's Signature

Date: _____

Parent's or Guardian's Signature (required for participants under 18)

Date: _____