National Society of Black Engineers
Pre-College Initiative presents

2010 PCI Science Fair

Welcome to the fabulous world of science! For over 30 years the National Society of Black Engineers (NSBE) has supported the endeavors of talented Black engineering students and professionals. The mission of the society is to "increase the number of culturally responsible Black engineers who excel academically, succeed professionally, and positively impact the community." We as a society understand that in order to accomplish this mission we must raise the awareness of pre-college students to opportunities in science and technology. Science fairs are an excellent venue for pre-college students to display their creativity and scientific abilities.

Entries

Students in grades 6-12 are eligible for the science fair. The fair will be divided into two classifications:

- Junior: 6th- 8th grade students
- Senior: 9th-12th grade students

All participants must submit a 500 word maximum abstract to your Regional PCI Chair and to the National PCI Chair briefly describing the objective, the experimental procedure, and expected results of the project.

Region II Fall Regional Conference – November 5-7, 2010 – Pittsburgh, PA (Radisson Green Tree)
Region I Fall Regional Conference – November 12-14, 2010 – Rochester, NY (Hyatt Regency Rochester)
Region III Fall Regional Conference – November 12-14, 2010 – Birmingham, AL (Sheraton Birmingham)
Region VI Fall Regional Conference – November 12-14, 2010 – San Mateo, CA (Marriott San Mateo)
Region IV Fall Regional Conference – November 19-21, 2010 – Indianapolis, IN (Indianapolis Marriott East)
Region V Fall Regional Conference – November 19-21, 2010 – New Orleans, LA (New Orleans Marriott)

NSBE Annual Convention – March 23-27, 2011 – St. Louis, MO – America's Center Convention Complex

Abstracts must be received by October 17, 2010 for all Regional PCI Science Fairs and by February 13, 2011 for the National PCI Science Fair. Abstracts will be judged on creativity, originality, scientific content, and clarity.

PCI Chairs Information:
National - Whitney Pollard (nebpci@nsbe.org)
Region 1 – John Brito (r1pci_chair@yahoo.com)
Region 2 - Elisha Clayton (region2pci@gmail.com)
Region 3 – Chrissi-Lee Williams (region3pcichair@gmail.com)
Region 4 – Luneta Limbrick (r4pcic@gmail.com)
Region 5 – Gerwayne Qualls (region5pcichair@gmail.com)
Region 6 – Selam Hendrix (r6pcichair@yahoo.com)

A formal report must be written and submitted by the time of the competition. The formal report must include a problem statement/hypothesis, the experimental/design procedure, a brief overview of the results, and a conclusion. The formal report should be type written in 10 or 12 point Times Roman or Arial Font, double-spaced not to exceed seven (7) pages in length. Once a project has been accepted for competition, a formal report that includes a problem statement or hypothesis, the experimental/design procedure, brief overview of results, and conclusions will be due at the time of competition. The formal report will be considered during the final judging process.

Projects must fit within one of three categories:

1. Biological/Life Sciences (Botany, Ecology, etc.) - A Biological/Life Science project examines some aspect of the life or life style of an organism.

Example: "The effect of sound on plants"

2. Physical Sciences (Physics, Chemistry, etc.) - A Physical Science project studies an abiotic phenomenon in order to understand the relation of identified factors, perhaps including a cause and effect relationship.

Example: "Observation of freezing rates of water for different starting temperatures"

3. Engineering (Electronics, Robotics, Mechanics, etc.) - An Engineering project applies physical science knowledge to solve a problem or achieve a purpose.

Example: "Design considerations for "Solar-Cell" powered homes

Project Display

Students should start planning their displays as soon as they begin their projects. Some of the items that should be on display are:

1. Pictures taken during the experiment
2. Data notebook or background research notebook
3. Any equipment or material used in the experiment (that is not excluded by the rules)
4. Abstract
5. Title (as a header at the top of the display board)
6. Hypothesis
7. Procedure
8. Results
9. Conclusions
10. Applications
11. Charts, graphs, tables, or other visual aids
12. Statistics, where appropriate

Remind students that they are an important part of their displays as well. Students should be aware that they are representing themselves and NSBE to the public and should be dressed appropriately, should not chew gum or listen to music, and should respect other students and judges. Also, be sure they are prepared to describe their projects to a judge in a clear, succinct presentation.

All exhibits, including all accessories, must be confined to a table or floor space not to exceed 36 inches front to back; 48 inches side to side; and 120 inches maximum height from the floor. All measurements will be made from the outermost points, including framework and appendages, and will be checked by the Host Committee. Exhibits exceeding these dimensions must be modified or will not be accepted (see exceptions below).

Rules

1. A chapter may have as many participants as desired. Only individuals may compete in this competition, no groups.
2. During the Science Fair, each student will be allowed a maximum of 10 minutes for their presentations.
3. Following their presentation, each student will be expected to answer questions from a group of judges for a period of time not to exceed 5 minutes.
4. Each participant must be a registered NSBE Jr. Member for the 2010-2011 membership year before submissions.
5. All participants must submit an official transcript to NSBE World Headquarters by the registration deadline in order for their registration to be complete.

Safety

Safety to the public is a prime consideration. Suitable precautions must be taken to prevent the possibility of personal injury, property damage, and the legal action that could result from a lack of concern for safety.

Exhibits must be sturdy, with moving parts firmly attached and approved for safety. Each exhibit must be self-supporting. Electricity (AC I 10 volt cycle) will be supplied, if requested; however, no gas or water outlets will be provided. Switches and cords must be of the approved variety and fuses or circuit breakers must protect circuits. Cell or battery-fed circuits should be both safe in design and operation.

All sharp edges or corners on prisms, mirrors, enclosures, and glass and metal plates must be removed or otherwise protected.

The length of hoses or extension cords is to be kept to a minimum and out of the way to eliminate tripping hazards. Use tape for securing.

Aisles and exits should not be obstructed.

Moving exhibits (e.g. radio-controlled vehicles, robots) should be restricted to the regulation display space. The Host Committee will try to provide an exhibition area to safely demonstrate projects that require more space than the regulated exhibit display space.

In addition to the regulations noted here, there may be local municipal or provincial regulations, which must be followed. The Host Committee shall share any such restrictions preceding the fair.

Fire Safety

Certain restrictions have been defined on the construction of displays to reduce the possibility of accidental fire during the fair, and in the event of fire, to allow for safe evacuation of the building.

The Host Committee will be responsible for ensuring that fire extinguishers of proper size and rating are available in the exhibition area.

Combustible material must not be used near a heat source.

Open flames must not be used.

Smoking is not permitted in the exhibit area.

Packing material must not be stored in the exhibit hall.

Chemical Safety

No containers of toxic or flammable chemicals are allowed.

Dangerous chemicals are not allowed-this includes prescription drugs and over-the-counter medication.

Substitutes for toxic and corrosive materials must be used. Common salt, for example, can be used to simulate chemicals such as ammonium nitrate. Water may be used instead of alcohol, ether, and other highly flammable liquids. When chemicals are simulated, they should be labeled with the names of the substance they represent preceded by the word "simulated." No project will be penalized because the key (but potentially dangerous) components were not on display.

Electrical Safety

As low a voltage as possible must be used.

At the end of the day or the viewing period, all electrical exhibits must be disconnected, and power bars switched off. Where practical and necessary, it is recommended that pilot lights be used to indicate that the voltage is on.

Cord-connected electrical appliances should have a 3-wire conductor with ground.

Electrical devices must be protectively enclosed as far as it is practical.

Any enclosure must be non-combustible. All non-current carrying metal parts must be grounded.

No exposed live parts over 36 volts are allowed. Current (amperage) must be low so as not to cause any discomfort or danger if touched.

Wet cells shall not be used because of the hazardous chemicals involved.

Structural and Mechanical Safety

Exhibits must be of a safe design with adequate stability to keep from tipping

Dangerous moving parts such as belts, gears, pulleys, and propeller blades must be suitably guarded.

Pressurized vessels or compressed gas cylinders are not allowed.