

TRI-STATE SCIENCE AND ENGINEERING FAIR

FAIR BASICS

Eligibility Students in grades K-12 whose school or home is within a 75-mile radius of Evansville, Indiana are eligible to participate in the TRI-STATE SCIENCE AND ENGINEERING FAIR. Participants in grades 9-12 must also follow ISEF rules and required forms, found at www.usi.edu/science/fair.

Entry Guidelines:

Elementary Division (Grades K-3): Only inventions may be entered. All entries will be judged for the Children’s Museum of Evansville (cMoe) Invention Special Award and the Elementary Divisions Grand Awards.

Junior Division (Grades 4-8): Upon registration, students entering the fair in the Junior Division must declare the category they wish to enter.

Senior Division (Grades 9-12): Upon registration, students entering the fair in the Senior Division must declare the category they wish to enter. Participants in grades 4-12 must also follow ISEF rules and required forms, found at www.usi.edu/science/fair.

Sponsorship The University of Southern Indiana, the SwISTEM Resource Center, local industry, businesses and organizations sponsor the TRI-STATE SCIENCE AND ENGINEERING FAIR with awards and general funds.

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Divisions The science fair has two age brackets: Junior Division (grades 4-8) and Senior Division (grades 9-12). Students can enter into one of thirteen categories at the regional level. The INTEL International Science and Engineering Fair (ISEF) guideline and rules provides a detailed description of each category, plus additional international competition categories. Visit www.usi.edu/science/fair for your personal copy of this important resource. All high school participants must complete the ISEF forms in addition to the TRI-STATE SCIENCE AND ENGINEERING FAIR entry form.

Animal Sciences

Study of animals- animal genetics, physiology, circadian rhythms, etc.

Behavior and Social Sciences

Human and animal behavior, social and community relationships.

Chemistry and Biochemistry

Study of nature and composition of all matter and the laws governing it.

Earth and Space Sciences

Geology, mineralogy, physiography, oceanography, meteorology, climatology, astronomy, speleology etc

Engineering

Technology, civil, mechanical, fuels, plastics, aeronautical, chemical, electrical, materials

Environmental Sciences

Study of pollution (air, water, and land) sources and their control; ecology.

Mathematics and Computer Sciences

Development of formal logical systems or various numerical and algebraic computations - calculus, geometry, probability, study and development of computer hardware, software, engineering, graphics, etc.

Medicine and Health Sciences

Study of disease, health and aging of humans, animals and other living organisms.

Microbiology and Molecular Biology

Biology of microorganisms, bacteriology, virology, protozoology, fungi, bacterial genetics, yeast, etc.

Physics

Theories, principles and laws governing energy and the effect of energy on matter.

Plant Sciences

Study of plant life.

Selecting the correct category is very important.

Judging is based on the disciplines within the category. If you place your project in zoology when it is actually an engineering project, it will be judged as a zoology project. There are instances where projects may overlap two or more categories. In these cases, discuss the category selection with your advisor and use your best judgment or contact the TRI-STATE SCIENCE AND ENGINEERING FAIR office so we can assist you in selecting the most appropriate category.

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Fair Rules

All research projects must follow the rules of the TRI-STATE SCIENCE AND ENGINEERING FAIR. If you have any questions after referring to the Rules, contact the Fair Co-Directors Shelly Blunt (812/465-1268, sblunt@usi.edu) or Allison Grabert (812/228-5019, agrabert@usi.edu). **NOTE: Senior Division projects (grades 9-12) must also meet the INTEL requirements to be considered for advancement to the Hoosier Science and Engineering Fair.** Senior Division participants can check with a teacher or the fair director for the rules and all forms, or go to www.usi.edu/science/fair for a user friendly printable version. This includes a link to Society for Science and the Public (the website that contains official rules for the INTEL International Science Fair).

ELIGIBILITY

- All students in grades K-12 within a 75-mile radius of Evansville, Indiana are eligible to enter the TRI-STATE SCIENCE & ENGINEERING FAIR.
- A student may enter only one research project. It must be his/her own work. The student must design and carry out the project. Teachers, parents and sponsors must limit help to advice and supervision.
- Team projects will be placed in the appropriate category. Team projects are not eligible for the Grand or Alternate awards.
- Students may not repeat a previous year's work. Students can exhibit a continuing project that shows significant progress from the previous year.
- The SCIENCE & ENGINEERING FAIR divisions are:
 - Elementary Division – for students grades K-3
 - Junior Division - for students grades 4-8
 - Senior Division - for students grades 9-12

ENTRY FORMS and SRC APPROVAL

- Students must submit a registration form and an official abstract to the TRI-STATE SCIENCE & ENGINEERING FAIR office by the deadline unless special arrangements are made. **(Please contact the Fair Director if your local fair is after this deadline.)** All forms are online at www.usi.edu/science/fair.
- If you need more room to answer a question, attach extra pages.
- The Scientific Review Committee (SRC) must approve **Senior Division** projects with human, animal, or potentially hazardous research **before** an experiment begins (see INTEL rules). Students needing approval should submit their forms as soon as possible. **Junior Division** projects must be **pre-approved** by a teacher,

advisor or SRC and entry forms signed to verify projects meet SRC and safety guidelines.

- The SRC may request additional information to better understand what research you plan to do. The SRC may also suggest changes to your project to make your project safer for you, your subjects, and the people who will view your exhibit. **If you have any questions regarding SRC guidelines or recommendations, please contact the Fair Director.**
- Senior Division projects must have SRC approval prior to admission to the display area. Students will be advised of changes, deficiencies or corrections required prior to the fair. Any final approvals to SRC requested changes can be done during fair set up, when an SRC representative will be available for final reviews. Approved projects will have necessary papers signed and returned prior to the fair.
- If you make *major* changes in methods or procedures from what was submitted, let the Fair Director know what changes were made. The SRC may need another review.

ABSTRACTS and PROJECT REPORTS

- Students **must** provide an abstract with the entry form and a written report with their display. A suggested format is in this book.
- Logbooks, notebooks and other research data and materials should also be with the exhibit.

VALUABLES

- **The TRI-STATE SCIENCE AND ENGINEERING FAIR assumes no liability for any items of value left on or with the project. We will have security personnel at the Fair, but cannot guarantee the safety of all items. Secure all parts of the exhibit to the display board or otherwise attach them in a secure manner.**

PROJECTS INVOLVING ANIMALS

Senior Division participants must have SRC approval PRIOR to beginning an animal research project. The SRC must determine that the project will be safe and follows all safety and ethical rules and guidelines. The SRC is the only source for project approval.

Junior and Elementary Division participants must have a teacher/advisor review their project to assure SRC safety and ethical rules are met. The teacher/advisor must sign the student entry, assuming full responsibility for this review and approval.

- *All research will be conducted with a respect for life and an appreciation of humane considerations for all living animals.*
- *You cannot exhibit living creatures.*
- *You cannot exhibit preserved animals or embryos.*
- *Organisms, fungi, microbiological cultures, molds, food, spoiled food or substances that look like food cannot be displayed.*
- *You cannot exhibit preserved animal or human parts. Exceptions are: teeth, hair, bones, and tissue slides. You must properly acquire and seal all material.*

PROJECTS INVOLVING HUMANS

No Senior Division student can proceed on human research until the SRC/IRB gives its approval. The SRC/IRB must determine that the project is safe and follows all rules, including projects in which the student is the subject of the study. This includes surveys and questionnaires. The SRC/IRB reviews all human studies to determine if the risk is acceptable or not. The SRC/IRB is the *only* source for project approval.

- **A copy of the survey or questionnaire, along with a copy of the Informed Consent Form MUST be submitted with the student's application.**
- The SRC/IRB weighs the risk to human subjects. We do not want anyone harmed, or potentially harmed, because they took part in the experiment. Risk includes exercise and emotional stress caused by questions in the questionnaire.

- You cannot publish information or photographs that identifies the subjects without a signed consent.
- **Informed Consent Form.** Before doing human research, your subjects must know: *they are in the experiment, the nature of the experiment, and what question you are trying to answer.* All risk must be mentioned. A sample of this would be:

Informed Consent Form

My name is Bub L. Gumm. I am doing a science fair experiment titled: "How Long Must You Chew Your Bubble Gum To Get The Biggest Bubbles?"

I want you to chew two types of bubble gum for 45 minutes each. Every 5 minutes you are to blow a bubble. I will measure the size of each bubble. I want to photograph you blowing bubbles for possible display in my project. Your jaws may get tired. You will be asked to chew both sugared and sugar free gum.

The only thing I have done to the gum, purchased at John's Food Store, is repackage it so you don't know if it is the regular or sugar free type. You can contact my science teacher, Mrs. Smith by calling Great School or my parents at 555-9999.

I, (subject's name), will be a part of your experiment. I understand the nature of the experiment, and my role as a human subject.

To be signed by subject or subject's parent or guardian if the subject is under 18 years of age.

Junior and Elementary Division participants must have a teacher/advisor review their project to assure SRC/IBR safety and ethical rules are met.

The teacher/advisor will make a determination regarding the need for signed consent forms based on the nature of the study. When appropriate, signed consent forms will be used and are to be included with the logbook and data.

The teacher/advisor/parent must sign the student entry, assuming full responsibility for this review and approval.

PROJECT SIZE

- We shall disqualify oversized projects. You cannot display any item that can not fit within the project's size requirements.
- All projects must be self-supporting. It must stand freely on a tabletop or floor. It cannot have support from a wall or other exhibit.
- Projects cannot exceed the following dimensions. It cannot be larger than 48 inches (4 feet) in width. It cannot be more than 30 inches (2.5 feet) deep. It cannot be taller than 78 inches (6.5 feet) high if displayed on the table. If standing on the floor, it cannot be taller than 108 inches (9 feet). All apparatus must fit inside the exhibit space outlined by these dimensions.

ELECTRICAL USAGE

Any electrical equipment that does not follow the following rules will not be displayed.

- You must request access to an electrical outlet on your application. We will provide access only if requested in advance.
- Any exhibit requesting electricity must have a 10-foot extension cord supplied by the student. The cord must be UL approved, and have an unmodified plug.
- You cannot use open top cell batteries. You must use other types of batteries for electrical power.
- You cannot use high voltage equipment.
- Wiring, switches and metal parts *must* be out of reach of the public.
- Use properly insulated wiring. Do not use nails, tacks or uninsulated staples to fasten wiring.
- Bare wire and exposed knife switches may be used in circuits of 12 volts or less. Otherwise, use standard enclosed switches.

SAFETY RULES

A Safety Inspection Committee will review all projects before judging begins. **Anything that the Inspection Committee believes could be hazardous to the public will be prohibited.** *You can remove any materials that are in violation. If you do not remove them, we shall disqualify your project from judging.* The decision of the Fair Director and Inspection Committee is FINAL.

Prohibited materials include, but not limited to:

- All living creatures.
- Dead or preserved animals or animal parts or embryos. ***Exceptions are: teeth, hair, bones, and tissue slides.*** *You must properly acquire and seal all material.*
- Organisms, fungi, microbiological cultures, and molds, food, spoiled food or substances that look like food cannot be displayed.
- Substances, solid or liquid that could be consumed.
- Any drug or medicine (pills, capsules, liquids).
- Explosive, corrosive, toxic or poisonous substances.
- Unprotected belts, pulleys, chains or moving parts.
- Projects that have projectiles.
- Any sharp objects including glass, syringes and pipettes.
- Any flames, open or concealed.
- All chemicals and the containers that held them.
- Materials that are flammable or combustible.
- Dry ice or other sublimating solids.
- Cylinders of compressed gases.
- Equipment producing temperatures over 100 degrees F.
- Equipment that gives off disruptive sounds.
- Glass
- Any items that can spill and become a safety hazard (unless protected from spilling).

PHOTOGRAPHS & DRAWINGS

- **If recognizable photographs of people are used, you must have a signed consent form.** If you do not have a signed consent form, then all photographs of people on the display board **will** be covered.
- **Credit must be given to the person(s) who took the photographs. If the student exhibitor took all of the photographs, one statement (all photographs taken by John Doe) may be placed on the board.**
- *No visual presentations of surgical techniques, dissections, necropsies and other lab techniques depicting vertebrate animals or humans in other than normal conditions are to be displayed.*

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Mentors/Research Advisors

If a student has a project interest outside your area of expertise, try to find a **mentor** for that student. This does not mean that the mentor will supervise the project. The mentor could be someone with whom the student discusses his/her idea. These exchanges could be via email. The mentor might be able to give suggestions on how to approach the experiment. Local universities and colleges are a great place to find a mentor. Please contact the Fair Directors, Shelly Blunt (812/465-1268, sblunt@usi.edu) or Allison Grabert (812/228-5019, afgrabert@usi.edu) if you need assistance finding a mentor for a student.

A **research advisor** is a person with whom a student is working with in an institutional laboratory. This is not required of students. If a student is working at an institution other than their school, the appropriate ISEF forms will need to be completed.