

# **SENIOR DIVISION**

**Science Fair Rules**

**Entry Form**

**Judging Criteria**

**Required Forms**

## Science Fair Rules

1. One copy of the entry form, ISEF abstract form, and all required forms **MUST BE RECEIVED** on or before February 9, 2010. Students must prepare a **RESEARCH PLAN** after adequate library research, before the experimentation is started. The research plan should clearly define the objective and demonstrate scientific principles.
2. Exhibits will be received Tuesday, March 9, 2010, at 9:30 a.m. and must be in place by 11:00 a.m.
3. Senior Division 9-12 grade.
4. Entries must be declared in one of the following categories:

Behavioral and Social Sciences	Biochemistry
Botany	Chemistry
Earth and Space Sciences	Engineering
Environmental Science	Mathematics and Computer Sciences
Medicine and Health	Microbiology
Physics	Zoology
5. Please use great care in selecting the proper category for your research entry. It will be judged in that category with the following exceptions:
  - a. If there are fewer than 3 entries in any category, this will be considered an insufficient number, and the entries will each be distributed into the most appropriate category based upon the title and the abstract, in the opinions of the Chief of Judges and the Director.
  - b. If a judging team feels that a particular project is misclassified, it may be transferred to a more appropriate category with the approval of both judging teams concerned, the Chief of Judges and the Director.
6. All exhibits must be "Certified Approved" by the Inspection Committee and a signed certificate must be displayed prior and during judging. All required forms must be displayed prior and during judging. The Inspection Committee will ascertain that the exhibit conforms to all regulations (size, safety, etc.). All exhibits must be approved by the Regional Science Fair Scientific Review Committee.
7. Exhibits **MUST NOT** exceed 30 inches in depth (front to rear), 48 inches in width (side to side) and 108 inches in height (includes table). All switches and cords for 110 volts must be approved; if high voltage, it must have its own fuse.
8. A student may work on only one exhibit, individually or as a group member. **All work must be done by the student.** Teachers or parents may only advise.

9. No plants, animals, soils, chemicals, class 3 or 4 lasers, or explosives may be exhibited. Research involving the use of animals may display drawings, charts or graphs to illustrate the conditions, developments, and results of the investigations. Sealed insect collections will be permitted on display. Photographs and other presentations of surgical techniques, dissections, autopsies and/or other laboratory techniques depicting vertebrate animals in other than normal conditions, may not be displayed on the student's exhibit, but may be contained in an accompanying notebook to be shown only during judging. Photographs of human subjects require signed consent before display. All display material on the display boards must be from the current year.
10. Every effort will be made to prevent damage or loss to exhibits. Security will be present during public viewing. However, Southeast Missouri State University, Drury Southwest, Hathaway Consulting, The Southeast Missourian, Linda R. Godwin Center for Science and Mathematics Education nor the Show Me Center will be responsible for loss or damage to any exhibit or part thereof.
11. All exhibits must remain until after the awards presentation at the close of the fair and all must be removed before 9:30 p.m. Any projects removed before the awards presentations are automatically disqualified for any award.
12. These rules conform to those of the International Science and Engineering Fair and must be followed.

**ENTRY FORM 49th SOUTHEAST MISSOURI REGIONAL SCIENCE FAIR**  
**March 8, 2005**  
**Exhibitor's Information. PLEASE PRINT OR TYPE.**

**First Entrant**

Name \_\_\_\_\_ Age \_\_\_\_\_ M F Grade \_\_\_\_\_  
Address \_\_\_\_\_ Date of Birth \_\_\_\_\_  
City \_\_\_\_\_ Zip Code \_\_\_\_\_ Social Security # \_\_\_\_\_  
Parent/Guardian Name \_\_\_\_\_  
School Name \_\_\_\_\_ Phone \_\_\_\_\_ City \_\_\_\_\_  
Teacher's Name \_\_\_\_\_ County \_\_\_\_\_

**Second Entrant**

Name \_\_\_\_\_ Age \_\_\_\_\_ M F Grade \_\_\_\_\_  
Address \_\_\_\_\_ Date of Birth \_\_\_\_\_  
City \_\_\_\_\_ Zip Code \_\_\_\_\_ Social Security # \_\_\_\_\_  
Parent/Guardian Name \_\_\_\_\_

**Third Entrant**

Name \_\_\_\_\_ Age \_\_\_\_\_ M F Grade \_\_\_\_\_  
Address \_\_\_\_\_ Date of Birth \_\_\_\_\_  
City \_\_\_\_\_ Zip Code \_\_\_\_\_ Social Security # \_\_\_\_\_  
Parent/Guardian Name \_\_\_\_\_

**Title of Exhibit** \_\_\_\_\_

**Check one of the following in each area: Electricity:**  Yes (\$15.00)  No (\$10.00)

**Category:**

<input type="checkbox"/> Behavioral & Social Sciences	<input type="checkbox"/> Earth & Space Sciences	<input type="checkbox"/> Medicine & Health
<input type="checkbox"/> Biochemistry	<input type="checkbox"/> Engineering	<input type="checkbox"/> Microbiology
<input type="checkbox"/> Botany	<input type="checkbox"/> Environmental Science	<input type="checkbox"/> Physics
<input type="checkbox"/> Chemistry	<input type="checkbox"/> Mathematics & Computer Science	<input type="checkbox"/> Zoology

**If in 12th grade, interested in a Southeast Missouri State University Scholarship:**  Yes  No

The exhibit described above is my own work and has been constructed with only advisory help from others and/or use of purchased or borrowed auxiliary equipment. In entering this exhibit in the 49th Regional Science Fair, I agree to abide by the rules as stipulated in the International Rules of Precollege Science Research: Guidelines for Science Fairs. I further understand that no entries postmarked after February 21, 2005 will be eligible for competition. I have participated in only one project, individual or group. I am submitting 1 copy of the entry form, abstract, and all required forms, and the appropriate entry fee.

\_\_\_\_\_  
**Signature of Science Fair Contestant(s)**

\_\_\_\_\_  
**Signature of Sponsoring Teacher**  
(indicates knowledge and approval)

**Mail by February 21, 2005 to:** Chris McGowan, College of Science and Mathematics, One University Plaza, MS 6000, Southeast Missouri State University, Cape Girardeau, MO 63701

# Judging Criteria

POTENTIAL MAXIMUM SCORE CHART

Criteria	Individual Projects	Team Projects
Creative Ability	30 points	25 points
Scientific Thought/ Engineering Goals	30 points	25 points
Thoroughness	15 points	12 points
Skill	15 points	12 points
Clarity	10 points	10 points
Teamwork	-----	16 points
<b>Total Possible Score</b>	<b>100 points</b>	<b>100 points</b>

## I. Creative Ability (Individual, 30; Team, 25)

- 1) Does the project show creative ability and originality –
  - a. in the questions asked?
  - b. the approach to solving the problem?
  - c. the analysis of the data?
  - d. the interpretation of the data?
  - e. the use of equipment?
  - f. the construction or design of new equipment.
- 2) Creative research should support an investigation and help answer a question in an original way.
- 3) A creative contribution promotes an efficient and reliable method for solving a problem. When evaluating projects, it is important to distinguish between gadgeteering and ingenuity.

## IIa. Scientific Thought (Individual, 30; Team, 25)

- 1) Is the problem stated clearly and unambiguously?
- 2) Was the problem sufficiently limited to allow plausible approach? Good scientists can identify important problems capable of solutions.
- 3) Was there a procedural plan for obtaining a solution?
- 4) Are the variables clearly recognized and defined?
- 5) If controls were necessary, did the student recognize their need and were they correctly used?
- 6) Are there adequate data to support the conclusions?
- 7) Does the finalist or team recognize the data's limitations?
- 8) Does the finalist/team understand the project's ties to related research?
- 9) Does the finalist/team have an idea of what further research is warranted?
- 10) Did the finalist/team cite scientific literature, or only popular literature (i.e., local newspapers, Reader's Digest)?

## IIb. Engineering Goals (individual, 30; Team, 25)

- 1) Does the project have a clear objective?
- 2) Is the objective relevant to the potential user's needs?

- 3) Is the solution workable? Acceptable to the potential user? Economically feasible?
- 4) Could the solution be utilized successfully in design or construction of an end product?
- 5) Is the solution a significant improvement over previous alternatives?
- 6) Has the solution been tested for performance under the conditions of use?

### **III. Thoroughness (Individual, 15; Team, 12)**

- 1) Was the purpose carried out to completion within the scope of the original intent?
- 2) How completely was the problem covered?
- 3) Are the conclusions based on a single experiment or replication?
- 4) How complete are the project notes?
- 5) Is the finalist/team aware of other approaches or theories?
- 6) How much time did the finalist or team spend on the project?
- 7) Is the finalist/team familiar with scientific literature in the studied field?

### **IV. Skill (Individual, 15; Team, 12)**

- 1) Does the finalist/team have the required laboratory, computation, observational and design skills to obtain supporting data?
- 2) Where was the project performed (i.e., home, school laboratory, university laboratory)? Did the student or team receive assistance from parents, teachers, scientists or engineers?
- 3) Was the project completed under adult supervision, or did the student/team work largely alone?
- 4) Where did the equipment come from? Was it built independently by the finalist or team? Was it obtained on loan? Was it part of a laboratory where the finalist or team worked?

### **V. Clarity (Individual, 10; Team, 10)**

- 1) How clearly does the finalist discuss his/her project and explain the purpose, procedure, and conclusions? Watch out for memorized speeches that reflect little understanding of principles.
- 2) Does the written material reflect the finalist's or team's understanding of the research?
- 3) Are the important phases of the project presented in an orderly manner?
- 4) How clearly is the data presented?
- 5) How clearly are the results presented?
- 6) How well does the project display explain the project?
- 7) Was the presentation done in a forthright manner, without tricks or gadgets?
- 8) Did the finalist/team perform all the project work, or did someone help?

### **VI. Teamwork (Team Projects only, 16)**

- 1) Are the tasks and contributions of each team member clearly outlined?
- 2) Was each team member fully involved with the project, and is each member familiar with all aspects?
- 3) Does the final work reflect the coordinated efforts of all team members?

# REQUIRED FORMS

Forms can be accessed at:

<http://www.societyforscience.org/isef/document/index.asp>

or by clicking on the appropriate form below:

## **Checklist for Adult Sponsor – Form 1**

Completed form required for ALL projects and must be completed before experimentation.

## **Student Checklist; Research Plan Instructions – Form 1A**

A complete research plan is required and must accompany Checklist for Student (1A).

All signatures must be before proposed start date.

## **Approval Form – Form 1B**

Completed form required for each student, including all team members.

## **Regulated Research Institutional/Industrial Setting Form – Form 1C (if required)**

This form must be completed after experimentation by the adult supervising the student research conducted in a regulated research institution, industrial setting or any work site other than home, school or field.

## **Qualified Scientist Form – Form 2 (if required)**

May be required for research involving human subjects, vertebrate animals, potentially hazardous biological agents, and DEA-controlled substances.

Must be completed and signed before the start of student experimentation.

## **Risk Assessment Form – Form 3 (if required)**

Required for projects using hazardous chemicals, activities or devices. Must be completed before experimentation.

## **Human Subjects Form – Form 4 (if required)**

Required for all research involving human subjects. (IRB approval required before experimentation.)

## **Sample of Informed Consent Form**

## **Vertebrate Animal Form – Form 5A (if required)**

Required for all research involving vertebrate animals that is conducted in a Non-Regulated Research Site. (SRC approval required before experimentation.)

## **Vertebrate Animal Form – Form 5B**

Required for all research involving vertebrate animals that is conducted at a Regulated Research Institution if required. (IACUC approval required before experimentation.)

## **Potentially Hazardous Biological Agents Risk Assessment Form – Form 6A (if required)**

Required for research involving microorganisms, rDNA, fresh/frozen tissue, blood and body fluids. SRC/IACUC/IBC approval required before experimentation.

## **Human and Vertebrate Animal Tissue Form – Form 6B (if required)**

Required for projects using fresh/frozen tissue, primary cell cultures, blood, blood products and body fluids. If the research involves living organisms, please ensure that the proper human or animal forms are completed.

All projects using any tissue listed above, must also complete Form 6A.

## **Continuation Projects Form – Form 7**

Required for projects that are a continuation in the same field of study as a previous project.

This form must be accompanied by the previous year's abstract and Research Plan.



# Student Checklist (1A)

This form is required for ALL projects.

- 1) a. Student/Team Leader: \_\_\_\_\_ Grade: \_\_\_\_\_  
Email: \_\_\_\_\_ Phone: \_\_\_\_\_  
b. Team Member: \_\_\_\_\_ c. Team Member: \_\_\_\_\_
- 2) Title of Project: \_\_\_\_\_  
\_\_\_\_\_
- 3) School: \_\_\_\_\_ School Phone: \_\_\_\_\_  
School Address: \_\_\_\_\_  
\_\_\_\_\_
- 4) Adult Sponsor: \_\_\_\_\_ Phone/Email: \_\_\_\_\_
- 5) Is this a continuation from a previous year?  Yes  No  
**If Yes:**  
a) Attach the previous year's  **Abstract**  **Form 1A** and  **Research Plan**  
b) Explain how this project is new and different from previous years on  **Continuation Form (7)**
- 6) **This year's** laboratory experiment/data collection will begin: (must be stated (mm/dd/yy))  
Projected Start Date: \_\_\_\_\_ Projected End Date: \_\_\_\_\_  
(Projected dates are required for projects that require SRC/IRB prior review)  
ACTUAL Start Date: \_\_\_\_\_ ACTUAL End Date: \_\_\_\_\_
- 7) Where will you conduct your experimentation? (check all that apply)  
 Research Institution  School  Field  Home  Other: \_\_\_\_\_
- 8) List name and address of all non-school work site(s):  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_
- 9) **Complete a Research Plan as described on page 31 and attach to this form.**
- 10) **An abstract is required for all projects after experimentation (see page 28).**

# Research Plan Instructions

A complete research plan is required and must accompany Checklist for Student (1A)

Provide a typed research plan and attach to Student Checklist (1A).

The research plan for ALL projects is to include the following:

**A. Question or Problem being addressed**

**B. Hypothesis/Engineering Goals**

**C. Description in detail of method or procedures** (The following are important and key items that should be included when formulating ANY AND ALL research plans.)

- **Procedures:** Detail all procedures and experimental design to be used for data collection
- **Data Analysis:** Describe the procedures you will use to analyze the data that answer research question or hypothesis

**D. Bibliography:** List at least five (5) major references (e.g. science journal articles, books, internet sites) from your literature review. If you plan to use vertebrate animals, one of these references must be an animal care reference.

- Choose one style and use it consistently to reference the literature used in the research plan
- Guidelines can be found in the Student Handbook

Items 1-4 below are guidelines to be followed when applicable:

1. **Human subjects research** (See instructions on p. 13 of the International Rules):

- **Subjects.** Describe who will participate in your study (age range, gender, racial/ethnic composition). Identify any vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).
- **Recruitment.** Where will you find your subjects? How will they be invited to participate?
- **Methods.** What will participants be asked to do? Will you use any surveys, questionnaires or tests? What is the frequency and length of time involved for each subject?
- **Risks.** What are the risks or potential discomforts (physical, psychological, time involved, social, legal etc) to participants? How will you minimize the risks?
- **Benefits.** List any benefits to society or each participant.
- **Protection of Privacy.** Will any identifiable information (e.g., names, telephone numbers, birthdates, email addresses) be collected? Will data be confidential or anonymous? If anonymous, describe how the data will be collected anonymously. If not anonymous, what procedures are in place for safeguarding confidentiality? Where will the data be stored? Who will have access to the data? What will you do with the data at the end of the study?
- **Informed Consent Process.** Describe how you will inform participants about the purpose of the study, what they will be asked to do, that their participation is voluntary and they have the right to stop at any time.

2. **Vertebrate animal research** (See instructions on p.17 of the International Rules):

- Briefly discuss **POTENTIAL ALTERNATIVES** and present a detailed justification for use of vertebrate animals
- Explain potential impact or contribution this research may have
- Detail all procedures to be used
  - Include methods used to minimize potential discomfort, distress, pain and injury to the animals during the course of experimentation
  - Detailed chemical concentrations and drug dosages
- Detail animal numbers, species, strain, sex, age, etc.
  - Include justification of the numbers planned for the research
- Describe housing and oversight of daily care
- Discuss disposition of the animals at the termination of the study

3. **Potentially Hazardous Biological Agents** (See instructions on p.21 of the International Rules):

- Describe Biosafety Level Assessment process and resultant BSL determination
- Give source of agent, source of specific cell line, etc.
- Detail safety precautions
- Discuss methods of disposal

4. **Hazardous Chemicals, Activities & Devices** (See instructions on p.25 of the International Rules):

- Describe Risk Assessment process and results
- Detail chemical concentrations and drug dosages
- Describe safety precautions and procedures to minimize risk
- Discuss methods of disposal

# Approval Form (1B)

A completed form is required for each student, including all team members.

## 1) To Be Completed by Student and Parent

### a) Student Acknowledgment:

- I understand the risks and possible dangers to me of the proposed research plan.
- I have read the ISEF Rules and Guidelines and will adhere to all International Rules when conducting this research.
- I have read and will abide by the following Ethics statement

**Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include plagiarism, forgery, use or presentation of other researcher's work as one's own, and fabrication of data. Fraudulent projects will fail to qualify for competition in affiliated fairs or the ISEF.**

\_\_\_\_\_  
Student's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date Acknowledged  
(Must be prior to experimentation.)

### b) Parent/Guardian Approval: I have read and understand the risks and possible dangers involved in the **Research Plan**. I consent to my child participating in this research.

\_\_\_\_\_  
Parent/Guardian's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval  
(Must be prior to experimentation.)

## 2) To be completed by the Fair SRC

(Required for projects requiring prior SRC/IRB APPROVAL. Sign 2a or 2b as appropriate.)

### a) Required for projects that need prior SRC/IRB approval BEFORE experimentation (humans, vertebrates or potentially hazardous biological agents)

The SRC/IRB has carefully studied this project's **Research Plan** and all the required forms are included. My signature indicates approval of the **Research Plan** before the student begins experimentation.

\_\_\_\_\_  
SRC/IRB Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval  
(Must be prior to experimentation.)

OR

### b) Required for research conducted at all Regulated Research Institutions with no prior fair SRC/IRB approval.

This project was conducted at a regulated research institution (**not home or high school, etc.**), was reviewed and approved by the proper institutional board before experimentation and complies with the ISEF Rules. **Attach (1C) and required institutional approvals (e.g. IACUC, IRB)**

\_\_\_\_\_  
SRC Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

## 3) Final ISEF Affiliated Fair SRC Approval (Required for ALL Projects)

### SRC Approval After Experimentation and Shortly Before Competition at Regional/State/National Fair

I certify that this project adheres to the approved **Research Plan** and complies with all ISEF Rules.

\_\_\_\_\_  
Regional SRC Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

\_\_\_\_\_  
State/National SRC Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

(where applicable)

# Regulated Research Institutional/Industrial Setting Form (1C)

This form must be completed after experimentation by the adult supervising the student research conducted in a regulated research institution, industrial setting or any work site other than home, school or field.

This form **MUST** be displayed with your project; Responses must be on the form

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

## To be completed by the Supervising Adult in the Setting (NOT the Student) after experimentation:

(Responses must remain on the form as it is required to be displayed at student's project booth.)

The student conducted research at my work site:

- a)  to use the equipment                      b)  to perform experiment(s)/conduct research

1) How did the student get the idea for her/his project?

(e.g. Was the project assigned, picked from a list, an original student idea, etc.)

2) Have you reviewed the ISEF rules relevant to this project?       Yes       No

3) Did the student work on the project as a part of a research group?       Yes       No

If yes, how large was the group and what kind of research group was it (students, group of adult researchers, etc.)

4) What specific procedures or equipment did the student actually use for the project.

Please list and describe. (Do not list procedures student **only** observed.)

5) How independent or creative was the student's work?

*Student research projects dealing with human subjects, vertebrate animals or potentially hazardous biological agents require review and approval by an institutional regulatory board (IRB/IACUC/IBC). **Copy of approval(s) must be attached, if applicable.***

\_\_\_\_\_  
Supervising Adult's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Institution

\_\_\_\_\_  
Date Signed

\_\_\_\_\_  
Address

\_\_\_\_\_  
Email/ Phone

## Qualified Scientist Form (2)

**May be required for research involving human subjects, vertebrate animals, potentially hazardous biological agents, and DEA-controlled substances. Must be completed and signed before the start of student experimentation.**

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

### To be completed by the Qualified Scientist:

Scientist Name: \_\_\_\_\_

Educational Background: \_\_\_\_\_ Degree(s): \_\_\_\_\_

Experience/Training as relates to the student's area of research:  
\_\_\_\_\_

Position: \_\_\_\_\_ Institution: \_\_\_\_\_

Address: \_\_\_\_\_ Email/Phone: \_\_\_\_\_

- 1) Have you reviewed the ISEF rules relevant to this project?  yes  no
- 2) Will any of the following be used?
- a) Human subjects . . . . .  yes  no
  - b) Vertebrate animals . . . . .  yes  no
  - c) Potentially hazardous biological agents (microorganisms, rDNA and tissues, including blood and blood products) . . . . .  yes  no
  - d) DEA-controlled substances . . . . .  yes  no
- 3) Will you directly supervise the student? . . . . .  yes  no
- a. If no, who will directly supervise and serve as the Designated Supervisor? \_\_\_\_\_
  - b. Experience/Training of the Designated Supervisor: \_\_\_\_\_

4) Describe the safety precautions and training necessary for this project:

**To be completed by the Qualified Scientist:**

I certify that I have reviewed and approved the **Research Plan** prior to the start of the experimentation. If the student or Designated Supervisor is not trained in the necessary procedures, I will ensure her/his training. I will provide advice and supervision during the research. I have a working knowledge of the techniques to be used by the student in the **Research Plan**. I understand that a Designated Supervisor is required when the student is not conducting experimentation under my direct supervision.

\_\_\_\_\_  
Qualified Scientist's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

**To be completed by the Designated Supervisor when the Qualified Scientist cannot directly supervise.**

I certify that I have reviewed the **Research Plan** and have been trained in the techniques to be used by this student, and I will provide direct supervision.

\_\_\_\_\_  
Designated Supervisor's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Email

## Risk Assessment Form (3)

Required for projects using hazardous chemicals, activities or devices.

Must be completed before experimentation.

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

**To be completed by the Student Researcher in collaboration with Designated Supervisor/Qualified Scientist:**

(All questions must be answered; additional page(s) may be attached.)

1. List/identify the hazardous chemicals, activities, devices or microorganisms that will be used.

2. Identify and assess the risks involved.

3. Describe the safety precautions and procedures that will be used to reduce the risks.

4. Describe the disposal procedures that will be used (when applicable).

5. List the source(s) of safety information.

**To be completed and signed by the Designated Supervisor (or Qualified Scientist, when applicable):**

I agree with the risk assessment and safety precautions and procedures described above. I certify that I have reviewed the **Research Plan** and will provide direct supervision.

\_\_\_\_\_  
Designated Supervisor's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Review  
(must be prior to experimentation.)

\_\_\_\_\_  
Position & Institution

\_\_\_\_\_  
Phone or email contact information

\_\_\_\_\_  
Experience/Training as relates to the student's area of research

# Human Subjects Form (4)

**Required for all research involving human subjects. (IRB approval required before experimentation.)**

Student's Name \_\_\_\_\_ Title of Project \_\_\_\_\_

Adult Sponsor: \_\_\_\_\_ Contact Phone/Email: \_\_\_\_\_

**To be completed by Student Researcher in collaboration with the Adult Sponsor/Designated Supervisor/Qualified Scientist:**

1.  I have submitted my Research Plan which addresses ALL areas indicated in the Human Subjects Section of the Research Plan Instructions.
2.  I have attached any surveys or questionnaires I will be using in my project.
3.  Yes  No I am requesting a waiver of the documentation of informed consent and/or minor assent.
4.  Yes  No  Not Applicable I am requesting a waiver for obtaining parental permission.

If you answered NO to questions 3 or 4 (no waiver requested), attach the consent form you will use.

5.  Yes  No Are you working with a Qualified Scientist?  
 Name: \_\_\_\_\_ Degree: \_\_\_\_\_  
 Email Address/Phone Number: \_\_\_\_\_  
 Experience/Training as it relates to this project: \_\_\_\_\_

**To be completed by Institutional Review Board (IRB) after review of the research plan.** The submitted Research Plan must address all areas indicated on the Human Subjects section of the Research Plan Instructions.

Check one of the following:

- Research project requires revisions and is **NOT approved** at this time. IRB will attach document indicating concerns and/or requested revisions.
- Research project is **Approved** with the following conditions below: (All 5 must be answered)
  1. Risk Level (check one) :  Minimal Risk  More than Minimal Risk
  2. Qualified Scientist (QS) Required:  Yes  No
  3. Written Minor Assent required for minor subjects:  
 Yes  No  Not applicable (No minors in this study)
  4. Written Parental Permission required for minor subjects:  
 Yes  No  Not applicable (No minors in this study)
  5. Written Informed Consent required for subjects 18 years or older:  
 Yes  No  Not applicable (No subjects 18 yrs or older in this study)

**IRB SIGNATURES (All 3 signatures required)** None of these individuals may be the adult sponsor, designated supervisor, qualified scientist or related to (e.g., mother, father of) the student (conflict of interest).

**I attest that I have reviewed the student's project and agree with the above IRB determinations.**

Medical or Mental Health Professional (a psychologist, psychiatrist, medical doctor, licensed social worker, licensed clinical professional counselor, physician's assistant, or registered nurse)	
Printed Name	Degree
Signature	Date of Approval

School Administrator	
Printed Name	Degree
Signature	Date of Approval

Educator	
Printed Name	Degree
Signature	Date of Approval

# Sample of Informed Consent Form

**Instructions to the Student Researcher:** An informed consent form should be developed in consultation with the Adult Sponsor, Designated Supervisor or Qualified Scientist.

This form is used to provide information to the research subject (or parent/guardian) and to document written informed consent, minor assent and/or parental permission.

- When written documentation is required, the researcher keeps the original, signed form.
- Students may use this form or may copy **ALL** elements of this form into a new document.

---

**I am asking for your voluntary participation in my science fair project. Please read the following information about the project. If you would like to participate, please sign in the appropriate box below.**

**Purpose of the project:**

**If you participate, you will be asked to:**

**Time required for participation:**

**Risks:**

**Benefits:**

**How confidentiality will be maintained:**

If you have any questions about this study, feel free to contact:

Adult Sponsor: \_\_\_\_\_ Phone/email: \_\_\_\_\_

**Voluntary Participation:**

Participation in this study is completely voluntary. If you decide not to participate there will not be any negative consequences. Please be aware that if you decide to participate, you may stop participating at any time and you may decide not to answer any specific question.

By signing this form I am attesting that I have read and understand the information above and I freely give my consent/ assent to participate or permission for my child to participate.

**Adult Informed Consent or Minor Assent**

Date Reviewed & Signed: \_\_\_\_\_

Printed Name of Research Subject:

Signature:

\_\_\_\_\_

\_\_\_\_\_

**Parental/Guardian Permission (if applicable)**

Date Reviewed & Signed: \_\_\_\_\_

Parent/Guardian Printed Name:

Signature:

\_\_\_\_\_

\_\_\_\_\_

# Vertebrate Animal Form (5A)

Required for all research involving vertebrate animals that is conducted in a Non-Regulated Research Site.  
(SRC approval required before experimentation.)

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

## To be completed by Student Researcher:

1. Common name (or Genus, species) and number of animals used.
2. Describe completely the housing and husbandry to be provided. Include the cage/pen size, number of animals per cage, environment, bedding, type of food, frequency of food and water, how often animal is observed, etc.
3. What will happen to the animals after experimentation?

## To be completed by Scientific Review Committee (SRC) BEFORE experimentation

### Level of Supervision Required for agricultural, behavioral or nutritional studies:

- Designated Supervisor REQUIRED. Please have applicable person sign below.
- Veterinarian and Designated Supervisor REQUIRED. Please have applicable persons sign below.
- Veterinarian, Designated Supervisor and Qualified Scientist REQUIRED. Please have applicable persons sign below and have the Qualified Scientist complete Form (2).

The SRC has carefully reviewed this study and finds it is an appropriate study that may be conducted in a non-regulated research site.

### SRC Pre-Approval Signature:

\_\_\_\_\_  
SRC Chair Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

### To be completed by Veterinarian:

- I certify that I have reviewed this research and animal husbandry with the student before the start of experimentation.
- I certify that I have approved the use and dosages of prescription drugs and/or nutritional supplements.
- I certify that I will provide veterinary medical and nursing care in case of illness or emergency.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Email/Phone

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

### To be completed by Designated Supervisor:

- I certify that I have reviewed this research and animal husbandry with the student before the start of experimentation and I accept primary responsibility for the care and handling of the animals in this project.
- I certify that I will directly supervise the experiment.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Email/Phone

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

# Vertebrate Animal Form (5B)

**Required for all research involving vertebrate animals that is conducted at a Regulated Research Institution.  
(IACUC approval required before experimentation.)**

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

Title and Protocol Number of IACUC Approved Project \_\_\_\_\_

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**To be completed by Qualified Scientist or Principal Investigator:**

1. Was this a student-generated idea or was it a subset of your work?
  
2. Have you reviewed the ISEF Rules relevant to this project?
  
3. What laboratory training, including dates, was provided to the student?
  
4. Species of animals used: \_\_\_\_\_ Number of animals used: \_\_\_\_\_
  
5. USDA Pain Category designated for this study: \_\_\_\_\_
  
6. Describe, in detail, the role of the student in this project: procedures and equipment they were involved with, oversight provided and safety precautions employed. (Attach extra pages if necessary.)

**7. Attach a copy of the Regulated Research Institution IACUC Approval.** A letter from the Qualified Scientist or Principal Investigator is not sufficient.

**Certification or Documentation of Student Researcher Training**

List Certificate Number or Attach Documentation	Date(s) of Training	
Qualified Scientist/Principal Investigator Printed Name	Signature	Date
IACUC Chair/Coordinator Printed Name	Signature	Date

# Potentially Hazardous Biological Agents Risk Assessment Form (6A)

Required for research involving microorganisms, rDNA, fresh/frozen tissue, blood and body fluids.

SRC/IACUC/IBC approval required before experimentation.

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

## To be completed by Student Researcher in collaboration with Qualified Scientist/Designated Supervisor:

(All questions are applicable and must be answered; additional page(s) may be attached.)

- 1) Identify potentially hazardous biological agents to be used in this experiment. Include the source, quantity and the biosafety level risk group of each microorganism.
- 2) Describe the site of experimentation including the level of biological containment.
- 3) Describe the method of disposal of all cultured materials and other potentially hazardous biological agents.
- 4) Describe the procedures that will be used to minimize risk. (personal protective equip., hood type, etc.)
- 5) What final biosafety level do you recommend for this project given the risk assessment you conducted?

## To be completed by Qualified Scientist or Designated Supervisor

- 1) What training will the student receive for this project?
- 2) Do you concur with the biosafety information and recommendation provided by the student researcher above?  Yes  No  
If no, please explain.

\_\_\_\_\_  
QS/DS Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Signature

Experience/training of Designated Supervisor as it relates to the student's area of research (if applicable)

### To be completed by SRC prior to experimentation:

- The SRC has carefully studied this project's Research Plan and the risk level assessment above and approves this study as a BSL-1 study, which must be conducted at a BSL-1 or above laboratory.
- The SRC has carefully studied this project's Research Plan and the risk level assessment above and approves this study as a BSL-2 study, which must be conducted at a BSL-2 or above laboratory.

\_\_\_\_\_  
SRC Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

### To be completed by SRC after experimentation with Institutional pre-approval:

- This project was reviewed and approved by the appropriate institutional board (e.g. IACUC, IBC) before experimentation at a BSL-1 or BSL-2 laboratory and complies with the ISEF rules. The required institutional forms are attached.
- The institution does not require approval for this type of study. The student has received proper training. Attached is a letter from an institutional representative certifying the above.

\_\_\_\_\_  
SRC Chair's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Approval

# Human and Vertebrate Animal Tissue Form (6B)

Required for projects using fresh/frozen tissue, primary cell cultures, blood, blood products and body fluids.

If the research involves living organisms, please ensure that the proper human or animal forms are completed.

*All projects using any tissue listed above, must also complete Form 6A.*

Student's Name \_\_\_\_\_

Title of Project \_\_\_\_\_

## To be completed by Student Researcher:

1) What tissue(s), organ(s), or part(s) will be used?

2) Where will the above tissue, organ, or part be obtained (identify each separately):

3) If the tissue is obtained from a source within a research institution, please provide information regarding the vertebrate study from which the tissue was obtained. Attach a copy of the IACUC certification with the name of the research institution, the title of the study, the IACUC approval number and date of IACUC approval.

## To be completed by the Qualified Scientist or Designated Supervisor:

I verify that the student will work solely with organs, tissues, cultures or cells that will be supplied to him/her by myself or qualified personnel from the laboratory; and that if vertebrate animals were euthanized they were euthanized for a purpose other than the student's research.

**AND/OR**

I certify that the blood, blood products, tissues or body fluids in this project will be handled in accordance with the standards and guidance set forth in Occupational Safety and Health Act, 29CFR, Subpart Z, 1910.1030 - Blood Borne Pathogens.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date Signed

(Must be prior to experimentation.)

\_\_\_\_\_  
Title

\_\_\_\_\_  
Phone/Email

\_\_\_\_\_  
Institution

## Continuation Projects Form (7)

**Required for projects that are a continuation in the same field of study as a previous project.  
This form must be accompanied by the previous year's abstract and Research Plan.**

Student's Name \_\_\_\_\_

**To be completed by Student Researcher:**

List all components of the current project that make it new and different from previous research. The information must be on the form; use an additional form for 2006 and earlier projects.

Components	Current Research Project	Previous Research Project
<b>1. Title</b>		2008-2009:  2007-2008:
<b>2. Line of investigation/ central theme of research</b>		2008-2009:  2007-2008:
<b>3. Objectives</b>		2008-2009:  2007-2008:
<b>4. Variables studied</b>		2008-2009:  2007-2008:
<b>5. Additional changes</b>		2008-2009:  2007-2008:

Attached are:

2009 Abstract and Research Plan

2008 Abstract

2007 Abstract

I hereby certify that the above information is correct and that the current year Abstract & Certification and project display board properly reflect work done only in the current year.

\_\_\_\_\_  
Student's Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date of Signature

Intel ISEF OFFICIAL ABSTRACT and CERTIFICATION



Title

Finalist's Name(s)  
School Name, City and State, Country

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Start Typing the Body of Your Abstract Here Beginning at the Left Margin

Category  
Pick one only--  
mark an "X" in  
box at right

- Animal Sciences
- Behavioral and Social Science
- Biochemistry
- Cellular & Molecular Biology
- Chemistry
- Computer Science
- Earth Science
- Eng. Electrical & Mechanical
- Eng. Materials & Bioengineering
- Energy & Transportation
- Environmental Management
- Environmental Sciences
- Mathematical Sciences
- Medicine and Health
- Microbiology
- Physics and Astronomy
- Plant Sciences

1. As a part of this research project, the student directly handled, manipulated, or interacted with (check ALL that apply):
  - human subjects
  - vertebrate animals
 Potentially hazardous biological agents:
  - microorganisms
  - rDNA
  - tissue
2. Student independently performed all procedures as outlined in this abstract.  Yes  No
3. Student worked or used equipment in a site other than school, field or home.  Yes  No
4. This project is a continuation of previous research.  Yes  No
5. My display board includes non-published photographs/visual depictions of humans (other than myself):  Yes  No

***I/We hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I/We also attest that the above properly reflects my/our own work.***

\_\_\_\_\_

Finalist or Team Leader Signature                      Date



*This embossed seal attests that this project is in compliance with all federal and state laws and regulations and that all appropriate reviews and approvals have been obtained including the final clearance by the Intel ISEF Scientific Review Committee.*

## ABSTRACT & CERTIFICATION INSTRUCTIONS

*This abstract form and the instructions below are intended for Intel ISEF finalists. Entrants of regional and state fairs may also be directed to use this form. Please follow all local, regional or state instructions. As an Intel ISEF finalist, you will receive further information and will be required to complete this abstract in an on-line abstract system immediately after winning at your regional or state fair.*

### WRITING REQUIREMENTS

Abstracts should be **single-spaced using 12-point type** from a black ribbon or laser cartridge. Abstracts may not exceed 250 words and must be typed within the predefined area (5.5" tall by 6" wide). Type title (Title Case required); your first name, middle initial and last name; and your school's name, city and state within the first .75 inches of space within the box. Two lines may be used for the title. *Teams must include all team member names.*

Example: Effects of Marine Engine Exhaust Water on Algae  
Mary E. Jones  
Hometown High School, Hometown, Pennsylvania

**BE SURE TO ANSWER THE 4 QUESTIONS BY MARKING THE APPROPRIATE BOXES AND CERTIFY BY SIGNING**

### TIPS ON WRITING

The three most common reasons that a student is asked to rewrite the abstract are 1) including acknowledgements (this includes naming the research institution and/or mentor with which you were working) 2) describing research not completed by the student finalist and 3) describing research done in previous years. Please limit yourself to describing research **you** have done in the current year.

### THE ABSTRACT ON YOUR DISPLAY BOARD

Because your Abstract & Certification will not be considered an official one until it is stamped/embossed at the Intel ISEF, you must **NOT** mount a copy of any abstract on your vertical display board before arriving at the Intel ISEF. If you plan to have an Abstract & Certification on your vertical display board (recommended), you should leave a space (8.5 by 11 inches) for it to be mounted after you have arrived at the ISEF and your Official Abstract & Certification has been returned with the embossed approval.

If you do not plan to mount a copy of your official Abstract & Certification on your vertical display board, you should bring with you a means by which to display the official Abstract & Certification in a vertical position somewhere at your project. The only abstract allowed anywhere at the Intel ISEF is the official Abstract & Certification. **The term "abstract" may NOT be used** as a title or reference for any information **on your vertical display board** or in readily visible materials at the project **except as a part of displaying the Official Abstract & Certification.**

# Information on Required Abstract & Certification for ALL Projects at the Intel ISEF

*\* This form may not be relevant for your regional or state fair; please refer to instructions from your affiliated fair.\**

In ADDITION to the basic form requirements for ALL Projects and any other requirements due to specific areas of research, an Abstract & Certification is required at the conclusion of research. Details on this requirement follow.

## Completing the Abstract

After finishing research and experimentation, you are required to write a (maximum) 250 word, one-page abstract. This should be written on the Official Abstract and Certification Form as provided by Society for Science & the Public. The abstract **should include the following:**

- a) *purpose of the experiment*
- b) *procedure*
- c) *data*
- d) *conclusions*

It may also include any possible research applications. Only minimal reference to previous work may be included. An abstract **must not include the following:**

- a) *acknowledgments (including naming the research institution and/or mentor with which you were working), or self-promotions and external endorsements*
- b) *work or procedures done by the mentor*

## Completing the Certification

At the bottom of the Abstract & Certification form there are six questions. Please read each carefully and answer appropriately. The Intel ISEF Scientific Research Committee will review and approve the abstract and answers to the questions.

Revisions or questions will be resolved via an SRC appointment on site at the Intel ISEF. Please bring a copy of your Abstract & Certification to the fair. Only after final Intel ISEF SRC approval has been obtained via a stamped/embossed copy of this Abstract & Certification may a Finalist make copies to hand out to the judges and the public.

**Intel ISEF Sample Abstract & Certification**

<p>Title _____</p> <p>Finalist's Name _____</p> <p>School Name, City and State, Country _____</p> <hr style="border: 0.5px solid black;"/> <p>Start Typing the Body of Your Abstract Here Beginning at the Left Margin</p>	<p>Category</p> <p>Pick one only-- mark an "X" in box at right</p> <ul style="list-style-type: none"> <li>Animal Sciences <input type="checkbox"/></li> <li>Behavioral and Social Science <input type="checkbox"/></li> <li>Biochemistry <input type="checkbox"/></li> <li>Cellular &amp; Molecular Biology <input type="checkbox"/></li> <li>Chemistry <input type="checkbox"/></li> <li>Computer Science <input type="checkbox"/></li> <li>Earth Science <input type="checkbox"/></li> <li>Eng. Materials &amp; Bioengineering <input type="checkbox"/></li> <li>Eng.: Electrical &amp; Mechanical <input type="checkbox"/></li> <li>Energy &amp; Transportation <input type="checkbox"/></li> <li>Environmental Sciences <input type="checkbox"/></li> <li>Environmental Management <input type="checkbox"/></li> <li>Mathematical Sciences <input type="checkbox"/></li> <li>Medicine and Health <input type="checkbox"/></li> <li>Microbiology <input type="checkbox"/></li> <li>Physics &amp; Astronomy <input type="checkbox"/></li> <li>Plant Sciences <input type="checkbox"/></li> </ul>
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1. As a part of this research project, the student directly handled, manipulated, or interacted with (check all that apply):
 

<input type="checkbox"/> human subjects	<input type="checkbox"/> potentially hazardous biological agents:
<input type="checkbox"/> vertebrate animals	<input type="checkbox"/> microorganisms <input type="checkbox"/> rDNA <input type="checkbox"/> tissue
2. This abstract describes only procedures performed by me/us, reflects my/our own independent research, and represents one year's work only.  yes  no
3. I/We worked or used equipment in a regulated research institution or industrial setting.  yes  no
4. This project is a continuation of previous research.  yes  no
5. My display board includes non-published photographs/visual depictions of humans (other than myself):  yes  no
6. I/We hereby certify that the abstract and responses to the above statements are correct and properly reflect my/our own work.  yes  no

FOR INTEL  
ISEF OFFICIAL  
USE ONLY

*This embossed seal attests that this project is in compliance with all federal and state laws and regulations and that all appropriate reviews and approvals have been obtained including the final clearance of the Intel ISEF Scientific Review Committee.*

**NOTE: Your abstract must be on the Intel International Science and Engineering Fair Abstract & Certification form and embossed/stamped by the Intel ISEF Scientific Review Committee before it is displayed or handed out. No pasted or taped text will be permitted. No other format or version of your approved Abstract & Certification will be allowed for any purpose at the Intel ISEF.**