



FORTIS TCI
ENERGY FOR GOOD™

TCI's premier science showcase

NATIONAL SCIENCE PROJECT COMPETITION

Hosted in partnership with the TCI Ministry of Education.



This guide applies to judges of high school projects.

SHOWCASING BRIGHT MINDS

FortisTCI National Science & Technology Fair is one of the company's largest and longest running sponsored events. Launched in 2009, the fair is held in conjunction with the Education Department within the TCI Ministry of Education and brings together some of the country's brightest and most creative young minds.

www.fortistcisciencefair.com

Table of Contents

03

ISEF Categories and Sub-Categories Sheet

04

Judging Criteria/Score Sheet

06

Mandatory Forms for All Projects

- Abstract Summary Form
- Student Checklist (1A)
- Parent/Guardian Approval Form (1B)
- Checklist for Adult Sponsor (1)
- Risk Assessment Form (3)
- Research Plan/Project Summary Template

14

Research Plan/Project Summary Instructions

15

Case Specific Forms

- Continuation/Research Progression Project Form (7)
- Qualified Scientist Form (2)
- Human Informed Consent Form
- Vertebrate Animal Form (5A)
- Vertebrate Animal Form (5B)
- Potentially Hazardous Biological Agents Risk Assessment Form (6A) Human and Vertebrate Animal Tissue Form (6B)

ISEF Categories and Subcategories

The categories have been established with the goal of better aligning judges and student projects for the judging at ISEF. Local, regional, state and country fairs may or may not choose to use these categories, dependent on the needs of their area. Please check with your affiliated fair(s) for the appropriate category listings at that level of competition.

Please visit our website at student.societyforscience.org/intel-isef-categories-and-subcategories for a full description and definition of ISEF categories:

ANIMAL SCIENCES (ANIM)

Animal Behavior
Cellular Studies
Development
Ecology
Genetics
Nutrition and Growth
Physiology
Systematics and Evolution
Other

BEHAVIORAL AND SOCIAL SCIENCES (BEHA)

Clinical and Developmental Psychology
Cognitive Psychology
Neuroscience
Physiological Psychology
Sociology and Social Psychology
Other

BIOCHEMISTRY (BCHM)

Analytical Biochemistry
General Biochemistry
Medical Biochemistry
Structural Biochemistry
Other

BIOMEDICAL AND HEALTH SCIENCES (BMED)

Cell, Organ, and Systems Physiology
Genetics and Molecular Biology of Disease
Immunology
Nutrition and Natural Products
Pathophysiology
Other

BIOMEDICAL ENGINEERING (ENBM)

Biomaterials and Regen Medicine
Biomechanics
Biomedical Devices
Biomedical Imaging
Cell and Tissue Engineering
Synthetic Biology
Other

CELLULAR AND MOLECULAR BIOLOGY (CELL)

Cell Physiology
Cellular Immunology
Genetics
Molecular Biology
Neurobiology
Other

CHEMISTRY (CHEM)

Analytical Chemistry
Computational Chemistry
Environmental Chemistry
Inorganic Chemistry
Materials Chemistry
Organic Chemistry
Physical Chemistry
Other

COMPUTATIONAL BIOLOGY AND BIOINFORMATICS (CBIO)

Computational Biomodeling
Computational Epidemiology
Computational Evolutionary Biology
Computational Neuroscience
Computational Pharmacology
Genomics
Other

EARTH AND ENVIRONMENTAL SCIENCES (EAENV)

Atmospheric Science
Climate Science
Environmental Effects on Ecosystems
Geosciences
Water Science
Other

EMBEDDED SYSTEMS (EBED)

Circuits
Internet of Things
Microcontrollers
Networking and Data Communications
Optics
Sensors
Signal Processing
Other

ENERGY: CHEMICAL (EGCH)

Alternative Fuels
Computational Energy Science
Fossil Fuel Energy
Fuel Cells and Battery Develop
Microbial Fuel Cells
Solar Materials
Other

ENERGY: PHYSICAL (EGPH)

Hydro Power
Nuclear Power
Solar
Sustainable Design
Thermal Power
Wind
Other

ENGINEERING MECHANICS (ENMC)

Aerospace and Aeronautical Engineering
Civil Engineering
Computational Mechanics
Control Theory
Ground Vehicle Systems
Industrial Engineering-Processing
Mechanical Engineering
Naval Systems
Other

ENVIRONMENTAL ENGINEERING (ENEV)

Bioremediation
Land Reclamation
Pollution Control
Recycling and Waste Management
Water Resources Management
Other

MATERIALS SCIENCE (MATS)

Biomaterials
Ceramic and Glasses
Composite Materials
Computation and Theory
Electronic, Optical and Magnetic Materials
Nanomaterials
Polymers
Other

MATHEMATICS (MATH)

Analysis
Combinatorics, Graph Theory, and Game Theory
Geometry and Topology
Number Theory
Probability and Statistics
Other

MICROBIOLOGY (MCRO)

Antimicrobials and Antibiotics
Applied Microbiology
Bacteriology
Environmental Microbiology
Microbial Genetics
Virology
Other

PHYSICS AND ASTRONOMY (PHYS)

Astronomy and Cosmology
Atomic, Molecular, and Optical Physics
Biological Physics
Condensed Matter and Materials Mechanics
Nuclear and Particle Physics
Theoretical, Computational and Quantum Physics
Other

PLANT SCIENCES (PLNT)

Agriculture and Agronomy
Ecology
Genetics/Breeding
Growth and Development
Pathology
Plant Physiology
Systematics and Evolution
Other

ROBOTICS AND INTELLIGENT MACHINES (ROBO)

Biomechanics
Cognitive Systems
Control Theory
Machine Learning
Robot Kinematics
Other

SYSTEMS SOFTWARE (SOFT)

Algorithms
Cybersecurity
Databases
Human/Machine Interface
Languages and Operating Systems
Mobile Apps
Online Learning
Other

TRANSLATIONAL MEDICAL SCIENCES (TMED)

Disease Detection and Diagnosis
Disease Prevention
Disease Treatment and Therapies
Drug Identification and Testing
Pre-Clinical Studies
Other



SCORE SHEET FOR PROJECT COMPETITION

Minimum requirements for eligibility of judging:

- | | | |
|--|-----|----|
| 1. Does the display meet standard display regulations? | YES | NO |
| 2. Are all required forms properly displayed? | YES | NO |
| 3. Does the display meet standard safety regulation? | YES | NO |

IF ANY OF THE ABOVE 3 QUESTIONS ARE MARKED 'NO', THE ENTRY DOES NOT QUALIFY FOR JUDGING.

Name of school:		
Name of student(s):		
SECTION (A) - DISPLAY		
Criteria	Maximum Points	Judge's Score
1. Organization Does the display clearly show all parts of the project from start to finish?	10	
2. Use of text Is the provided text concise and easy to understand?	5	
3. Use of images/charts Are there accompanying photos or infographics and do they expand upon the provided text?	5	
<i>Section (A) total</i>	20	
SECTION (B) – PRESENTATION		
Criteria	Maximum Points	Judge's Score
4. Participation Did all students take part in the oral presentation?	5	
5. Organization Did the oral presentation flow from project start to finish in a clear manner?	10	
6. Speech Did the students speak clearly and knowledgeably about their project?	10	
7. Clarity Was the project's purpose, procedure and conclusion clearly explained by the students?	10	
<i>Section (B) total</i>	35	
SECTION (C) – EXPERIMENT		
Criteria	Maximum Points	Judge's Score
8. Research Did the students sufficiently explain their research process including citing sources, inspirations and/or previously available datasets?	10	
9. Hypothesis Did the students clearly state a properly formulated hypothesis?	10	

10. Variables Did the students clearly define the tested variables and control utilized in the experiment?	10	
11. Materials Did the students accurately list key materials utilized during the experiment and their purpose?	5	
12. Procedure Did the students clearly explain their procedure for experimentation as well as their reasoning for choosing said procedures?	5	
13. Data Did the students accurately reference the data compiled during the experiment?	10	
14. Analysis Did the students accurately analyze the data collected during the experiment?	10	
15. Conclusion Did the students clearly state the conclusion of their project and the acceptance or rejection of their hypothesis?	10	
<i>Section (C) total</i>	70	
SECTION (D) – INNOVATION		
Criteria	Maximum Points	Judge's Score
16. Originality Is the project an original idea or offer an original approach to an existing idea?	10	
17. Resourcefulness Did the experiment test a wide range of variables relative to the students' means?	5	
18. Feasibility Does the project have real-world applications or provide data that would be useful to other real-world applications?	10	
<i>Section (D) total</i>	25	

Judge's Comments:

A – Display (20 possible)	
B – Presentation (35 possible)	
C – Experiment (70 possible)	
D – Innovation (25 possible)	
TOTAL SCORE (150 POSSIBLE)	

.....
Judge's Signature:



This section

Mandatory Forms for All Projects

- Abstract Summary Form
- Student Checklist (1A)
- Parent/Guardian Approval Form (1B)
- Checklist for Adult Sponsor (1)
- Risk Assessment Form (3)
- Research Plan/Project Summary Template

Project Abstract Summary

Project Title	
Project ISEF Category	
School	
Abstract Summary	
1.	As a part of this research project, the student directly handled, manipulated, or interacted with (check all that apply): <input type="checkbox"/> human participants <input type="checkbox"/> potentially hazardous <input type="checkbox"/> 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. <input type="checkbox"/> Yes <input type="checkbox"/> No
3.a.	This project is a continuation of previous research. <input type="checkbox"/> Yes <input type="checkbox"/> No
3.b.	If Yes: a. Attach the previous year's : <input type="checkbox"/> Abstract and <input type="checkbox"/> Research Plan/Project Summary b. Explain how this project is new and different from previous years on <input type="checkbox"/> Continuation/Research Progression Form
4.	Where will you conduct your experimentation? (check all that apply) <input type="checkbox"/> Research Institution <input type="checkbox"/> School <input type="checkbox"/> Field <input type="checkbox"/> Home <input type="checkbox"/> Other:
5.	My display board includes non-published photographs/visual depictions of humans (other than myself): <input type="checkbox"/> Yes <input type="checkbox"/> No
6.	Source of Data: <input type="checkbox"/> Collected self/mentor <input type="checkbox"/> Other Describe/url:
7.	List the name and address of all non-home and non-school work site(s), whether you worked there virtually or on-site:
	Name
	Address:
	Phone/ email
8.	I/We hereby certify that the abstract and responses to the above statements are correct and properly reflect my/our own work. <input type="checkbox"/> Yes <input type="checkbox"/> No

Student Checklist (1A)				
This form is required for ALL projects.				
	Student/Team Members	Form/Grade	Email	Phone
1				
2				
3				
4				
Title of Project:				
School:				
School Address:				
School Phone:				
Principal Name:				
Lead Teacher Name:				
Teacher Phone:				
Teacher Email:				
Research Plan/Project Summary Instructions:				
All projects must have a Research Plan/Project Summary				
<ul style="list-style-type: none"> a. The Research Plan is to be written prior to experimentation following the instructions below to detail the rationale, research question(s), methodology, and risk assessment of the proposed research. b. If changes are made during the research, such changes can be added to the original research plan as an addendum, recognizing that some changes may require returning to the IRB or SRC for appropriate review and approvals. If no additional approvals are required, this addendum serves as a project summary to explain research that was conducted. c. If no changes are made from the original research plan, no project summary is required. d. Some studies, such as an engineering design or mathematics projects, will be less detailed in the initial project plan and will change through the course of research. If such changes occur, a project summary that explains what was done is required and can be appended to the original research plan. 				
<ul style="list-style-type: none"> • The Research Plan/Project Summary should include the following: <ul style="list-style-type: none"> a. RATIONALE: Include a brief synopsis of the background that supports your research problem and explain why this research is important and if applicable, explain any societal impact of your research. b. RESEARCH QUESTION(S), HYPOTHESIS(ES), ENGINEERING GOAL(S), EXPECTED OUTCOMES: How is this based on the rationale described above? c. Describe the following in detail: <ul style="list-style-type: none"> • Procedures: Detail all procedures and experimental design including methods for data collection, and when applicable, the source of data used. Describe only your project. Do not include work done by mentor or others. If you will use published surveys, questionnaires or tests, describe how you obtained these, including required permission if applicable. • Risk and Safety: Identify any potential risks and safety precautions needed. • Data Analysis: Describe the procedures you will use to analyze the data/results. d. BIBLIOGRAPHY: List 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. 				

Parent/Guardian 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 science fair ethics statement.

Student researchers are expected to maintain the highest standards of honesty and integrity. Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include but are not limited to 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 and ISEF.

Student's Printed Name

Signature

Date Acknowledged (mm/dd/yy)

(Must be prior to experimentation.)

b. Parent/Guardian Approval:

I have read and understand the risks and possible dangers involved in the Research Plan/Project Summary. I consent to my child participating in this research.

Parent/Guardian's Printed Name

Signature

Date Acknowledged (mm/dd/yy)

(Must be prior to experimentation.)

2. To Be Completed by Parent/Guardian of Each Student

a. FortisTCI Photograph and Publicity Release Form:

I, _____, hereby give FortisTCI Limited (FortisTCI or the Company) permission to use the likeness, image, voice, and/or appearance of my child/student, _____ (name of child/student), as may be captured in any pictures, photos, video recordings, audiotapes, digital images, or similar media (the "Media") taken or made on behalf of FortisTCI for the National Science and Technology Fair.

I understand and agree that FortisTCI will have full ownership and usage rights of the Media, and I confirm that neither my child nor I have any ownership interest in the Media. Furthermore, I acknowledge that FortisTCI may use the Media for purposes consistent with promoting the Company's STEAM (Science, Technology, Engineering, Arts, and Mathematics) educational programs and services. These uses may include, but are not limited to, illustrations, bulletins, exhibitions, educational materials, science fair promotions, videotapes, on-camera testimonials, reprints, reproductions, publications, advertisements, and other promotional or educational materials in any medium, whether known now or developed later, including the Internet. I understand and agree that no compensation, whether financial or in the form of goods, services, or any other form of payment, will be provided for the use of the Media. I also release FortisTCI and its affiliates from any and all claims that may arise out of or be connected to such use.

b. Parent/Guardian Approval:

- Student's Printed Name: _____

I am the parent/legal guardian of the minor participant named above (if under 18 years old)" This will ensure that it's clear when the parent/guardian needs to sign.

Parent/Guardian's Printed Name

Signature

Date Acknowledged (mm/dd/yy)

(This must be completed prior to the student's participation in the experiment or event.)

Research Plan / Project Summary Template

This should be typed and submitted with the forms above

School:

Project Title:

Team Members:

1. RATIONALE

Provide a brief synopsis of the background that supports your research problem.

- **Research Background:** Explain relevant information or context that led to the development of this research idea.
 - **Importance of Research:** Describe the importance of the research. If applicable, include any societal impact your research might have.
 - **Reason for Conducting This Research:** Why is it significant? How will it contribute to the existing body of knowledge?
-

2. RESEARCH QUESTION(S), HYPOTHESIS (ES), ENGINEERING GOAL(S), EXPECTED OUTCOMES

Research Question(s): Clearly define the questions your research is designed to answer.

Hypothesis/Engineering Goals: If applicable, state the hypothesis or the specific engineering goal.

Expected Outcomes: Based on the rationale, what are the expected outcomes of your research?

3. RESEARCH METHODOLOGY

A. Procedures

Describe your experimental design in detail. Include the following:

- **Data Collection:** Explain how you will collect your data. Specify tools, instruments, and methods.
- **Experimental Procedures:** Describe all steps and processes that will be followed during experimentation.
- **Data Sources:** If secondary data is being used, identify the source (e.g., public databases, surveys, etc.).
- **Permission:** If using published surveys, questionnaires, or tests, explain how permission was obtained.
Note: Only describe your own work—do not include work done by mentors or collaborators.

B. Risk and Safety

Identify any potential risks related to your research:

- **Potential Risks:** List any physical, chemical, or biological risks, or data-related security risks, if applicable.
- **Safety Precautions:** Describe the precautions and procedures you will implement to mitigate these risks.

C. Data Analysis

Explain how the data will be analyzed:

- **Data Analysis Plan:** Describe the statistical tests, models, or procedures you will use to evaluate your results.

4. BIBLIOGRAPHY

List the major references you have reviewed in support of your project:

- **Journal Articles:** Cite scientific journals or other peer-reviewed publications relevant to your study.
- **Books & Online Resources:** Include other literature or reputable internet sources. *Note:* If vertebrate animals are involved in the research, an animal care reference must be included.

5. ADDENDUM (If Applicable)

Project Summary: (To be completed if changes occurred during research)

If changes to your original plan occurred during the research phase, provide a summary of the research that was actually conducted, explaining the modifications and their reasons.

Additional forms (If Applicable)

Based on your project, additional case-specific forms may be required. Please review the list below and complete any applicable forms:

1. **Continuation/Research Progression Projects (Form 7):** Required for projects that build on previous research.
2. **Qualified Scientist (Form 2):** Needed if your project involves hazardous materials, biological agents, or vertebrate animals under the supervision of a scientist.
3. **Human Participants (Form 4):** Required for projects involving human subjects.
4. **Human Informed Consent:** Must be completed for projects with human participants to ensure voluntary and informed participation.
5. **Vertebrate Animal (Form 5A/5B):** Required for projects involving vertebrate animals in laboratory (5A) or field (5B) research.
6. **Potentially Hazardous Biological Agents Risk Assessment (Form 6A):** Needed for projects involving hazardous biological agents.
7. **Human and Vertebrate Animal Tissue (Form 6B):** Required for projects using human or animal tissues.

Checklist for Adult Sponsor (1)

This completed form is required for ALL projects.

To be completed by the Adult Sponsor in collaboration with the student researcher(s):

Student's Name(s): _____

Project Title: _____

1. I have reviewed the ISEF Rules and Guidelines, including the science fair ethics statement.
2. I have reviewed the student's completed Student Checklist (1A) and Research Plan/Project Summary.
3. I have worked with the student and we have discussed the possible risks involved in the project.
4. The project involves one or more of the following and requires prior approval by an SRC, IRB, IACUC or IBC:
 Humans Potentially Hazardous Biological Agents
 Vertebrate Animals Microorganisms rDNA Tissues
5. Items to be completed for **ALL PROJECTS**
 Adult Sponsor Checklist (1) Research Plan/Project Summary
 Student Checklist (1A) Approval Form (1B)
 Regulated Research Institutional/Industrial Setting Form (1C) (when applicable; after completed experiment)
 Continuation/Research Progression Form (7) (when applicable)

Additional forms required if the project includes the use of one or more of the following (check all that apply):

- Humans**, including student designed inventions/prototypes. (Requires prior approval by an Institutional Review Board (IRB); see full text of the rules.)
 - Human Participants Form (4) or appropriate Institutional IRB documentation
 - Sample of Informed Consent Form (when applicable and/or required by the IRB)
 - Qualified Scientist Form (2) (when applicable and/or required by the IRB)
- Vertebrate Animals** (Requires prior approval, see full text of the rules.)
 - Vertebrate Animal Form (5A) - for projects conducted in a school/home/field research site (SRC prior approval required)
 - Vertebrate Animal Form (5B) - for projects conducted at a Regulated Research Institution. (Institutional Animal Care and Use Committee (IACUC) approval required prior experimentation.)
 - Qualified Scientist Form (2) (Required for all vertebrate animal projects at a regulated research site or when applicable)
- Potentially Hazardous Biological Agents** (Requires prior approval by SRC, IACUC or IBC, see full text of the rules.)
 - Potentially Hazardous Biological Agents Risk Assessment Form (6A)
 - Human and Vertebrate Animal Tissue Form (6B) - to be completed in addition to Form 6A when project involves the use of fresh or frozen tissue, primary cell cultures, blood, blood products and body fluids.
 - Qualified Scientist Form (2) (when applicable)
 - The following are exempt from prior review but require a Risk Assessment Form 3: projects involving protists, archae and similar microorganisms; projects using manure for composting, fuel production or other non-culturing experiments; projects using color change coliform water test kits, microbial fuel cells; and projects involving decomposing vertebrate organisms.
- Hazardous Chemicals, Activities and Devices** (No SRC prior approval required, see full text of the rules.)
 - Risk Assessment Form (3)
 - Qualified Scientist Form (2) (required for projects involving DEA-controlled substances or when applicable)
- Other**
 - Risk Assessment Form (3)
- I attest to the information checked above and that I have read and agree to abide by the science fair ethics statement.

Adult Sponsor's Printed Name

Signature

Date of Review (mm/dd/yy)

Phone

Email

Risk Assessment Form (3)

Must be completed before experimentation. Required for projects involving hazardous chemicals, activities or devices and may be needed by other projects.

Student's Name(s) _____

Title of Project _____

To be completed by the Student Researcher(s) in collaboration with Designated Supervisor/Qualified Scientist: (All questions must be answered; additional page(s) may be attached.)

1. Identify and assess the risks and hazards involved in this project.
2. a) List all hazardous chemicals, activities or devices to be used; b) identify and list all microorganisms to be used that are exempt from pre-approval (see Potentially Hazardous Biological Agent rules).
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 the International Rules, including the science fair ethics statement and will provide direct supervision.

Designated Supervisor's Printed Name Signature Date of Review (mm/dd/yy)

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

Position/Institution Phone or email contact information

Research Plan/Project Summary Instructions

A complete Research Plan/Project Summary is required for ALL projects and must accompany Student Checklist (1A).

- All projects must have a Research Plan/Project Summary
 - a. The Research Plan is to be written prior to experimentation following the instructions below to detail the rationale, research question(s), methodology, and risk assessment of the proposed research.
 - b. If changes are made during the research, such changes can be added to the original research plan as an addendum, recognizing that some changes may require returning to the IRB or SRC for appropriate review and approvals. If no additional approvals are required, this addendum serves as a project summary to explain research that was conducted.
 - c. If no changes are made from the original research plan, no project summary is required.
 - d. Some studies, such as an engineering design or mathematics projects, will be less detailed in the initial project plan and will change through the course of research. If such changes occur, a project summary that explains what was done is required and can be appended to the original research plan.
- The Research Plan/Project Summary should include the following:
 - a. **RATIONALE:** Include a brief synopsis of the background that supports your research problem and explain why this research is important and if applicable, explain any societal impact of your research.
 - b. **RESEARCH QUESTION(S), HYPOTHESIS(ES), ENGINEERING GOAL(S), EXPECTED OUTCOMES:** How is this based on the rationale described above?
 - c. Describe the following in detail:
 - **Procedures:** Detail all procedures and experimental design including methods for data collection, and when applicable, the source of data used. Describe only your project. Do not include work done by mentor or others. If you will use published surveys, questionnaires or tests, describe how you obtained these, including required permission if applicable.
 - **Risk and Safety:** Identify any potential risks and safety precautions needed.
 - **Data Analysis:** Describe the procedures you will use to analyze the data/results.
 - d. **BIBLIOGRAPHY:** List 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.

Items 1–4 below are subject-specific guidelines for additional items to be included in your research plan/project summary as applicable.

1. Human participants research:

- a. **Participants:** Describe age range, gender, racial/ethnic composition of participants. Identify vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).
- b. **Recruitment:** Where will you find your participants? How will they be invited to participate?
- c. **Methods:** What will participants be asked to do? Will you use any surveys, questionnaires or tests? If yes and not your own, how did you obtain? Did it require permissions? If so, explain. What is the frequency and length of time involved for each subject?
- d. **Risk Assessment:** What are the risks or potential discomforts (physical, psychological, time involved, social, legal, etc.) to participants? How will you minimize risks? List any benefits to society or participants.
- e. **Protection of Privacy:** Will identifiable information (e.g., names, telephone numbers, birth dates, email addresses) be collected? Will data be confidential/anonymous? If anonymous, describe how the data will be collected. If not anonymous, what procedures are in place for safeguarding confidentiality? Where will data be stored? Who will have access to the data? What will you do with the data after the study?
- f. **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:

- a. Discuss potential ALTERNATIVES to vertebrate animal use and present justification for use of vertebrates.
- b. Explain potential impact or contribution of this research.
- c. Detail all procedures to be used, including methods used to minimize potential discomfort, distress, pain and injury to the animals and detailed chemical concentrations and drug dosages.
- d. Detail animal numbers, species, strain, sex, age, source, etc., include justification of the numbers planned.
- e. Describe housing and oversight of daily care.
- f. Discuss disposition of the animals at the end of the study.

• Potentially hazardous biological agents research:

- a. Give source of the organism and describe BSL assessment process and BSL determination.
- b. Detail safety precautions and discuss methods of disposal.

4. Hazardous chemicals, activities & devices:

- a. Describe Risk Assessment process, supervision, safety precautions and methods of disposal.
- b. Material Safety Data Sheets are not necessary to submit with paperwork.

This section

Case Specific Forms

- Continuation/Research Progression Project Form (7)
- Qualified Scientist Form (2)
- Human Informed Consent Form
- Vertebrate Animal Form (5A)
- Vertebrate Animal Form (5B)
- Potentially Hazardous Biological Agents Risk Assessment Form (6A) Human and Vertebrate Animal Tissue Form (6B)

Continuation/Research Progression Projects Form (7)

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

Student's Name(s) _____

To be completed by Student Researcher(s): 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 previous year and earlier projects.

Components	Current Research Project	Previous Research Project: Year: _____
1. Title		
2. Change in goal/purpose/objective		
3. Changes in methodology		
4. Variable studied		
5. Additional changes		

Attached are:

Abstract and Research Plan/Project Summary, Year _____

I/we 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(s)

Signature

Date of Signature (mm/dd/yy)

Qualified Scientist Form (2)

May be required for research involving human participants, vertebrate animals, potentially hazardous biological agents, and hazardous chemicals, activities and devices. Must be completed and signed before the start of student experimentation.

Student's Name(s) _____

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: _____

Email/Phone: _____

1. Have you reviewed the ISEF rules relevant to this project and the science fair ethics statement relevant to this project? Yes No
2. Will any of the following be used?
 - a. Human participants Yes No
 - b. Vertebrate animals Yes No
 - c. Potentially hazardous biological agents (microorganisms, rDNA and tissues, including blood and blood products) Yes No
 - d. Hazardous substances and devices Yes No
3. Will this study be a sub-set of a larger study? Yes No
4. 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: _____

To be completed by the Qualified Scientist:

I certify that I have reviewed and approved the Research Plan/Project Summary 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 (mm/dd/yy)

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 (mm/dd/yy)

Phone

Email

Human Informed Consent Form

Instructions to the Student Researcher(s): An informed consent/assent/permission 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 participant (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 sample form or may copy ALL elements of it into a new document.

If the form is serving to document parental permission, a copy of any survey or questionnaire must be attached.

Student Researcher(s): _____

Title of Project: _____

You are being asked to volunteer to participate in this science project. If you would like to participate, please sign in the appropriate area below.

Purpose of the project:

If you participate, you will be asked to:

Time required for participation:

Potential Risks of Study:

Benefits:

How confidentiality will be maintained:

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

Adult Sponsor/QS/DS _____ Phone/email _____

Voluntary Participation:

Participation in this study is completely voluntary. There will be no negative consequences if you decide not to participate, stop participating, or refuse to answer any 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 _____
(mm/dd/yy)

Research Participant Printed Name Signature:

Parental/Guardian Permission (if applicable) Date Reviewed & Signed _____
(mm/dd/yy)

Parent/Guardian Printed Name Signature

Vertebrate Animal Form (5A)

Required for all research involving vertebrate animals that is conducted in a school/home/field research site.
(SRC approval required before experimentation.)

Student's Name(s) _____

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. Add an additional page as necessary.
3. What will happen to the animals after experimentation?
4. Attach a copy of wildlife licenses or approval forms, as applicable
5. The ISEF Vertebrate Animal Rules require that any death, illness or unexpected weight loss be investigated and documented by a letter from the qualified scientist, designated supervisor or a veterinarian. If applicable, include this letter after this form when submitting your paperwork to the SRC prior to competition.

To be completed by Local or Affiliate Fair Scientific Review Committee (SRC) BEFORE experimentation.

Level of Supervision Required for agricultural, behavioral or nutritional studies (select one):

- 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.

Local or Affiliate Fair SRC Pre-Approval Signature:

SRC Chair Printed Name _____

Signature _____

Date of Approval (must be prior to experimentation) (mm/dd/yy) _____

To be completed by Veterinarian:

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

Printed Name _____

Email/Phone _____

Signature _____

Date of Approval (mm/dd/yy) _____

To be completed by Designated Supervisor or Qualified Scientist when applicable:

- 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 will directly supervise the experiment.

Printed Name _____

Email/Phone _____

Signature _____

Date of Approval (mm/dd/yy) _____

Vertebrate Animal Form (5B)

Required for all research involving vertebrate animals that is conducted in at a Regulated Research Institution. (IACUC approval required before experimentation. Form must be completed and signed after experimentation.)

Student's Name(s) _____

Title of Project _____

Title and Protocol Number of IACUC Approved Project _____

To be completed by Qualified Scientist or Principal Investigator:

1. Species of animals used: _____ Number of animals used: _____

2. Describe, in detail, the role of the student in this project: animal procedures and related equipment that were involved, oversight provided and safety precautions employed. (Attach extra pages if necessary.)

3. Was there any weight loss or death of any animal? If yes, attach a letter obtained from the qualified scientist, designated supervisor or a veterinarian documenting the situation and the results of the investigation.

4. Did the student's project also involve the use of tissues?

No

Yes; Forms 6A and 6B were completed and approved PRIOR to experimentation.

5. What laboratory training, including dates, was provided to the student?

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

Qualified Scientist/Principal Investigator

Printed Name _____

Signature _____

Date (mm/dd/yy) _____

Potentially Hazardous Biological Agents Risk Assessment Form (6A)

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

SRC/IACUC/IBC approval required before experimentation.

Student's Name(s) _____

Title of Project _____

To be completed by the QUALIFIED SCIENTIST/DESIGNATED SUPERVISOR in collaboration with the student researcher(s). All questions are applicable and must be answered; additional page(s) may be attached.

SECTION 1: PROJECT ASSESSMENT

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 procedures that will be used to minimize risk (personal protective equipment, hood type, etc.).
4. What final biosafety level do you recommend for this project given the risk assessment you conducted?
5. Describe the method of disposal of all cultured materials and other potentially hazardous biological agents.

SECTION 2: TRAINING

1. What training will the student receive for this project?
2. Experience/training of Designated Supervisor as it relates to the student's area of research (if applicable).

SECTION 3: For ALL CELL LINES, MICROORGANISMS AND TISSUES – To be completed by the QUALIFIED SCIENTIST or DESIGNATED SUPERVISOR - Check the appropriate box(es) below:

- Experimentation on the microorganisms/cell lines/tissues to be used in this study will NOT be conducted at a Regulated Research Institution, but will be conducted at a (check one) ___BSL-1 or ___BSL-2 laboratory (include a copy of the checklist for BSL-2). [This study has been reviewed by the local SRC and the procedures have been approved prior to experimentation.]
- Experimentation on the microorganisms/cell lines/tissues to be used in this study will be conducted at a Regulated Research Institution and was approved by the appropriate institutional board prior to experimentation; institutional approval forms are attached.
Origin of cell lines: _____ Date of IACUC/IBC approval _____
- Experimentation on the microorganisms/cell lines/tissues to be used in this study will be conducted at a Regulated Research Institution, which does not require pre-approval for this type of study. The SRC has seen and approved the research plan and supporting documentation and acknowledges the accuracy of the responses above.

CERTIFICATION – To be SIGNED by the QUALIFIED SCIENTIST or DESIGNATED SUPERVISOR

The QS/DS has seen this project's research plan and supporting documentation and acknowledges the accuracy of the information provided above. This study has been approved as a (check one) BSL-1/ BSL-2 study, and will be conducted in an appropriate laboratory.

QS/DS Printed Name

Signature

Date of review (mm/dd/yy)

SECTION 4: CERTIFICATION – To be completed by the LOCAL or AFFILIATED FAIR SRC

The SRC has seen this project's research plan and supporting documentation and acknowledges the accuracy of the information provided.

SRC Printed Name

Signature

Date of review (mm/dd/yy)

Human and Vertebrate Animal Tissue Form (6B)

Required for research involving fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue 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(s) _____

Title of Project _____

To be completed by Student Researcher(s):

1. What vertebrate animal tissue will be used in this study? Check all that apply.
 - Fresh or frozen tissue sample
 - Fresh organ or other body part
 - Blood
 - Body fluids
 - Primary cell/tissue cultures
 - Human or other primate established cell lines
 - Other
2. Where will the above tissue(s) be obtained? If using an established cell line include source and catalog number.
3. If the tissue will be obtained from a vertebrate animal study conducted at a research institution attach a copy of the IACUC certification with the name of the research institution, the title of the study, the IACUC approval number and a copy 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 U.S. Occupational Safety and Health Act, 29CFR, Subpart Z, 1910.1030 - Blood Borne Pathogens.

Printed Name

Signature

Date of Approval (mm/dd/yy)
(Must be prior to experimentation.)

Title

Phone/Email

Institution



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