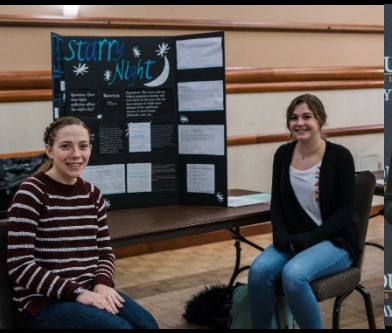
HOOSIER SCIENCE & ENGINEERING FAIR

NEIRSEF

AFFILIATED WITH intel ISEF a program of SOCIETY FOR SCIENCE & THE PUBLIC

TEACHER WORKSHOP

October 5, 2019



PURDUE UNIVERSITY FORT WAYNE

AGENDA

9:00	Welcome and Introductions
9:15	About NEIRSEF, HSEF, and ISEF
9:25	International and Special Awards
9:30	Teacher and student registration
9:45	Writing an Abstract
10:00	Project judging (Elem, Middle, High – Science v. Engineering)
10:30	Break
10:45	Setting up a school IRB (projects involving humans)
11:00	What you need to know about SRC (projects involving bacteria, mold, projectiles, chemicals, drones, etc…)
11:30	Project ideas and Teacher shareout
11:50	Certificates and end

WELCOME!!!

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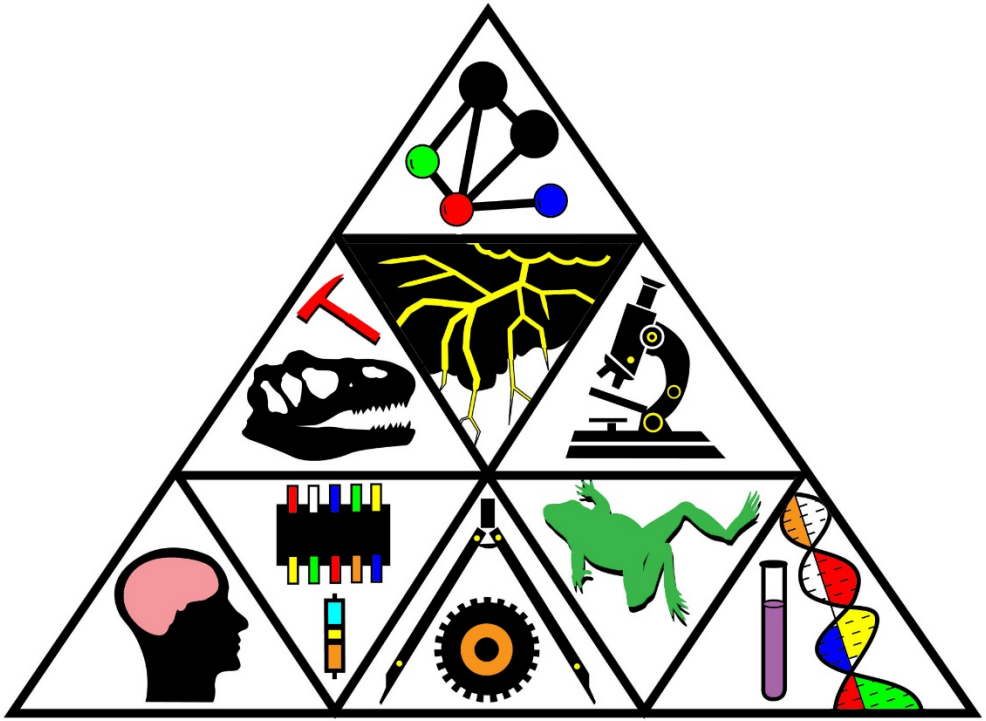
ABOUT NEIRSEF...



Northeast Indiana Regional Science and Engineering Fair

65th annual competition in 2020

Saturday, March 7, 2020
Purdue University Fort Wayne

8 Counties: Allen, Whitley, Miami, Adams, Kosciusko, Huntington, Wells, Wabash

http://www.neirsef.org

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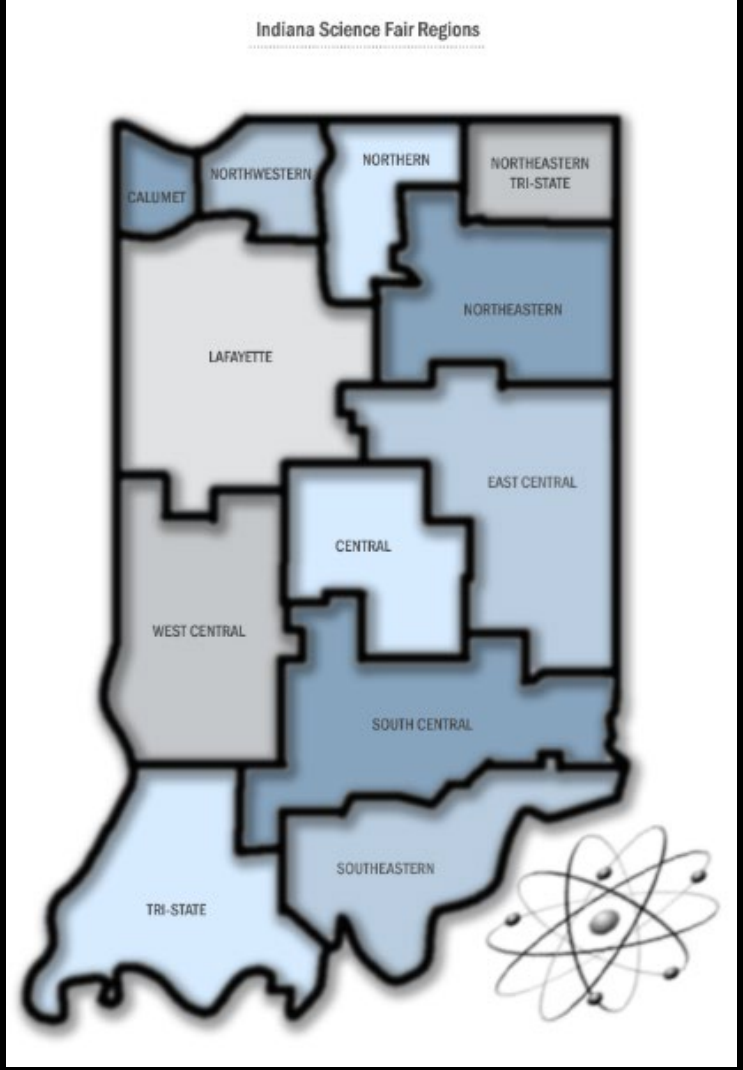

MORNING SCHEDULE

9:00 — **ROUND 1 JUDGING**

10:30 — **STUDENT BREAK/JUDGE TEAMS CONVENE**

Snack for students outside International Ballroom; if parents are here; pick up ahead of time

10:50 — **ALL STUDENTS AND PARENTS RETURN TO DISPLAY**

11:00-Noon — **ROUND 2 JUDGING**

An announcement will be made at 11:00 indicating which students should remain after break to complete their judging interviews in Round 2.

PROJECT REMOVAL: 4th-5th grade - take your display when you leave

6-12th grade - remove projects 3:00-3:45

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AFTERNOON SCHEDULE

11:00-3:00	CITIZEN SCIENCE APPRECIATION DAY	Hallway & Atrium
	PhysFESTT	G-08
	ELEMENTARY EXHIBITION	G-08
2:00pm	MOVIE: SCIENCE FAIR	International Ballroom
4:00pm	AWARD CEREMONY	International Ballroom

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SPECIAL AWARDS

American Chemical Society
Fort Wayne City Utilities
Fox Island Alliance
Little River Wetlands Project
David W. and N. Maxine Ford
Northeast Indiana Veterinary Medical Association
Purdue University Agriculture
Dr. Art Friedel, Director Emeritus
IEEE, Fort Wayne Section
Scientific & Regulatory Consultants, Inc.
Huntington University
Isaac Knapp Dental Society
Purdue University Fort Wayne Psychology Department

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INTERNATIONAL AWARDS

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GENERAL FAIR SPONSORS!

Raytheon

AQUA

Alan R. Ford, CDR, USNR-R

SRC SCIENTIFIC RESEARCH CORPORATION

Dr. Arthur W. Friedel

HUNTINGTON UNIVERSITY

Fort Wayne ENGINEERS' Club

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FOLLOW US ONLINE AND POST YOUR PICTURES!

#NEIRSEF20

Instagram

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Review of 2018-19 and Affiliation for 2019-2020

Data (Statewide):

# Students in Indiana Fairs in 2019	3,505
# Teachers hosting Students doing Research in 2019	360
# of Unique Schools	289

Data (HSEF):

# Students	227
# Teachers	101
# Schools	91
Total Award Value (includes ISEF)	$53,829

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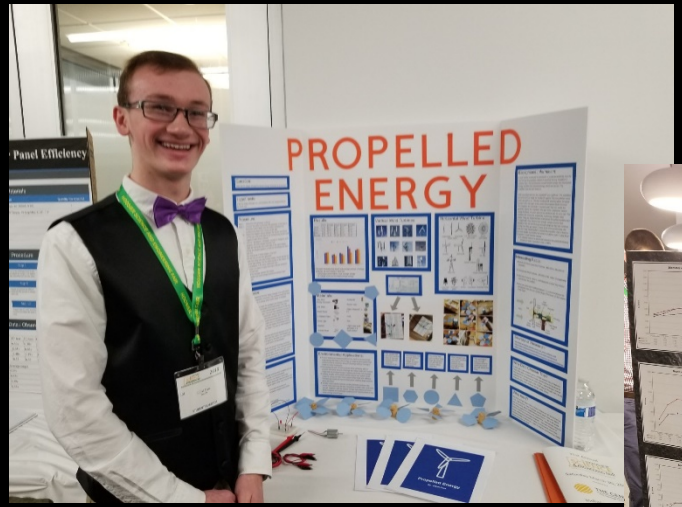
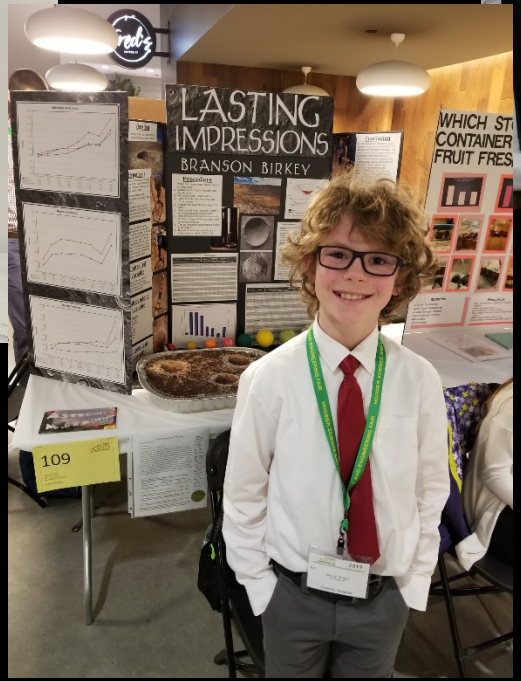
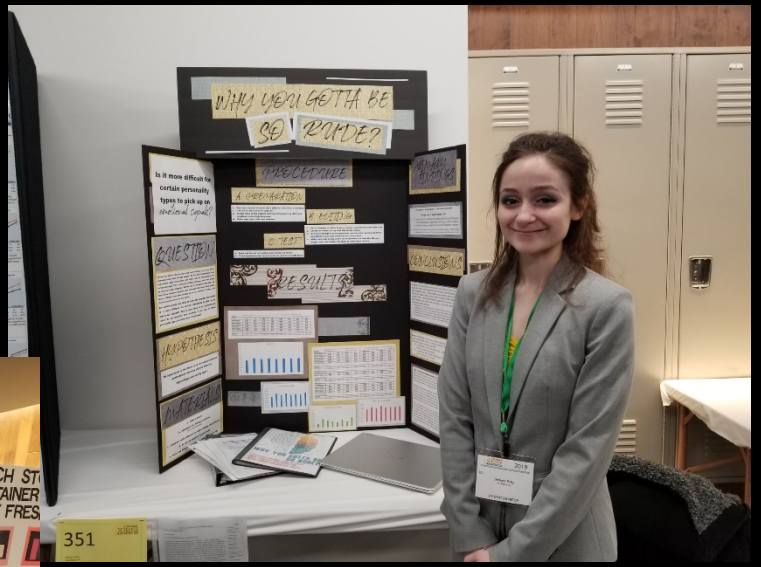
A few HSEF Photos

NEIRSEF @ HSEF







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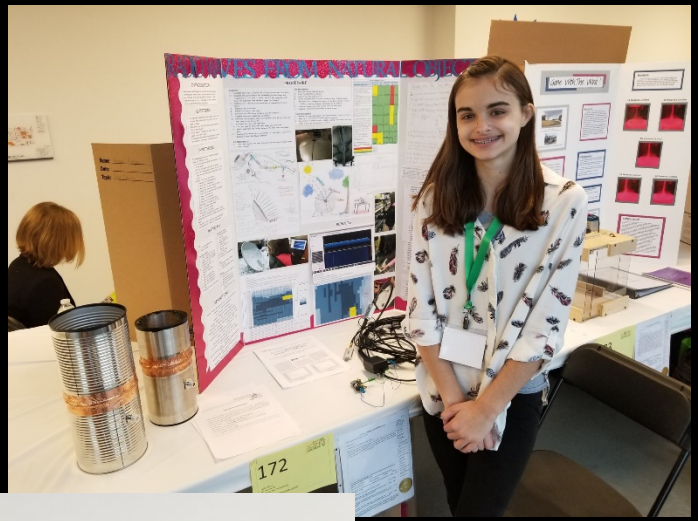
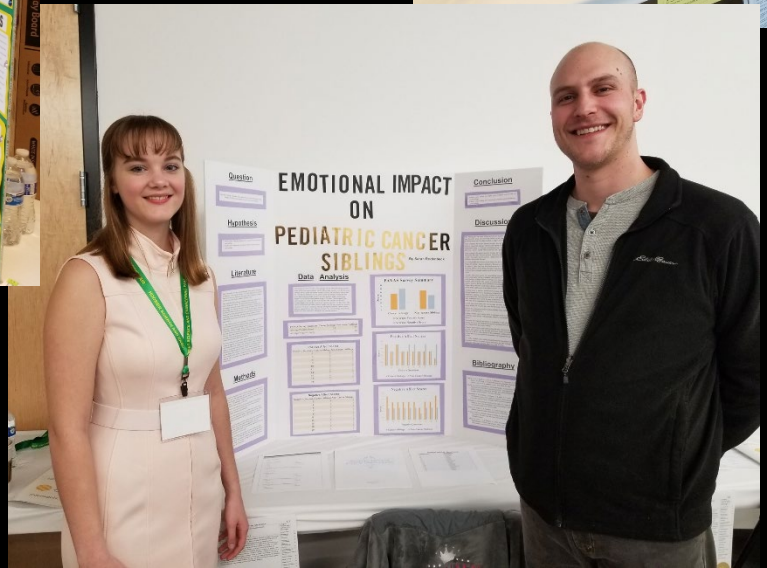
NEIRSEF @ HSEF





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SCIENCE FAIR TIMELINE for TEACHERS

August	Check with RFD for fair date and communications. Log into sefireg.org to reactivate your account. Introduce science and engineering fair to your students.
September/October	Set deadlines for students to submit paperwork for your review. Make sure all students are following ISEF guidelines*
November/December	Students should be in full swing with experiments. Begin discussing poster design. Check with RFD for missing paperwork, updates to regional fair plan.
January/February	After review of student projects, submit those to attend regional fair using online system under "Your Students" Have students present their project to the class
March 7, 2020	Attend regional fair with your students.

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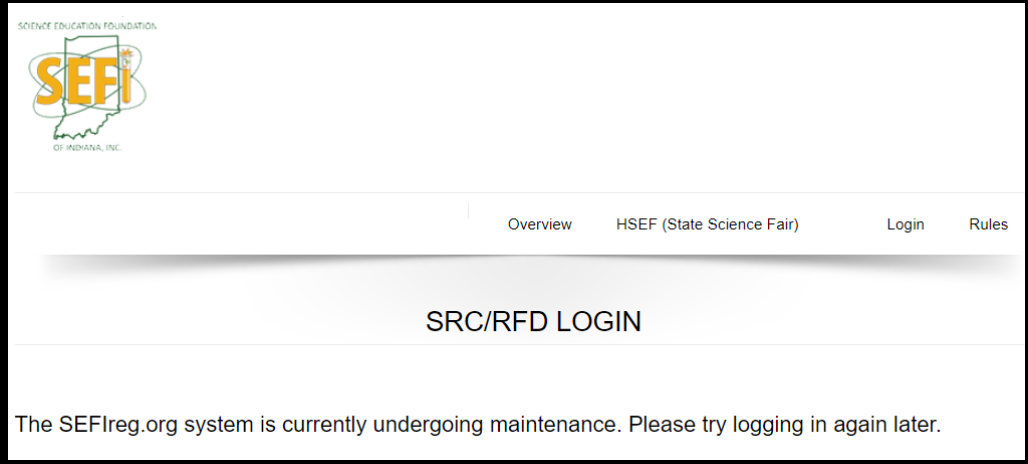
REGISTRATION SYSTEM

- Teachers
  - Instructions
  - Add Students
  - Manage Students
  - Group Projects
  - Sending Students to Regional Fair
- Students
  - MUST DO…
    - Initial Questionnaire
    - Research Plan
    - Abstract
    - Forms (downloadable, fillable and uploads)



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Other Resources

- STEM-H Center (Abstract, research paper)
  https://stemed.unm.edu/resources
- Understanding Science: How Science Really Works
  https://undsci.berkeley.edu/
- Argument-Driven Inquiry: Free resources (Peer review)
  https://argumentdriveninquiry.com/downloadable-materials
- Science Buddies
  https://www.sciencebuddies.org/

Break

2020 ISEF RULE CLARIFICATIONS & CHANGES

Roles and Responsibilities of the Students and Adults has been rewritten and reformatted

Added Responsibilities for **Qualified Scientist** and **Designated Supervisor**

Human Participants

- Prohibit students from independently diagnosing diseases
- Expanded definition of medical act

Clarified **Potentially Hazardous Biological Agents** rules

Revised "Engineering Projects Guide"

Roles and Responsibilities of Students and Adults

Ethics Statement Changes

- Original
  - Student researchers are expected to maintain the highest standards of honesty and integrity.
- New
  - Student researchers, **as well as adults who have a role in their projects,** are expected to maintain the highest **ethical** standards.
- These include, but are not limited to:
  - Integrity, Legality, Respect for confidentiality,
  - Stewardship of the environment
  - Animal care
  - Human participant protection
  - Potentially Hazardous Biological Agents

Qualified Scientist / Designated Supervisor

The **Qualified Scientist** is responsible for

- Providing direct supervision throughout the timeline….
- Completing the required documentation…..
- Reviewing the ISEF rules….
- Ensuring the proper training of the Student Researcher…

The **Designated Supervisor** is responsible for

- Providing direct supervision…..
- Completing the required documentation…..
- Reviewing and completing the Risk Assessment Form (3) when needed

Human Participants Rules

Original Item 6 under rules:

- Students are prohibited from administering medication and/or performing medical procedures…….

New Item 6 under Rules:

- Students are **prohibited** from **independently diagnosing disease**, administering medication and/or performing medical procedures…….

Original Item 6

- The IRB must also confirm that the student is not violating the medical practice act of the state or country…..

Item 6 New Item

- The IRB must also confirm that the student is not violating the **appropriate** practice act **(medical, nursing, pharmacy, etc)** of the state or country…..

Human participant rules (continued)

Human participant involvement in Student-designed….

OLD

- Rule 1. IRB review and pre- approval is necessary when the student-designed invention, prototype, application, etc. is tested by human participants other than the student researcher(s).

NEW

- Rule 1. IRB review and pre-approval is necessary when the student-designed invention, prototype, application, etc. is tested by human participants other than the student researcher(s) **OR A SINGLE ADULT GUARDIAN, ADULT SPONSOR/QS/DS WHEN THE TESTING REQUIRES AN ADULT TESTER**.

Vertebrate Animals and PHBA's

Vertebrate Animals

- NO CHANGES

PHBA's

Item 8 under Rules for ALL studies with PHBA

Original

- Insertion of antibiotic resistance markers for the clonal selection of bioengineered organisms is permitted. However, students may not genetically engineer organisms with multiple drug resistant traits…….

New

- Insertion of antibiotic resistance markers for the clonal selection of bioengineered organisms is permitted**, with the following exceptions:**
  - Students are **prohibited** from the insertion of antibiotic resistance traits…..
  - Students are **prohibited** from designing or selecting for multiple drug resistance organisms…..

Risk Assessment

Guidance for Risk Assessment

Please find below guidance on conducting risk assessment when using the following:

- Hazardous Chemicals
- Hazardous Devices
- Radiation

1. **Hazardous Chemicals**
   A proper risk assessment of chemicals must include review of the following factors:
   a. Toxicity – the tendency of a chemical to be hazardous to health when inhaled, swallowed, injected or in contact with the skin.
   b. Reactivity - the tendency of a chemical to undergo chemical change.
   c. Flammability - the tendency of a chemical to give off vapors which readily ignite when used under normal working conditions.
   d. Corrosiveness - the tendency of a chemical, upon physical contact, to harm or destroy living tissues or physical equipment.

Environmentally Responsible Chemistry

The mission of environmentally responsible (green) chemistry is to avoid the use or production of hazardous substances during chemical process. The principles of green chemistry are described on the EPA website in the Sources of Information section. Whenever possible the following principles should be incorporated into the research plan.

- Waste prevention
- Use of the safest possible chemicals and products
- Design of the least possible hazardous chemical syntheses
- Use renewable materials
- Use catalysts in order to minimize chemical usage
- Use of solvents and reaction conditions that are safe as possible
- Maximization of energy efficiency
- Minimization of accident potential

When assessing risk, the type and amount of exposure to a chemical must be considered. For example, an individual's allergic and genetic disposition may have an influence on the overall effect of the chemical. The student researcher must refer to Safety Data Sheets provided by the vendor (SDS) to ensure that proper safety precautions are taken. Some SDS sheets (e.g., Flinn) rank the degree of hazard associated with a chemical. This rating may assist students and adult sponsors in determining risk associated with the use of a chemical.

A risk assessment (documented on Form 3) must include proper disposal methods for the chemicals used in an experiment. The Flinn Catalog (referenced in the Sources of Information section) provides information for the proper disposal of chemicals. If applicable, the student researcher must incorporate in the research plan disposal procedure required by federal and state guidelines.

2. **Hazardous Devices**
   The documentation of risk assessment (Form 3) is required when a student researcher works with potentially hazardous/dangerous equipment and/or other devices, in or outside a laboratory setting that require a moderate to high level of expertise to ensure their safe usage. Some commonly used devices (Bunsen burners, hot plates, saws, drills, etc.) may not require a documented risk assessment, assuming that the student researcher has experience working with the device. Use of other potentially dangerous devices such as high vacuum equipment, heated oil baths, NMR equipment, and high temperature ovens must have documentation of a risk assessment. It is recommended that all student designed inventions also have documentation of a risk assessment.

3. **Radiation**
   A risk assessment (documented on Form 3) must be conducted when a student's project involves radiation beyond that normally encountered in everyday life. Non-ionizing radiation includes the spectrum of ultraviolet (UV), visible light, infrared (IR), microwave (MW), radiofrequency (RF) and extremely low frequency (ELF).

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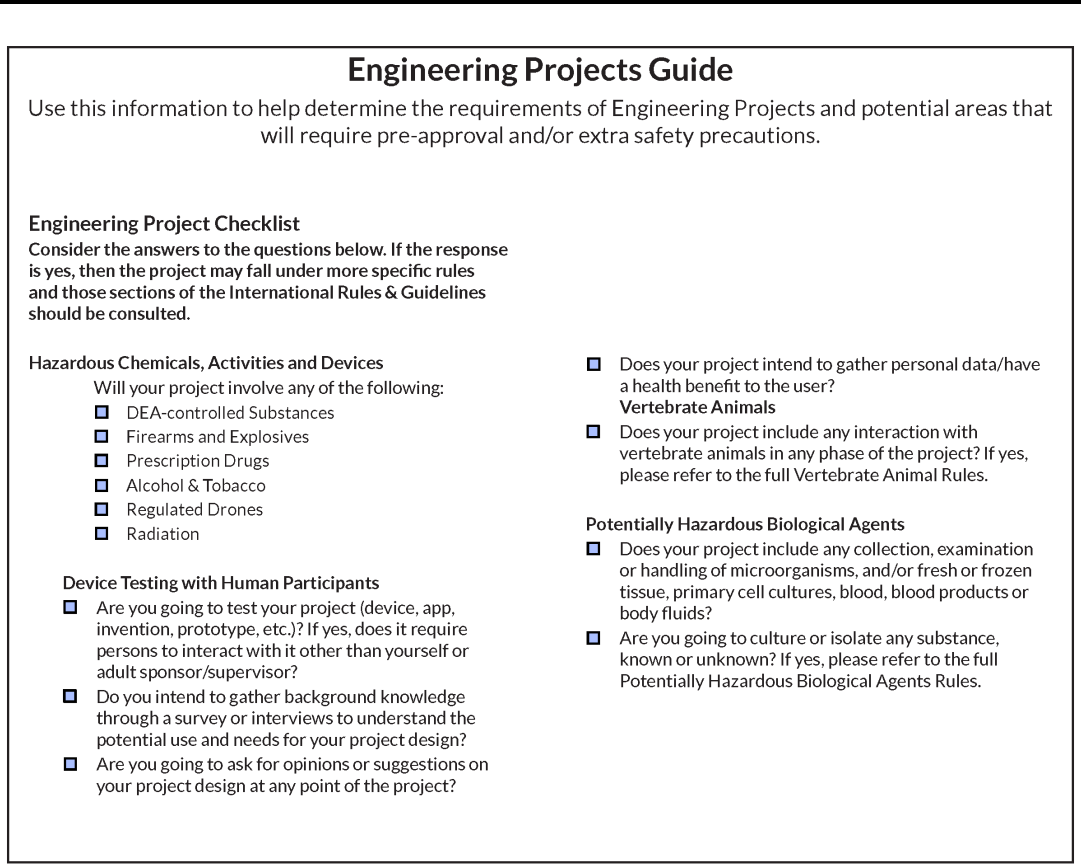
Engineering Projects Guide

Changed section heading from “Human Participants” to “Device Testing with Human Participants”



Engineering Projects Guide

Use this information to help determine the requirements of Engineering Projects and potential areas that will require pre-approval and/or extra safety precautions.

Engineering Project Checklist

Consider the answers to the questions below. If the response is yes, then the project may fall under more specific rules and those sections of the International Rules & Guidelines should be consulted.

Hazardous Chemicals, Activities and Devices

Will your project involve any of the following:

- ☐ DEA-controlled Substances
- ☐ Firearms and Explosives
- ☐ Prescription Drugs
- ☐ Alcohol & Tobacco
- ☐ Regulated Drones
- ☐ Radiation

Device Testing with Human Participants

- ☐ Are you going to test your project (device, app, invention, prototype, etc.)? If yes, does it require persons to interact with it other than yourself or adult sponsor/supervisor?
- ☐ Do you intend to gather background knowledge through a survey or interviews to understand the potential use and needs for your project design?
- ☐ Are you going to ask for opinions or suggestions on your project design at any point of the project?
- ☐ Does your project intend to gather personal data/have a health benefit to the user?

Vertebrate Animals

- ☐ Does your project include any interaction with vertebrate animals in any phase of the project? If yes, please refer to the full Vertebrate Animal Rules.

Potentially Hazardous Biological Agents

- ☐ Does your project include any collection, examination or handling of microorganisms, and/or fresh or frozen tissue, primary cell cultures, blood, blood products or body fluids?
- ☐ Are you going to culture or isolate any substance, known or unknown? If yes, please refer to the full Potentially Hazardous Biological Agents Rules.

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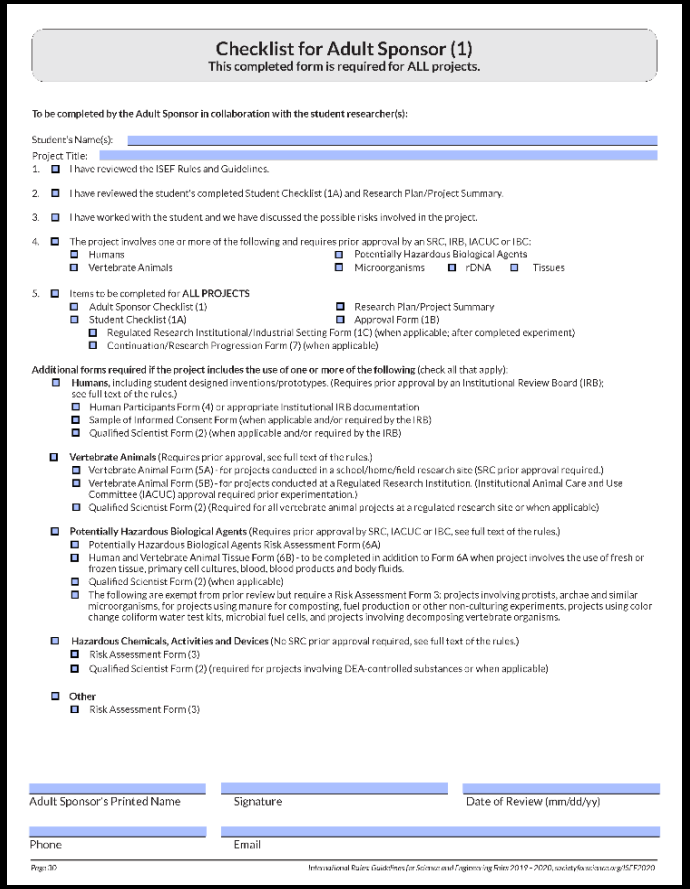
ISEF forms -Checklist for Adult Sponsor (1)



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.
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, for 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)

Adult Sponsor's Printed Name | Signature | Date of Review (mm/dd/yy)

Phone | Email

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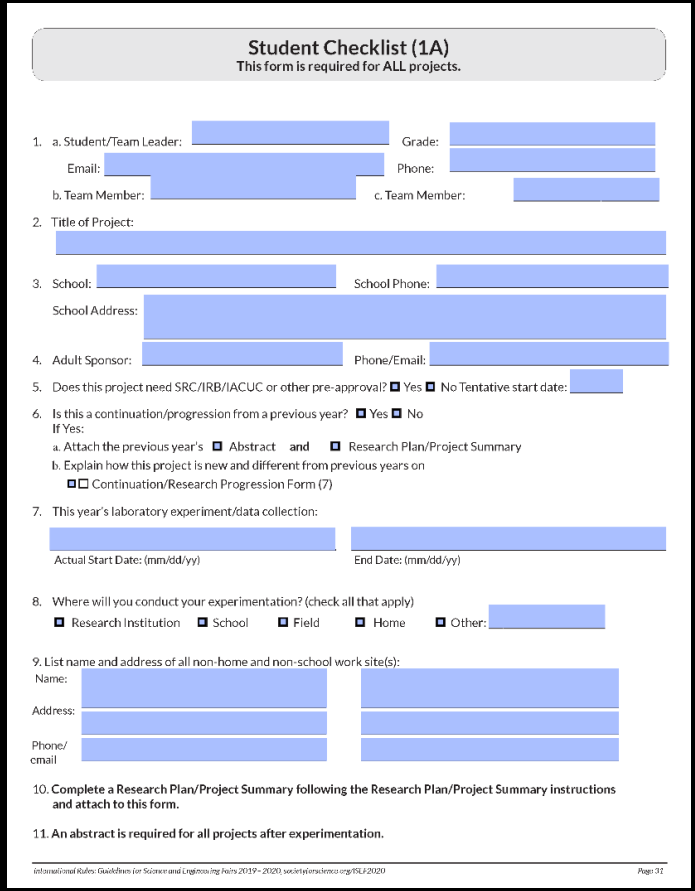
ISEF forms - Student Checklist (1A)



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. Does this project need SRC/IRB/IACUC or other pre-approval? ☐ Yes ☐ No Tentative start date: _____
6. Is this a continuation/progression from a previous year? ☐ Yes ☐ No
   If Yes:
   a. Attach the previous year's ☐ Abstract **and** ☐ Research Plan/Project Summary
   b. Explain how this project is new and different from previous years on
   ☐☐ Continuation/Research Progression Form (7)
7. This year's laboratory experiment/data collection:
   _____ _____
   Actual Start Date: (mm/dd/yy) End Date: (mm/dd/yy)
8. Where will you conduct your experimentation? (check all that apply)
   ☐ Research Institution ☐ School ☐ Field ☐ Home ☐ Other: _____
9. List name and address of all non-home and non-school work site(s):
   Name: _____ _____
   Address: _____ _____
   Phone/email _____ _____
10. **Complete a Research Plan/Project Summary following the Research Plan/Project Summary instructions and attach to this form.**
11. **An abstract is required for all projects after experimentation.**

International Rules: Guidelines for Science and Engineering Fairs 2019 - 2020, societyforscience.org/ISEF2020 Page 31

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ISEF forms – Research Plan /Project Summary

Research Plan/Project Summary Instructions

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

1. All projects must have a Research Plan/Project Summary
   a. 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.

2. 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.

3. 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. Describe only your project. Do not include work done by mentor or others.
- **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.

3. **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:**
   - Describe Risk Assessment process, supervision, safety precautions and methods of disposal.
   - Material Safety Data Sheets are not necessary to submit with paperwork.

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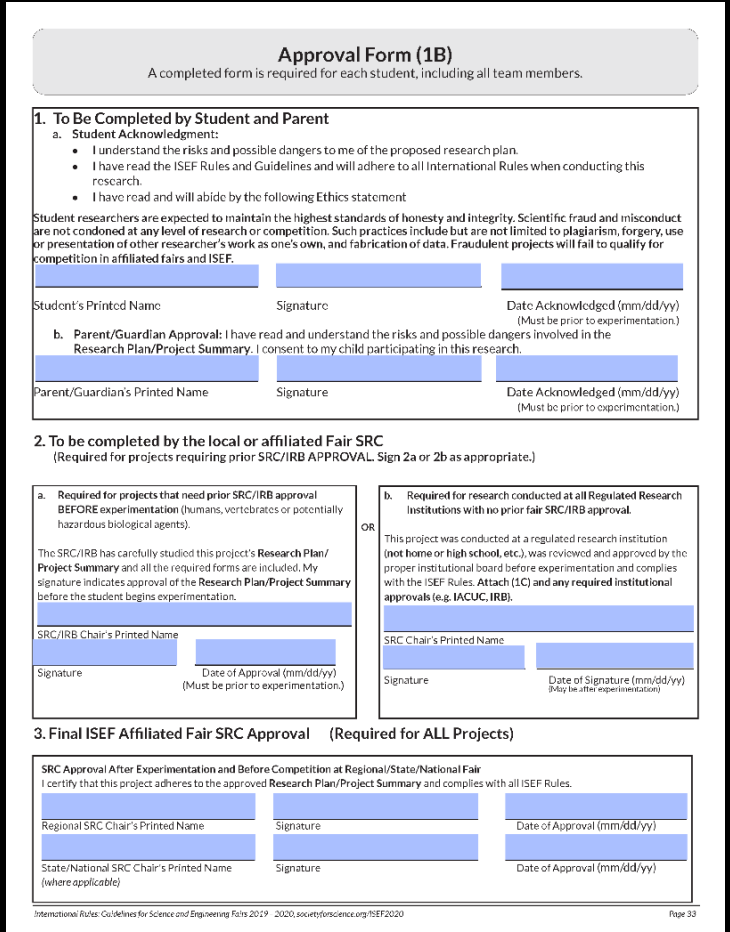
ISEF forms – Approval form (1B) (TEAMS NOTE)



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

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 the local or affiliated 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/ Project Summary** and all the required forms are included. My signature indicates approval of the **Research Plan/Project Summary** before the student begins experimentation.

SRC/IRB Chair's Printed Name

Signature | Date of Approval (mm/dd/yy) (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 any required institutional approvals (e.g. IACUC, IRB).**

SRC Chair's Printed Name

Signature | Date of Signature (mm/dd/yy) (May be after experimentation)

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

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

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

Regional SRC Chair's Printed Name | Signature | Date of Approval (mm/dd/yy)

State/National SRC Chair's Printed Name *(where applicable)* | Signature | Date of Approval (mm/dd/yy)

International Rules: Guidelines for Science and Engineering Fairs 2019 2020, societyforscience.org/ISEF2020 Page 33

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ISEF forms – RRI (1C)

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.

Student's Name(s)

Title of Project

To be completed by the Supervising Adult in the Setting (NOT the Student(s)) after experimentation:
(Responses must be on the form as it is required to be displayed at student's project booth; please do not print double-sided.)

The student(s) conducted research at my work site:

1. Did you or your proxy (e.g. graduate student, postdoc, employee) mentor or provide substantial guidance to the student researcher? ☐ Yes ☐ No
   a. If no, describe your and/or your institution's role with the student researcher and his/her project (e.g. supervised use of equipment on site without ongoing mentorship and sign below.
   b. If yes, complete questions 2 – 5.
2. Is the student's research project a subset of your ongoing research or work? Use questions 3, 4 and 5 to detail how the student's project was similar and/or different from ongoing research or work at your site. ☐ Yes ☐ No
3. Describe the independence and creativity with which the student:
   a. developed the hypotheses or engineering goals for the research project
   b. designed the methodology for his/her research project
   c. analyzed and interpreted data

(Continued on next page)

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

Student's Name(s)

4. Detail the student's role in conducting the research (e.g. data collection, specific procedures performed). Differentiate what the student observed and what the student actually did.
5. Did the student(s) work on the project as part of a group? ☐ Yes ☐ No
   If yes, how many individuals were in the group and who were they (e.g. high school students, graduate students, faculty, professional researchers)?

I attest that the student has conducted the work as indicated above and that any required review and approval by institutional regulatory board (IRB/IACUC/IBC) has been obtained. Copies are attached if applicable.
I further acknowledge that the student will be presenting this work publicly in competition and I have communicated with the student research regarding any requirements for my review and/or restrictions of what is publicized.

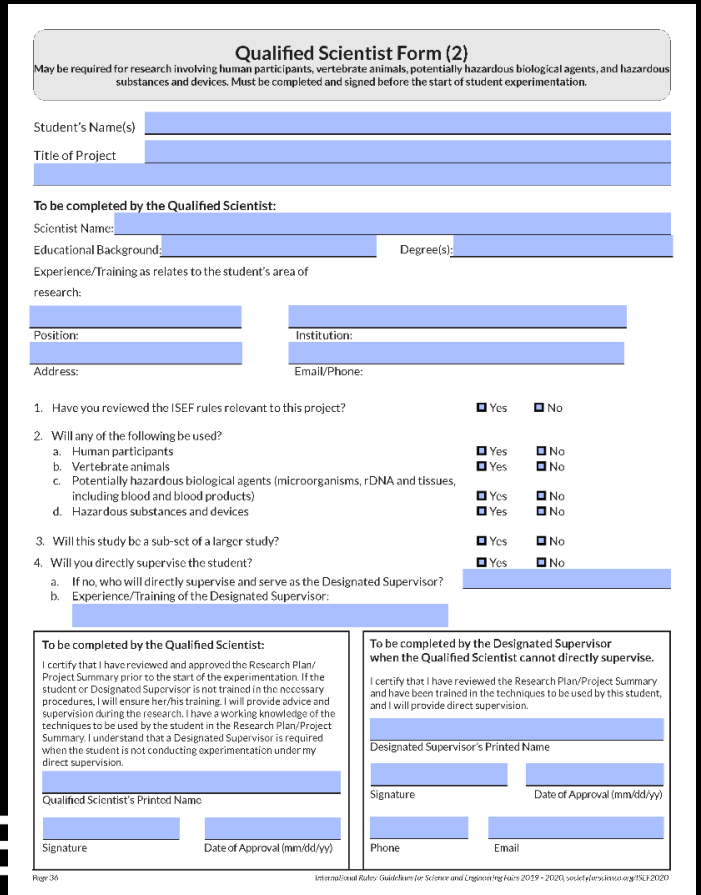
Supervising Adult's Printed Name | Signature | Title

Institution | Date Signed (must be after experimentation) (mm/dd/yy)

Address | Email/Phone

PURDUE UNIVERSITY FORT WAYNE

ISEF forms – Qualified Scientist (2)



Qualified Scientist Form (2)

May be required for research involving human participants, vertebrate animals, potentially hazardous biological agents, and hazardous substances 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:

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 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/Project Summary. 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/Project Summary 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

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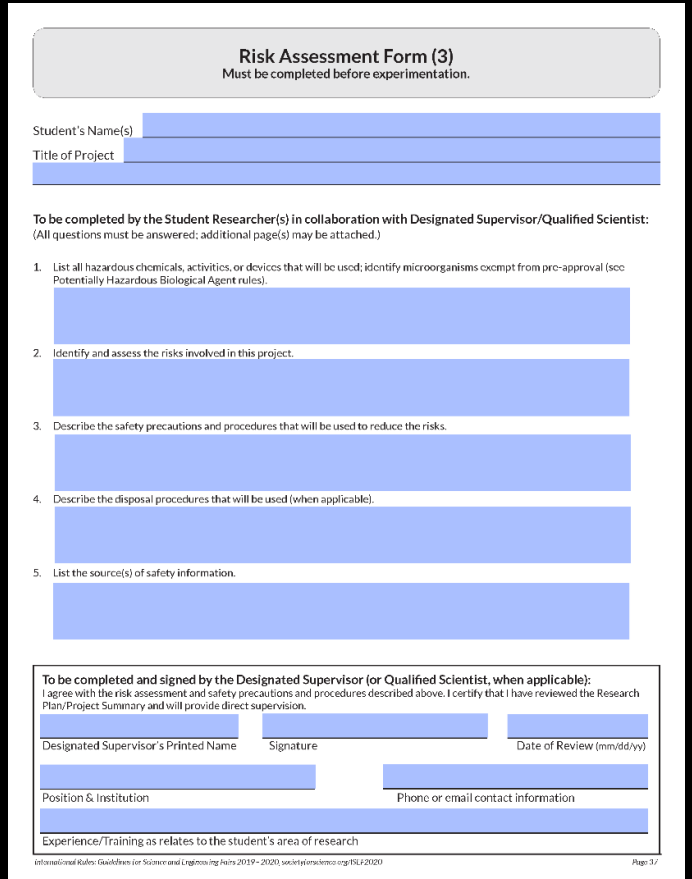
ISEF forms – Risk Assessment (3)



Risk Assessment Form (3)

Must be completed before experimentation.

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. List all hazardous chemicals, activities, or devices that will be used; identify microorganisms exempt from pre-approval (see Potentially Hazardous Biological Agent rules).
2. Identify and assess the risks involved in this project.
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/Project Summary and will provide direct supervision.

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

Position & Institution | Phone or email contact information

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

International Rules: Guidelines for Science and Engineering Fairs 2019 – 2020, societyforscience.org/ISEF2020 Page 3/

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ISEF forms – Human Participants (4) & Inf. Consent

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:

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 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. If you decide not to participate there will not be 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: (mm/dd/yy)

Research Participant Printed Name: Signature:

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

Parent/Guardian Printed Name: Signature:

Human Participants Form (4)

Required for all research involving human participants not at a Regulated Research Institution. If at a Regulated Research Institution, use institutional approval forms for documentation of prior review and approval. (IRB approval required before recruitment or data collection.)

Student's Name(s) Title of Project

Adult Sponsor Phone/Email

Must be completed by Student Researcher(s) in collaboration with the Adult Sponsor/Designated Supervisor/Qualified Scientist:

1. ☐ I have submitted my Research Plan/Project Summary which addresses ALL areas indicated in the Human Participants Section of the Research Plan/Project Summary Instructions.
2. ☐ I have attached any surveys or questionnaires I will be using in my project or other documents provided to human participants.
   - ☐ Any published instrument(s) used was/were legally obtained.
3. ☐ I have attached an informed consent that I would use if required by the IRB.
4. ☐ Yes ☐ No Are you working with a Qualified Scientist? If yes, attach the Qualified Scientist Form 2.

BELOW - IRB USE ONLY

Must be completed by Institutional Review Board (IRB) after review of the research plan. All questions must be answered for the approval to be valid. (If not approved, return paperwork to the student with instructions for modifications.)

☐ Approved with Full Committee Review (3 signatures required) and the following conditions: **(All 6 must be answered)**

1. Risk Level (check one): ☐ Minimal Risk ☐ More than Minimal Risk
2. Qualified Scientist (QS) Required (Form 2): ☐ Yes ☐ No
3. Designated Supervisor (DS) Required (Form 3): ☐ Yes ☐ No
4. Written Minor Assent required for minor participants: ☐ Yes ☐ No ☐ Not applicable (No minors in this study)
5. Written Parental Permission required for minor participants: ☐ Yes ☐ No ☐ Not applicable (No minors in this study)
6. Written Informed Consent required for participants 18 years or older: ☐ Yes ☐ No ☐ Not applicable (No participants 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, that the checkboxes above have been completed to indicate the IRB determination and that I agree with the decisions above.**

Medical or Mental Health Professional (a psychologist, medical doctor, licensed social worker, licensed clinical professional counselor, physician's assistant, doctor of pharmacy, or registered nurse) with expertise related to this project.

Printed Name | Degree/Professional License

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

Educator

Printed Name | Degree/Professional License

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

School Administrator

Printed Name | Degree/Professional License

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

PURDUE UNIVERSITY FORT WAYNE

ISEF forms – Vertebrate Animal (5) & (5B)

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, attach this letter with 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 (7).

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; complete Forms 6A and 6B
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)

PURDUE UNIVERSITY FORT WAYNE

ISEF forms – PHBA (6) & Tissues (6B)

Potentially Hazardous Biological Agents Risk Assessment Form (6A)

Required for research involving microorganisms, rDNA, fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), 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. 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 reviewed that the student received appropriate training and the project complies with ISEF rules.

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 above.

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
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 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.

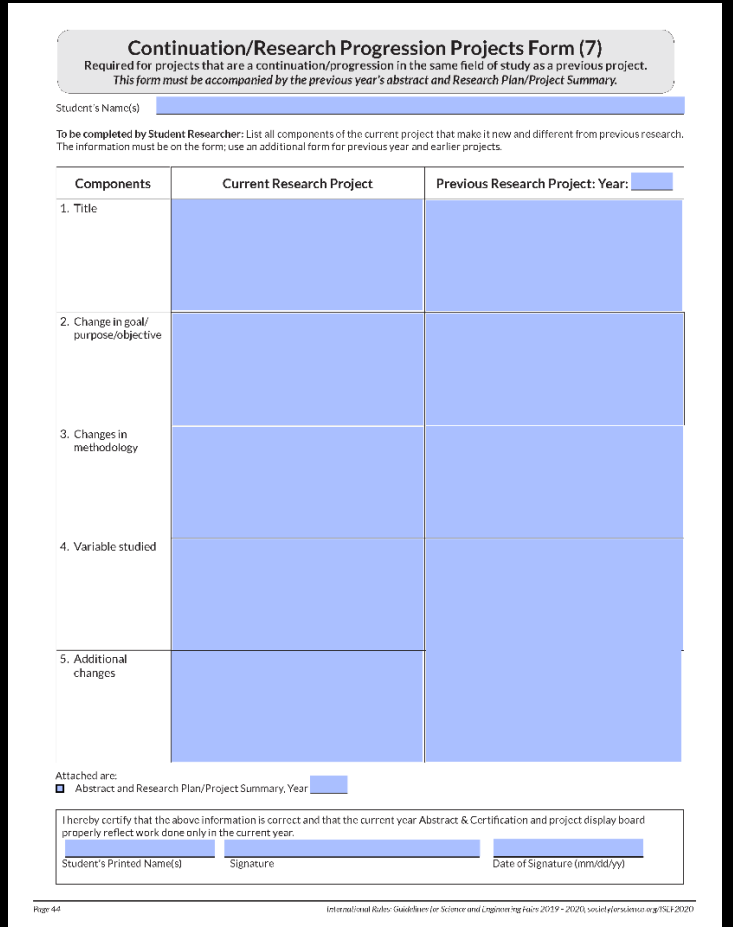
Printed Name | Signature | Date of Approval (mm/dd/yy) (Must be prior to experimentation.)

Title | Phone/Email

Institution

PURDUE UNIVERSITY FORT WAYNE

ISEF forms - Continuation(7)



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: 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 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)

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Junior Division Form and the Rules

Indiana Junior Division Project Form

Last Name:	First Name		Grade
Email Address:	**Phone:**	**Gender**	
School Name		**School City**	**State** / **Zip**
School Phone:		**Teacher Approval:**	
		By signing here the Teacher has approved this project plan:	
Teacher Name	**Teacher Email**		
		Date	

Is this a Team Project? ____Yes____No *(if yes complete top section of form for each team member)*

Project Proposal:
In the boxes provided describe the project you want to do for science fair.

Question:

Hypothesis:

Experimental Method: *(Attach separate pages if needed)*

References:
(1)
(2)

If you marked yes to any of the items at the bottom of page one, answer the appropriate questions below. Your Teacher may have you answer additional questions before giving approval.

Does this project use any of the following items? If yes, you must complete page 2 of the form.
___Human Subjects___ ___Animals ____Bacteria, Yeast, DNA or other Pathogens
____Chemicals___ ___Hazardous Substances ____Hazardous Equipment

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Rules for Indiana
Elementary and
Middle School Science Research
2018-2019

A Publication of

Science Education Foundation of Indiana, Inc.
864 E. Cambridge Dr.
Terre Haute, IN 47802

www.sefi.org

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PURDUE UNIVERSITY FORT WAYNE

HSEF Rules Supplement

- Key Points
  - Paperwork
  - Abstracts
  - Research Plan
  - Bibliography
  - Prohibited Projects
  - Other Items/areas of concern

SRC REVIEW OF PROJECTS

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PURDUE UNIVERSITY FORT WAYNE

Responsibilities of the Scientific Review Committee(SRC)

The SRC is a group of qualified individuals responsible for evaluation of student research, certifications, research plans and exhibits for compliance with the rules, laws and regulations at each level of competition.

- Must consist of a minimum of 3 persons – a **biomedical scientist** with earned doctoral degree, an **educator**, and at least **one additional educator**
- It is recommended to make up the SRC with **additional members** to diversify and increase the expertise of the committee. (in areas such as biosafety, animal care, hazardous chemicals/equipment, etc.
- Research projects involving vertebrate animals, PHBA's, hazardous chemicals, activities, devices, and (human subjects IRB) **must be approved PRIOR to experimentation**
- **ALL** projects must be reviewed and approved AFTER experimentation and prior to competition.

Responsibilities of the Institutional Review Board (IRB)

IRB MUST evaluate the potential physical and psychological risk of research involving humans (federal regulations). (Human Participant Form 4)

Thoroughly review the Human Participant Rules for Intel ISEF

IRB MUST review any proposed human research **BEFORE** experimentation begins

IRB should be established at the **school** level

- Must consist of a minimum of three persons – an **educator**, **school administrator**, and **medical/health professional**
- Conflict of interest – no Adult Supervisor, parent/relative, Qualified Scientist or Designated Supervisor should be the IRB reviewing project)
- Adult sponsor and local IRB are responsible for ensuring that the project is appropriate for pre-college research

Common SRC Problems/Concerns

- The top 5 Intel ISEF Paperwork problems
- The top 5 Intel ISEF SRC Problems
- HSEF Paperwork problems
- HSEF SRC Problems

2020 Rules Changes Highlights

- General
- Human Subjects
- Vertebrate Animals
- PHBA's
- Hazardous Chemicals/Devices
- Engineering Projects
- Form Changes
  - 1C now two pages
  - 7 change

Checklist for SRC Review (just prior to competition)

- Read the abstract
  - Did it require Prior Approval?
    - Human Subject
    - Animals
    - PHBA's
  - Was it done at a RRI?
  - Was this a continuation?
- Read the Research Plan/Project Summa
- Check for Required Forms
  - Make/keep notes for each project reviewed

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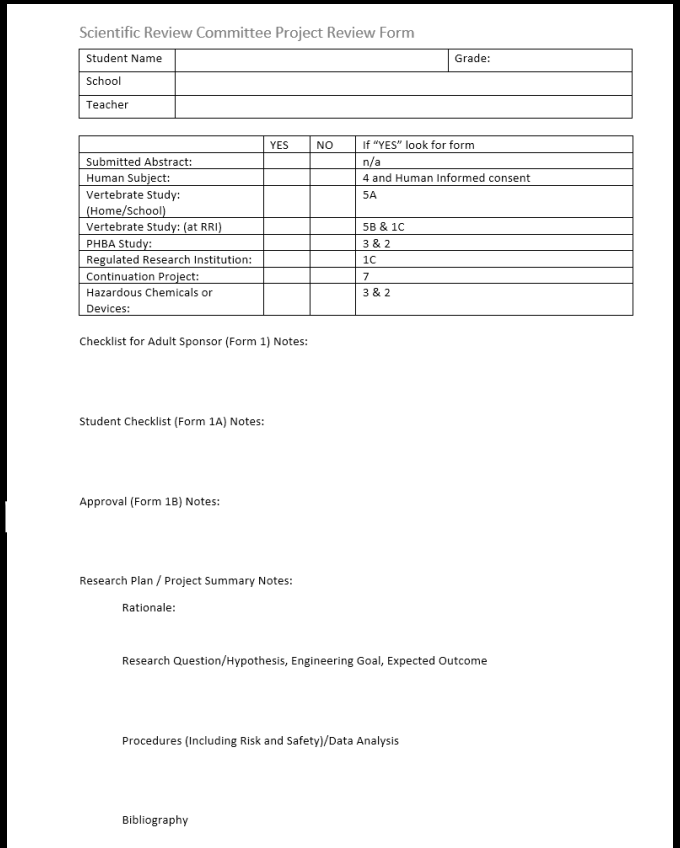


Scientific Review Committee Project Review Form

Student Name		Grade:
School		
Teacher		

	YES	NO	If "YES" look for form
Submitted Abstract:			n/a
Human Subject:			4 and Human Informed consent
Vertebrate Study: (Home/School)			5A
Vertebrate Study: (at RRI)			5B & 1C
PHBA Study:			3 & 2
Regulated Research Institution:			1C
Continuation Project:			7
Hazardous Chemicals or Devices:			3 & 2

Checklist for Adult Sponsor (Form 1) Notes:

Student Checklist (Form 1A) Notes:

Approval (Form 1B) Notes:

Research Plan / Project Summary Notes:

Rationale:

Research Question/Hypothesis, Engineering Goal, Expected Outcome

Procedures (Including Risk and Safety)/Data Analysis

Bibliography

Rules & Guidelines for Science Research

The purpose of Rules for science research competitions are to:

- Protect the rights and welfare of the student researcher
- Protect the rights and welfare of human participants/subjects
- Protect the health and welfare of vertebrate animals
- Ensure adherence to state and federal regulations
- Ensure use of safe laboratory practices
- Protect the environment
- Determine eligibility for competition

Ethics and Science Research

The science research student is responsible for maintaining the highest ethical standards throughout their scientific pursuits.

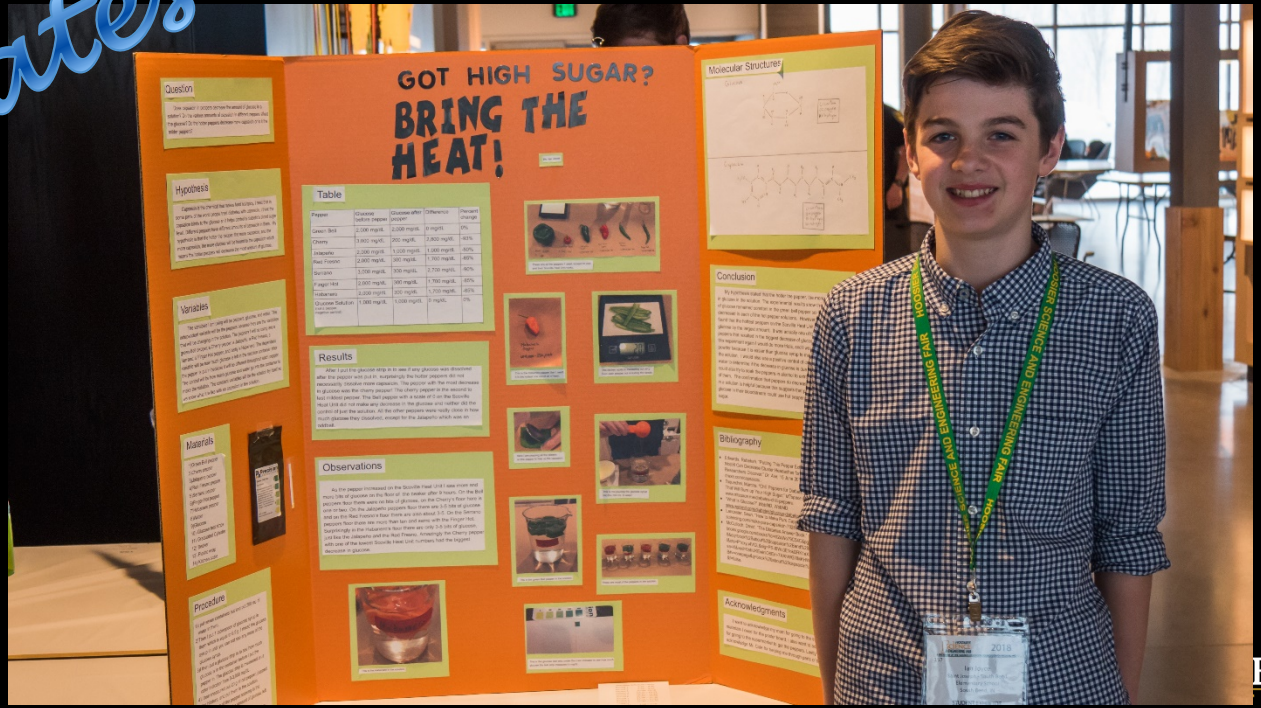
Teachers and students are required to..

- Be dedicated to the pursuit of beneficial scientific investigation
- Discuss, manage, evaluate, and report scientific data honestly
- Not plagiarize or falsify any part of the research
- Encourage constructive criticism of the research
- Ensure protection

Other SRC Items

- Human Participant Risk Assessment Guide
- Online Surveys
- Professional Tests used in science research.
  - Behavioral Assessments
  - IQ Test

Display & Safety Updates



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FORT WAYNE

Display and Safety

- Guidelines / Regulations
- Things to look for
  - Photography
  - Logos
  - Awards, medals
  - Active network
  - Handouts
  - Patent application references

Display and Safety (continued)

- Not allowed for display
  - A long list but look for big issues
    - Sharps
    - Electricity
    - Chemical
    - Glass
    - Pinch points
  - The entire display must fit within the allotted space.

Display and Safety Checklist

Intel International Science and Engineering Fair 2018

Display & Safety Checklist

Use the following checklist to ensure that your project meets the Intel ISEF Display & Safety Regulations. Please note that the items listed below are not comprehensive and the full D&S rules should be consulted for full understanding.

- ☐ Does your project meet all of the following parameters: Depth less than 30 inches (76 centimeters), width less than 48 inches (122 centimeters), including the table which holds your poster, if present, and height less than 108 inches (274 centimeters)?
- ☐ Your board does NOT include an abstract. The Official Abstract and Certification will be provided to you upon finishing the SRC process. This abstract must be displayed vertically, preferably attached with tacks, to the front of your table.
- ☐ Do you have your own copy of the required forms (possibly including, but not limited to, the Checklist for Adult Sponsor 1, the Student Checklist 1A, Research Plan, and Approval Form 1B)?
- ☐ Your project does NOT have awards, medals, business cards, flags (including country flags), logos, CDs, endorsements, and/or acknowledgments.
- ☐ Your project does NOT have active internet or e-mail connections as part of displaying or operating the project at the Intel ISEF? In addition, no personal information including phone numbers, addresses, and email addresses, etc., other than the official information on your abstract/research plan is allowed.
- ☐ Your project does NOT have prior years' written material or visual depictions on your display board (Exception: the title can mention the years or which year the project is – e.g. "Year Two of an Ongoing Study". Previous years' research contained in notebooks is permitted.)
- ☐ If your project is a continuation project, it must have the Continuation Project Form (7) vertically displayed and attached with tacks, to the front of your table.
- ☐ If your research was conducted at a regulated research institution, it must have the Form 1C vertically displayed and attached with tacks, to the front of your table.
- ☐ If the title "Absract" is included on your board or poster - you have left an 8.5 x 11 'blank space' in order to affix your Official Abstract and Certification.
- ☐ Your photographs have not been deemed offensive or inappropriate by your regional SRC, including pictures of animals and people. Inappropriate photographs will be removed.
- ☐ Your project does NOT have photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissections, necropsies, or other lab procedures. Animals must be shown in a healthy environment, e.g. no dirty cages, etc.
- ☐ Your photographs have credit lines of origin ("Photograph taken by…" or "Image taken from…") including photos from the internet, magazines, newspapers, journals, etc.

Intel International Science and Engineering Fair 2018

Display & Safety Checklist

Use the following checklist to ensure that your project meets the Intel ISEF Display & Safety Regulations. Please note that the items listed below are not comprehensive and the full D&S rules should be consulted for full understanding.

- ☐ If photographs were taken by you, credit yourself – one line prominently displayed on the table in front of your board is sufficient. ("All photographs taken by the finalist.")
- ☐ If there are pictures of human participants, there must be signed consent forms available (but not displayed) at your project, unless they are pictures of you.
- ☐ Graphs and tables must be credited (in the same way photographs are credited), even if they were made by you. ("All graphs and tables made by the finalist.") If you have photographs, graphs, and tables taken/made by yourself one sign is permissible.
- ☐ Finalists must stay within their allotted booth space during set-up and may not enter another finalist's space unless given permission.
- ☐ Any published papers that are present at a finalist's booth relate to the current year's research and/ or project.
- ☐ No glass or water is present at my booth, even decorative lighting.
- ☐ Any information present on a finalist's Abstract is eligible to be displayed on the finalist's poster.

Judging

Dr. Michael Columbia, Judging Coordinator

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Other Resources for Regional Fairs

- BSL-1 Checklist
- BSL-2 Checklist
- Statistics for Science Fair Cheat Sheet
- Abstract Writing Tips
  - Grades 3-5
  - Grades 6-8
  - Grades 9-12
- Mastering the Abstract Writing Process

Rules & Responsibilities of the Student

The student researcher is responsible for

- All aspects of the research project
- Enlisting the aid of any required supervisory adults
- Obtaining necessary approvals for the research (SRC, IRB)
- Performing the experimentation, engineering, analysis, etc.

Rules & Responsibilities of the Adult Sponsor

The Adult Sponsor (teacher, parent, professor) …

- Is responsible for working with the student to evaluate possible risks
- Should be familiar with the regulations that govern the research
- Is responsible for ensuring the student's research is eligible for entry into affiliated competitions
- Must review the ***Student Checklist (1A)*** and ***Research Plan/Project Summary*** to ensure
  - Experimentation is within the SSEF of Indiana and Intel ISEF local, state and federal laws
  - Necessary forms are completed by other required adults
  - The Qualified Scientists, if required, meets the requirements

Rules & Responsibilities of the Qualified Scientist

The Qualified Scientist

- should have earned a doctoral/professional degree in the scientific discipline that relates to the student's area of research
- MAY be an individual with extensive expertise in the student's area of research
- Must be thoroughly familiar with local, state, federal and Pre-college research regulations that govern the area of research

Rules & Responsibilities of the Designated Supervisor

The Designated Supervisor

- the adult who is **DIRECTLY** responsible for overseeing student experimentation
- need not have an advanced degree, but must be thoroughly familiar with project
- must be trained in the student's area of research
- may be the Adult Supervisor
- If working with vertebrates, must be knowledgeable about humane care and handling of animals

Affiliated Competitions

- Local/School Fairs
- Regional Science Fairs (10 in Indiana – all Districts)
- State Science Fair www.sefi.org/hsef
- Intel ISEF 2019 in Phoenix, AZ May 12-17
  https://student.societyforscience.org/intel-isef
- Broadcom MASTERS
  https://student.societyforscience.org/broadcom-masters
- Regeneron STS
  https://student.societyforscience.org/regeneron-sts

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CATEGORIES

	Regional Categories	HSEF Category	ISEF Categories
Animal Sciences	AS	AS	ANIM
Behavioral and Social Sciences	BE	BE	BEHA
Biochemistry	BI	BI	BCHM, CELL
Biomedical and Health Sciences	BM	BM	BMED, ENBM, TMED
Chemistry	CH	CH	CHEM
Computer Sciences	-	CS	CBIO, SOFT
Earth & Environmental Sciences	EA	EA	EAEV, ENEV
Engineering	EN	EN	EGCH, EGPH, ENMC
Robotics & Embedded Systems*	-	RO	ROBO, EBED
Microbiology	MI	MI	MCRO
Mathematics	MA	MA	MATH
Physics & Astronomy	PH	PH	MATS, PHYS
Plant Sciences	PS	PS	PLNT
Materials Science	MS		

Other Competitions

- Indiana Junior Academy of Science
- I-SWEEP
- Regeneron Competition in Math, Science & Technology
- Junior Science, Engineering and Humanities Symposium – JSEHS
- Broadcom Masters
- Google Science Fair
- Stockholm Junior Water Prize
- Oswego (World Sustainability Competition)

Science Education Foundation of Indiana, Inc.
is proud to present
The 32nd Annual
Hoosier Science and Engineering Fair
March 28, 2020

THE CENTER

The Heritage Group

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