



*STEM-H Center for
Outreach, Research & Education*

K-5

Inquiry-Based Student Research Project Rules & Forms

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K-5 Research Projects Quick Rules Guide

The official Intel International Science and Engineering Fair (ISEF) Rules for Pre-College Research can be obtained at <https://student.societyforscience.org/international-rules-pre-college-science-research>. The following rules are based on the ISEF Regulations, but have been simplified for elementary use. All Intel ISEF Affiliated Fairs in New Mexico enforce safe research for all participants at all levels. All affiliated fairs must adhere to the safety guidelines provided by ISEF. Accordingly, ISEF regulations will be the final authority on questions regarding health and safety of participants.

DISPLAY AND SAFETY REGULATIONS

- ✓ **NO** organisms, living or dead, including plants, animals, and microbes are to be displayed. This does not include the materials (wood and paper) of which the display board is constructed.
- ✓ Photographs depicting vertebrate animals (including humans) in other than normal conditions must be in a notebook to be presented only during certification and judging. All pictures of human subjects **MUST** be accompanied by a consent form (4B or 4B/Photo) which grants permission to use the pictures.
- ✓ **NO** soil or waste samples are allowed. Rocks and minerals that have no special hazardous chemicals must be displayed in a covered and secured case.
- ✓ **NO** nonfunctional apparatus or chemical containers, empty or otherwise, may be displayed, unless it is original to the project and approved by the Research Challenge/Expo coordinator.
- ✓ **NO** human or animal parts, histological sections, or wet mounts.
- ✓ **NO** gases under pressure or super-cooled gases, including dry ice.
- ✓ **NO** small objects that are not encased or attached to the project.
- ✓ **NO** loud, disturbing, or distracting sounds will be produced by a project's equipment
- ✓ **NO** bright or distractive lights.
- ✓ **NO** liquids.
- ✓ **NO** human or animal food
- ✓ **NO** sharp or sharp-edged items (*i.e.*, syringes, needles, pipettes).
- ✓ **NO** flames or highly flammable display materials. **NO** temperatures in excess of 75°C.
- ✓ **NO** batteries (dry, wet, or gel cell).
- ✓ **NO** unshielded high-voltage equipment, large vacuum tubes, or ray generating devices.
- ✓ **NO** uninsulated wiring or connectors.
- ✓ **NO** bare wire or exposed knife switches.
- ✓ **NO** car or motorcycle batteries.
- ✓ **NO** awards, medals, business cards, flags, or acknowledgments may be displayed.
- ✓ **NO** unshielded belts, pulleys, chains, or moving parts that pose a hazard **MAY BE OPERATED** (display only).
- ✓ **NO** lasers (or other scientific instrumentation) which do not meet ISEF standards (Class II, student-operated, sign, protective housing, power disconnect). **NO** Class III or IV lasers operated. Lasers **MUST** have original undamaged label.
- ✓ **NO** glass allowed except computer monitors, television screens. Picture frames should be acrylic.

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- ✓ If deemed unsafe or unnecessary by consensus of the Research Challenge/Expo Committee, the item or items must be removed.

HUMAN SUBJECTS

- ✓ All projects involving human subjects **must be reviewed** and approved by the Research Challenge/Expo Committee before experimentation begins.
- ✓ Informed consent (signed forms) **must** be obtained for all human subjects used in research projects.

VERTEBRATE ANIMALS

- ✓ Research **must be reviewed** and approved by the Research Challenge/Expo Committee before experimentation begins.
- ✓ Alternatives to the use of vertebrate animals for research **must** be explored.
- ✓ All animals **must** be legally acquired from reputable animal breeders or dealers.
- ✓ The use of wild animals will not be permitted for science projects at the Elementary School level (including behavioral and observational studies).
- ✓ Proper animal care must be provided daily, including weekends, holidays and vacations. It is highly recommended that the daily care routine be documented in the student's log book.
- ✓ Experimental procedures that cause unnecessary pain or discomfort are prohibited.
- ✓ Experiments designed to kill vertebrate animals are **NOT** permitted.
- ✓ Students may **NOT** perform euthanasia.
- ✓ Alcohol, acid rain, insecticide, herbicide, and heavy metal toxicity studies are **PROHIBITED**.

MICROBIOLOGY

- ✓ Microorganisms (bacteria, molds, fungi, viruses, etc.) collected, isolated, and/or cultured from any environment are considered to be potentially pathogenic (see ISEF rules) and **MUST** be done in an appropriate laboratory setting (never at home). Consequently, they are **NOT** appropriate for research projects at the Elementary School level.

PROJECTS **NOT** RECOMMENDED FOR ELEMENTARY STUDENTS

The following areas of research are permitted under ISEF rules, but are **NOT** recommended at the Elementary School level. If students insist on conducting their research in any of these areas, they **MUST** meet with the Research Challenge/Expo Committee and obtain written approval prior to the start of any experiments.

- ✓ Research involving **Recombinant DNA**
- ✓ Research that utilizes **Controlled Substances** (including prescription drugs, alcohol, tobacco, and explosives)
- ✓ Research involving **Hazardous Substances or Devices** (including hazardous chemicals, radioactive materials, firearms, carcinogens, explosives, paintball/airsoft guns, rockets, pesticides, etc.).
- ✓ Research involving **Human and Animal Tissue** (e.g., human teeth, human blood or other body fluids including saliva and urine).

K-5 Research Projects Form Information

For Elementary Principals, Teachers, Science Coordinators

The Research Challenge/ Expo requires the use of specific forms simplified for elementary use based on the forms required by the Junior/Senior Division of Intel ISEF affiliated student research competitions. It is important to adhere to the safety guidelines provided by the Intel International Science and Engineering Fair (ISEF). If the nature of the experiment or safety is questionable, the Science Expo Committee will **NOT** approve the project and the project cannot compete in the Science Expo.

FORM 1 – RESEARCH PLAN FORM

All Projects are required to have a Research Plan Form. This form requires the signature of the **classroom teacher**, the **primary person** to review the project idea for safety, clarity and classroom requirements, and the **school science coordinator/Science Expo Committee Chair**. Reviewing all projects **before they begin** will eliminate many disqualification questions and concerns.

FORMS 2 & 2B – HUMAN SUBJECTS FORMS

If the project involves testing humans, the project will **require the PRIOR approval of the Science Expo Committee &/or School Science Coordinator** and is noted on the Form 1 - Research Plan Form. Many elementary classes conduct engaging tasks to collect data. These are great multi-sensory experiences to involve students in their learning. At the Science Expo, it is required that these experiments have **PRIOR approval and parental consent** for public display of the data/project. Use Forms 2 & 2B - Human Subjects Forms to obtain these approvals.

FORM 4 – VERTEBRATE ANIMAL FORM

This form is required for projects that intend to safely investigate/test animals (pets) and is noted on Form 1 - Research Plan. Elementary students **cannot** conduct any experimentation on wild animals. The intention of the form is primarily for typical domesticated pets. These projects must be approved **BEFORE** the experiment begins or the project will not qualify to participate at the Science Expo. **Elementary level students should NOT conduct vertebrate animal projects involving alteration of normal diet. Projects involving supplementation (ex: treats, vitamins, etc.) MUST have a veterinarian's approval.** Any changes, no matter how subtle, to an animal's normal diet can have significant negative consequences (ex: diarrhea, vomiting, etc.).

FORM 5 – ABSTRACT ELEMENTARY FORM

This form is to be created and used for all Abstracts. A copy of the abstract must be in the student folder and on the project board.

NEED HELP OR HAVE QUESTIONS?

Contact Research Challenge/Expo Committee Chair: Erin Garcia
at 505-277-4916 (phone) scifair@unm.edu (e-mail)

Please contact the Research Challenge/Expo Committee for more information on form deadlines, etc.

K-5 Research Project Checklist

Teachers: Please **attach** this form on the outside front cover of each project folder.

Double-check to make sure that all appropriate forms are completed properly **before** the project is submitted for any needed approval.

DEADLINES:

November 20, 2017: Prior Approval Deadline

February 5, 2018 : Online Entry Deadline (new for 2018)

February 7, 2018: All Paperwork & Entry Fee (\$15.00/student) Due

Form

Form Name

- | | |
|---|--|
| <input type="checkbox"/> Form 1 | Research Plan <i>(required for EVERY project)</i> |
| <input type="checkbox"/> Form 2 | Human Subjects Form for Approval PRIOR to Experimentation |
| <input type="checkbox"/> Form 2B | Human Subjects Form for Informed Consent/Permission |
| <input type="checkbox"/> Form 3 | Photos of Human Subjects Form |
| <input type="checkbox"/> Form 4 | Vertebrate Animal Form for Approval PRIOR to Experimentation |
| <input type="checkbox"/> Form 5 | Abstract <i>(required for EVERY project)</i> |
| <input type="checkbox"/> Signature Page/Media Release | <i>(required for EVERY student)</i> |

Please **PRINT** below (Note: projects may only have **3** representatives per project present at judging)

1st Student Name: _____

2nd Student Name: _____

3rd Student Name: _____

Teacher Name: _____

School: _____ **Grade Level:** _____

This is a/an (please check ONE):

INDIVIDUAL PROJECT

TEAM PROJECT

CLASSROOM PROJECT

K-5 Form 1A & 1B Research Plan

Form 1A - Research Plan (K-5 ONLY)

This completed form is required for ALL projects.

Title of Project: _____

Teacher Name: _____ E-Mail: _____

Student 1 Name: _____

Student 2 Name: _____

Student 3 Name: _____

Project Start Date: _____ Project End Date: _____

This project was conducted at:

School Field Home Other: _____

Project Description

Problem: _____

Procedures: _____

The following projects require review and approval by the Regional Science Expo Committee.

Check **ALL** items below that apply to your research.

- Humans involved in project **requires PRIOR approval** with Form 2
- Nonhuman vertebrate animals project **requires PRIOR approval** with Form 4
- Potentially hazardous materials/chemicals/devices OR any microbiology related projects **require PRIOR approval BELOW.**

Form 1B – Approval Form (K-5 ONLY)

This completed form is required for ALL projects.

APPROVAL SIGNATURES

Classroom Teacher: _____ Date: _____

Parent 1/Guardian 1: _____ Date: _____

Parent 2/Guardian 2: _____ Date: _____

Science Expo Committee: _____ Date: _____

If PRIOR APPROVAL is required (see above), the following signature is needed BEFORE the project can begin.

Committee Chair: _____ Date: _____

K-5: Form 2 Human Subjects Form

K-5 Form for Prior Approval of HUMAN SUBJECTS Research Projects

This completed form is REQUIRED for ALL projects involving human subjects.

Title of Project: _____

Teacher Name: _____ E-Mail: _____

Student 1 Name: _____

Student 2 Name: _____

Student 3 Name: _____

Human Subjects Information:

A) Describe procedures as related to human participation: _____

B) Describe the benefits of this research: _____

To Be Completed by Research Challenge/Expo Committee Chair OR Designee

The project as described is:

- Acceptable, you may begin your project
- Informed Consent Form 2B needed for ALL Participants
- Not Acceptable/Unsafe (Project must be revised.)

Comments: _____

Committee Chair/Designee: _____

Date: _____ Phone: _____ Email: _____

Be certain to copy this form for your files prior to submittal.

K-5: Form 2B Informed Consent/Permission

K-5 Form for INFORMED CONSENT/PERMISSION to Participate in HUMAN SUBJECTS Research

This completed form is required for projects involving humans.

Title of Project: _____

Teacher Name: _____ E-Mail: _____

Student 1 Name: _____

Student 2 Name: _____

Student 3 Name: _____

Dear _____,

I/We will be conducting a research experiment for this year's science expo. This year I/we will be using human subjects to help with the project. My/Our human subjects will be asked to do the following *(describe, in detail, what the participants will be doing)*:

Thank-you,

Teacher: _____ Date: _____

Student(s): _____ Date: _____

To Be Completed PRIOR to Experimentation

- I have read and understand the project stated above and give consent for myself/ my child to participate in this research project.
- I consent the use of visual images (video, photos) involving my/ my child's participation in this research project *(optional)*.

Participant's Name: _____ Date: _____

Participant Signature: _____

Parent/ Guardian Signature (if applicable: _____

Be certain to copy this form prior to submittal. Use a separate copy for each participant.

K-5: Form 4 Vertebrate Animal Form

K-5 Form for Prior Approval of VERTEBRATE ANIMAL Research Projects

This completed form is REQUIRED for ALL research involving non-human vertebrate animals (please use additional pages if needed)

K-5 students CANNOT test wild animals, but may do purely observational studies (ex: bird counts, etc.) with permission of the Science Expo Committee.

Title of Project: _____

Teacher Name: _____ E-Mail: _____

Student 1 Name: _____

Student 2 Name: _____

Student 3 Name: _____

1) Type of animal to be used: _____ The following alternatives to the use of vertebrate animals have been explored: _____

2) Where will animal(s) be obtained? _____

3) Cage size: _____ Number of animals per cage: _____

4) Type/Brand of Food: _____

5) How often fed and given water? _____ How much food? _____

6) Where does the animal(s) live (*inside, outside, combination*)? _____

7) Describe procedures as related to animal involvement (continue on back if needed): _____

Name of Adult Pet Owner: _____

Consent of use by pet owner:

I have read and understand the project stated above and give consent for my pet to participate in this research project. I will supervise all interaction for the safety of my pet and student researcher.

Pet Owner Signature: _____ Date: _____

To Be Completed by Science Expo Committee Chairperson OR Designee

The project as described is:

- Acceptable, you may begin your project
- Acceptable, but get OK from Vet (*Bring note from Vet saying project is not going to harm the animal(s) AND that he/she will provide emergency medical care if needed.*)
- Not Acceptable/Unsafe; project must be revised.

Comments: _____

Science Expo Committee Chair/Designee: _____ Date: _____

Phone: _____ Email: _____

Be certain to copy this form for your files prior to submittal.

Form 5: Abstract

ABSTRACTS are required for all projects.

The abstracts should be displayed on the board on the upper left side (*just after the Question and before the Hypothesis since the Abstract is a summary of the project*).

A Good Research Project Abstract...

- ✓ Follows the format of the scientific method.
- ✓ Is written in the 3rd person.
- ✓ Assumes scientists are the audience.
- ✓ Uses complete but concise sentences.
- ✓ Uses present tense for the existing body of facts.
- ✓ Uses past tense for the completed research.
- ✓ Defines specialized terminology and abbreviations.
- ✓ Is 50 to 250 words long.
- ✓ Is typed neatly, single spaced using 12 point font size and an easily readable font.
- ✓ Has 1" to 1.5" margins.

What's In a Good Research Project Abstract?

- ✓ Write a sentence making broad statement about the topic of research.
- ✓ Write the next sentence or two focusing more narrowly on the particular intent of the research.
- ✓ Write several sentences indicating the problem to be solved and the hypothesis that was posed.
- ✓ Write a very brief statement to describe the methodology employed (*This may be omitted if space or time is short*).
- ✓ Write several concise statements indicating which variables were explored and compared and if the data obtained supported the hypothesis. These sentences summarize the results and discussion sections of the research paper.
- ✓ Write a sentence that gives the conclusion(s) of the research work and a statement of the direction for future research.
- ✓ Count the number of words for the sentences you just wrote. If you need to, edit your sentences to bring your abstract within the required 50- 250 word count.
- ✓ Put all previous sentences in paragraph form.
- ✓ Be sure to check your spelling AND grammar. Remember, you may soon have judges reading your work!! You might even want to have your teacher and/or a classmate review your abstract for you.

The Abstract should look like the following:

TITLE OF PROJECT

Sample, Sally S.

Alvarado Elementary School Science Expo, 5th Grade

The body of the abstract should be no more than 250 typed words. The abstract is a summary/synopsis of your project. Including specific detailed data is not necessary. However, you do want the reader to fully understand your project. The abstract should be written once the project is complete. Do not include references or bibliography in the abstract.