



Los Angeles County Science & Engineering Fair

Inspiring Student Discovery & Innovation

1107 Fair Oaks Ave. # 94, South Pasadena, CA 91030

www.lascifair.org

*This is a **fillable PDF**. Please **download** this document to your device and enter your responses in the given boxes. You do not need to complete the form in one sitting. Choose Save to save your progress. Once you complete the form, get it approved by your adult supervisor and site coordinator **BEFORE** you go online to complete the online pre-approval form. You can then copy and paste your responses in the appropriate sections of the online form.*

Research Plan for Experiments with Vertebrates

GUIDELINES FOR VERTEBRATE RESEARCH AND SAFETY PRECAUTIONS

Students planning research involving the use of vertebrates must complete and obtain LACSEF Scientific Review Committee (SRC) approval of the Certification of Vertebrates before starting experiments.

HUMANE TREATMENT OF ANIMALS: [State of California Education Code Title 2, Division 2, Part 28, Chapter 4, Article 5, 51540](#). In the public elementary and high schools or in public elementary and high school sponsored activities and classes held elsewhere than on school premises, live vertebrate animals shall not, as part of a scientific experiment or any purpose whatsoever:

1. Be experimentally medicated or drugged in a manner to cause painful reaction or induce painful or lethal pathological conditions,
2. Be injured through any other treatments, including, but not limited to, anesthetization or electric shock.

Live animals on the premises of a public elementary or high school shall be housed and cared for in a humane and safe manner. The provisions of this section are not intended to prohibit or constrain vocational instruction in the normal practice of animal husbandry.

Show evidence of a proper [CA State Fish and Wildlife Collecting permit](#) if you are collecting wild vertebrates.

LACSEF/SEF REGULATIONS FOR EXPERIMENTS WITH ANIMALS

The basic aims of experiments involving animals are to achieve an understanding of life processes and to further knowledge. They do not include the development of new or refinement of existing surgical techniques or experiments in toxicological studies. Experiments involving animals (live or preserved vertebrates (excluding Homo sapiens), vertebrate embryos and fetuses and embryos of fowl within three days of hatching), must have clearly defined objectives requiring the use of animals to demonstrate a biological principle or answer scientific propositions. Such experiments must be conducted with respect for life and an appreciation of humane considerations.

1. The use of Protista and other invertebrates is to be encouraged for most research involving animals. Their wide variety and the feasibility of using larger numbers than is usually possible with vertebrates make them especially suitable.
2. Students will **NOT** be involved in the sacrifice or euthanasia of a living vertebrate or cause pain, for whatever reason, to a vertebrate animal.
3. To provide for humane treatment of animals, an animal care supervisor knowledgeable in the proper care and handling of experimental animals must assume primary responsibility for the conditions under which the animals are maintained. If the school facility includes no one with adequate training in this area, the services of a qualified consultant must be obtained.
4. All live or preserved animals must be lawfully acquired from an approved source and their care and use must be in compliance with local, state, and Federal laws.
5. The comfort of the animals will be a prime concern. NO experimentation using live vertebrate animals shall be attempted unless the animals are obtained from a reliable source and the following conditions can be assured: appropriate, comfortable quarters, adequate food and water: humane treatment and gentle handling – animals should be allowed to thrive. Care must be provided at all times, including weekends and vacation periods. An experiment in nutritional deficiency or ingestion of hazardous or reputedly toxic materials may proceed only to the point where symptoms of the deficiency or toxicity appear. Appropriate measures shall be taken to correct the deficiency or toxicity.
6. Experiments involving stress will follow the guidelines for "Humane Treatment of Animals," [CA Education Code Title 2, Division 2, Part 28, Chapter 4, Article 5, 51540](#), stay within normal stress limits for the species and NOT produce pathological lesions (diseased patches or cancers). Experiments involving anesthetics, drugs, thermal procedures, physical stress, organisms pathogenic to humans or other vertebrates, ionizing radiation, carcinogens, or surgical procedures MUST be undertaken under the direct supervision of an experienced and qualified biomedical scientist or designated adult supervisor. Surgical procedures MUST be conducted in approved research facilities.
7. Experiments involving any procedures listed in paragraph 6 which are not in violation of the "painful reaction" or "injured" restrictions of the California Education Code are ONLY permitted if certified by a qualified biomedical scientist **in the same area of science as the project topic** prior to the beginning of the investigation. It is permissible for the student and the designated adult supervisor to consult with a biomedical scientist to obtain detailed instructions and guidance in the techniques to be used by the student under the direct supervision of the designated adult supervisor (for experiments not conducted in the biomedical scientist's laboratory). In this instance, email verifications by both the scientist AND the adult supervisor will need to be completed BEFORE the SRC/pre-approval process can begin.

Either the biomedical scientist or the designated adult supervisor must provide continuing supervision to assure compliance with the protocol. Major deviations from the approved protocol may be implemented only with the written approval of the biomedical

scientist. The biomedical scientist or adult supervisor must be in the same locality as the student for the duration of the experimental work except for short trips.

A biomedical scientist is defined as one who possesses an earned doctoral degree in science or medicine and who has current working knowledge of the techniques to be used in the research under consideration.

A designated animal care supervisor is defined as an individual who accepts primary responsibility for the quality of care and handling of live vertebrate animals used by the student.

Student Name	
School	
Email (non-school)	

I certify that I have read and understand the guidelines for vertebrate research and safety precautions as outlined in the [LACSEF Rules and Regulations](#) (check box)

In addition to this plan, I have also completed the following research plan(s) for this project (check all that apply).

Hazardous Material

Human Subject

Microbes

Tissue, Cell Lines, Organs or Organ Parts

No other research plan was submitted

Project Title:

- Title must be limited to 150 characters (including spaces)

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Problem

- State in the form of a question

Objective(s)

- State what the goal for the project is
- Explain why is it important

Hypothesis**Number of Project Team Members**

- This refers to the number of students conducting the project, not the number of test subjects.
- There are a maximum number of three students allowed on a project team.

Type of Vertebrate Species

- Describe the genus and species of the project vertebrate(s), their age range, and the number of animals used in both the experimental and control groups.

Vertebrate Source

- Describe where you obtained your live or preserved vertebrates.
- All live or preserved animals must be lawfully acquired from an approved source and their care and use must be in compliance with local, state, and Federal laws.

Disposal Methods

- What will happen to the project vertebrates when the research is finished? Domestic animals may not be released into the wild. Investigate whether pet shops will receive research animals after experimentation BEFORE beginning your project.

Evidence of Search for Alternative

- Explain why you couldn't use bacteria, plants, or invertebrates instead of a vertebrate for your research.
- The use of Protista and other invertebrates is to be encouraged for most research involving animals. Their wide variety and the feasibility of using larger numbers than is usually possible with vertebrates make them especially suitable.

Procedure/Research Techniques

- Students will NOT be involved in the sacrifice or euthanasia of a living vertebrate or cause pain, for whatever reason, to a vertebrate animal.
- If an experimental design requires food or water restriction, it must be appropriate to the species, but may not exceed 18 hours.
- Experiments involving stress will follow the guidelines for "Humane Treatment of Animals", [CA Education Code Title 2, Division 2, Part 28, Chapter 4, Article 5, 51540](#),

stay within normal stress limits for the species and NOT produce pathological lesions (diseased patches or cancers).

- Experiments involving anesthetics, drugs, thermal procedures, physical stress, organisms pathogenic to humans or other vertebrates, ionizing radiation, carcinogens, or surgical procedures MUST be undertaken under the direct supervision of an experienced and qualified biomedical scientist or designated adult supervisor. Surgical procedures MUST be conducted in approved research facilities. Because weight loss is one significant sign of stress, the maximum permissible weight loss or growth retardation (compared to controls) of any experimental or control animal is 15%

Safety Measures

- Describe in detail all safety precautions and equipment you will be using.
- To provide for humane treatment of animals, an animal care supervisor knowledgeable in the proper care and handling of experimental animals must assume primary responsibility for the conditions under which the animals are maintained. If the school facility includes no one with adequate training in this area, the services of a qualified consultant must be obtained.
- Animals must be treated kindly and cared for properly. Animals must be housed in a clean, ventilated, comfortable environment compatible with the standards and requirements appropriate for the species.
- Animals must be given a continuous clean (uncontaminated) water and food supply. Cages, pens, and fish tanks must be cleaned regularly and appropriately. Proper care must be provided at all times including weekends, holidays. Animals must be observed daily to assess their health and wellbeing.

COVID-19 Risks

- Due to the special circumstances brought on by the COVID-19 pandemic, it is strongly recommended that ALL students include in their risk assessment how they will mitigate the spread of the disease while conducting their experiment. Such mitigations may be found at: <https://www.societyforscience.org/isef/covid-policy/>

Bibliographic References

- Provide bibliographic references for your project.
- References should be written in APA format
- At least one reference must be from a source other than the internet.
- Junior Division projects require at least three references.
- Senior Division projects require five references.

Reference 1

Reference 2

Reference 3

Reference 4

Reference 5

Certification References

Please provide the email addresses for the people who will be serving in the following roles in your experiment. An email will be sent to each address with a link for the person to certify your project. You can see what [qualifications](#) each person needs on our website.

Teacher/Advisor	
Name	
Email Address	
Qualifications	

Biomedical Scientist	
Name	
Email Address	
Qualifications	

Animal Care Supervisor	
Name	
Email Address	

Designated Adult Supervisor	
Name	
Email Address	
Qualifications	

By checking this box, I certify that the experimental procedures used in this project follow the rules and regulations of the LACSEF. I also certify that the procedure followed will ensure that neither the procedures nor the materials constitute any known danger and that all microorganisms, pathogenic or non-pathogenic, will be handled and disposed of as if pathogenic. I understand that this form must be approved and signed by all parties BEFORE the project can begin, and I will comply with all regulations.

If your project involves humans in any way you need to complete the Human Subjects Form [at this link](#):