

# Use of Animals in Precollege Education

## Overview

This AALAS position statement presents guidelines and resources for the humane care and responsible use of animals in precollege education. This document also offers recommendations on classroom dissection and on the use of animals in science fair projects. All of the resources cited from [www.kids4research.org](http://www.kids4research.org) are contained within this booklet.

## Introduction

The American Association for Laboratory Animal Science (AALAS) recognizes that the appropriate and humane use of animals in elementary and secondary school classrooms can provide significant educational benefits to these students, including positive interactions between the students and animals that both enhance scientific learning and provide an avenue to promote a sense of responsibility and respect for all living things.

As part of its broader educational mission to ensure that all animal use is performed responsibly and humanely, AALAS has developed a series of species-specific informational pamphlets about animals commonly found in classroom settings, such as mice, rats, hamsters, guinea pigs, rabbits, reptiles, and amphibians. These pamphlets can be found on the AALAS website. Additionally, AALAS recognizes that other organizations have developed similar guidelines and recommends that teachers and educators familiarize themselves with these documents. These guidelines are:

- U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training, as promulgated by the Office of Laboratory Animal Welfare of the National Institutes of Health: <http://grants.nih.gov/grants/olaw/references/phspol.htm#USGovPrinciples>
- Guidelines for Responsible Use of Animals in the Classroom, developed by the National Science Teachers Association (NSTA): <http://www.nsta.org/positionstatement&psid=2>
- The Use of Animals in Biology Education, developed by the National Association of Biology Teachers (NABT): [http://www.nabt.org/sub/position\\_statements/animals.asp](http://www.nabt.org/sub/position_statements/animals.asp)
- Guidelines for Ethical Conduct in the Care and Use of Animals, from the American Psychological Association (APA): <http://www.apa.org/science/anguide.html>
- Principles and Guidelines for the Use of Animals in Precollege Education, from the Institute of Laboratory Animal Research (ILAR): [http://dels.nas.edu/ilar\\_n/ilarhome/Principles\\_and\\_Guidelines.pdf](http://dels.nas.edu/ilar_n/ilarhome/Principles_and_Guidelines.pdf)

Although developed by different organizations, the five documents above have much in common with each other. The ILAR Principles and Guidelines for the Use of Animals in Precollege Education are listed below, with comments that suggest practical approaches to educators who want to ensure the ethical and humane treatment of animals in their classrooms.

## Principles and Guidelines for the Use of Animals in Precollege Education

- **ILAR Principle 1. Observational and natural history studies that are not intrusive (that is, do not interfere with an animal's health or well-being or cause it discomfort) are encouraged for all classes of organisms.** When an intrusive study of a living organism is deemed appropriate, consideration should be given first to using plants (including lower plants such as yeast and fungi) and invertebrates without or with primitive nervous systems, including protozoa, planaria, and insects. Intrusive studies of invertebrates with advanced nervous systems (e.g., octopi) and of vertebrates should be used only when lower invertebrates are not suitable, and only under the conditions stated in ILAR Principle 10.
- **ILAR Principle 2. Supervision shall be provided by individuals who are knowledgeable about and experienced with the health, husbandry, care, and handling of the animal species used and who understand applicable laws, regulations, and policies.**

AALAS recommends that educators seek the advice of a veterinarian with demonstrable expertise in laboratory animal medicine before introducing animals in the classroom. The advisor should have formal training in laboratory animal medicine and preferably be a Diplomate of the American College of Laboratory Animal Medicine (ACLAM, <http://www.aclam.org>) or a member of the American Society of Laboratory Animal Practitioners (ASLAP, <http://www.aslap.org>). These professionals are often associated with biomedical institutions. They can provide sound advice on animal husbandry, veterinary care, and regulatory guidelines pertaining to animals in an academic environment.

- **ILAR Principle 3. Appropriate care for animals must be provided daily, including weekends, holidays, and other times when school is not in session. This care must include nutritious food and clean, fresh water; clean housing with space and enrichment suitable for normal species behaviors; and temperature and lighting appropriate for the species.**
- **ILAR Principle 4. Animals should be healthy and free of diseases that can be transmitted to humans or to other animals. Veterinary care must be provided as needed.**

Specific information about commonly used species, such as amphibians, reptiles, mice, rats, hamsters, guinea pigs, and rabbits, can be found on the AALAS website. This information includes physiological data, housing, feeding, handling requirements, and diseases of the species. Links to other websites that may be useful to the teacher or student are also available. Regardless of the animal species used in the classroom, animal records should be maintained by the students

and overseen by the teacher. These records should include the animal's identification, the people responsible for the animals, and a log that describes the date and time of feeding, water changes, and cage cleaning. A brief description of the animal's general health should also be included. Initials of the person who records this information should accompany each entry. AALAS distributes a guideline called Establishing an Animal Care Committee that describes how to plan, care for, and use animals in the classroom. This document is available from the AALAS website.

- **ILAR Principle 5. Students and teachers should report immediately to the school health authority all scratches, bites, other injuries, allergies, or illnesses.**

AALAS recommends that educators contact their administration and health care professionals prior to using animals in the classroom to discuss any relevant issues, such as possible student or staff allergies and diseases that can be transmitted from animals to humans and humans to animals. Recommended publications regarding these issues are "Laboratory Animal Allergy," Volume 42, number 1, 2001, from the Institute of Laboratory Animal Research, National Research Council, available at [http://dels.nas.edu/ilar\\_n/ilarjournal/42\\_1](http://dels.nas.edu/ilar_n/ilarjournal/42_1), and the Caring for Animals sheets "Animals in the Classroom: Allergy and Asthma Considerations" and "Signs of Common Diseases in Classroom Animals" available at <http://www.kids4research.org>.

- **ILAR Principle 6. Prior to obtaining animals for educational purposes, it is imperative that the school develop a plan for the procurement and ultimate disposition of the animals.** Animals must not be captured from or released into the wild without the approval of all appropriate wildlife and public health officials. When euthanasia is necessary, it should be performed in accordance with the most recent recommendations of the American Veterinary Medical Association (AVMA) Guidelines on Euthanasia, and only by someone trained in the appropriate technique.

The AVMA Panel on Euthanasia report is available at [http://www.avma.org/issues/animal\\_welfare/euthanasia.pdf](http://www.avma.org/issues/animal_welfare/euthanasia.pdf). AALAS strongly recommends that euthanasia be performed with the counsel and advice of a veterinarian.

- **ILAR Principle 7. Students shall not conduct experimental procedures on animals that may cause pain, discomfort, or any disruption of an animal's health or well-being,** including causing nutritional deficiencies or the build-up of toxins and exposure to microorganisms, ionizing radiation, cancer-producing agents, or any other harmful drugs or chemicals capable of causing disease, injury, or birth defects in humans or animals. In general, procedures that cause pain in humans are considered to cause pain in other vertebrates.

AALAS strongly encourages the use of animals in educational experimentation that does not cause them pain and distress, and that does not expose animals or students to harmful infectious, physical, or chemical agents. Suggested sources for information on detecting signs of pain and dis-

tress in laboratory animals are "Signs of Pain and Distress in Classroom Animals," available from <http://www.kids4research.org>, and the advice and guidance of a veterinarian.

- **ILAR Principle 8. Experiments on avian embryos that might result in abnormal chicks or in chicks that might experience pain or discomfort shall be terminated 72 hours prior to the expected date of hatching. The eggs shall be destroyed to prevent inadvertent hatching.**
- **ILAR Principle 9. Behavioral conditioning studies shall not involve aversive stimuli. In studies using positive reinforcement, animals should not be deprived of water; food deprivation intervals should be appropriate for the species but should not continue longer than 24 hours.**
- **ILAR Principle 10. A plan for conducting an experiment with living animals must be prepared in writing and approved prior to initiating the experiment or obtaining the animals.** Developing a proper experimental design that promotes animal welfare is an important scientific learning experience and contributes to establishing a responsible and respectful attitude towards animals. The plan shall be reviewed by a committee composed of individuals who have the knowledge to evaluate it and who have the authority to approve or disapprove it. The written plan should include the following components: a statement of the specific hypotheses or principles to be tested, illustrated, or taught; a summary of what is known about the subject under study, including references; a justification for the use of the species selected and consideration of why a lower vertebrate or invertebrate cannot be used; and, a detailed description of the methods and procedures to be used, including experimental design, data analysis, and all aspects of animal procurement, care, housing, use and disposal.

AALAS recommends the following three references for information about the composition and function of an animal care and use committee:

1. Guide for the Care and Use of Laboratory Animals, National Academy Press, Institute for Laboratory Animal Research at [http://dels.nas.edu/ilar\\_n/ilarhome/guide.shtml](http://dels.nas.edu/ilar_n/ilarhome/guide.shtml).
2. The Institutional Animal Care and Use Committee Handbook, Office of Laboratory Animal Welfare, NIH, which can be found at <http://grants1.nih.gov/grants/olaw/GuideBook.pdf>
3. "Establishing an Animal Care Committee (ACC)" and the complementary "Classroom Animal Care Plan" created by NJABR and the AALAS Foundation, available at <http://www.aalas.org>.

## Recommendation on Classroom Dissection

Classroom dissection of nonhuman vertebrate animals is a useful adjunct to the biology curriculum if done with well-defined educational objectives appropriate for the grade level and maturity of the students.



The animal used should represent the lowest phylogenetic species that will satisfy educational objectives. The dissection activity must be well supervised to ensure that:

- students maximize the value of the animals being used.
- the animal specimen is treated respectfully.
- the procedure is done safely.

Alternatives to animal dissection should be used whenever they would adequately serve as substitutes. Students' views on dissection should be openly discussed and respected, with non-dissection alternatives made available when feasible and the student allowed to opt out of the dissection if no alternative is possible.

### **Recommendation on the Use of Animals in Science Fair Projects**

The use of nonhuman vertebrate animals in science fairs is a privilege and should adhere to the same high standards that are used in the scientific community to ensure the welfare of both the animals and the student.

The animals used should represent the lowest phylogenetic species that will satisfy educational objectives.

All animals used must be treated humanely and cared for properly at all times:

- Students using vertebrate animals must follow applicable regulations.

- Animal housing must be comfortable, clean, and free of hazards.
- Animals must have free access to clean water and a food supply.
- Animals must be observed daily, including weekends, holidays, and during vacation periods.
- Provisions must be made to ensure that a safe temperature and humidity level are maintained in the animals' environment.
- Veterinary care must be readily available.

Teachers and students who will handle or care for the animals should be trained in proper methods and techniques so as not to cause harm or stress to the animals, themselves, or others.

Except for observational studies, all research involving vertebrate animals should be directly supervised by the teacher or other professional.

In addition, AALAS recommends that individuals involved in science fairs familiarize themselves with the International Rules for Precollege Science Research: Guidelines for Science and Engineering Fairs, published by Science Service, Washington, DC (<http://www.societyforscience.org/isef/rules/rules10.pdf>). These rules govern all science fair projects at the Intel International Science and Engineering Fair (ISEF) and all affiliated fairs and are a detailed extension of the ILAR Guidelines. Strict adherence to the rules and guidelines governing the use of nonhuman vertebrate animals in this document is recommended.