UTAH GUIDELINES FOR RESPONSIBLE USE OF ANIMALS IN THE CLASSROOM

State Science Education Advisory Committee

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Observation and experimentation with living organisms provide students opportunities to learn science in a way not provided by other modes of instruction. Studying plants and animals in the classroom enables students to develop skills of observation and comparison, a sense of stewardship, and an appreciation for the unity, diversity, interrelationships, and intricacies of life on Earth. This mode of instruction carries with it responsibilities for appropriate and humane care of each animal. Teachers must be knowledgeable about the proper care of animals under study and the safety of their students (NSTA guidelines 1991).

Instructional Objectives

Instructional objectives for laboratory activities must be clearly stated and developmentally appropriate for the maturity level of the student. The Utah Science Core Curriculum is a good guide for appropriate instructional objectives.

Developmentally Appropriate Instruction

In grades K through 6, it is most appropriate to observe living organisms. This is an essential component of the Utah Science Core Curriculum and a preferred learning setting for young students. Dissection is not part of the Core Curriculum at grades K-6. In the sixth grade, microorganisms are investigated and will be destroyed as part of the normal process of student experiments. It is important that safe procedures be followed when growing any microorganism. It is not recommended that students randomly culture bacteria or fungi from biological sources (oral swabs, coughing, spitting, etc.). The potential for culturing dangerous concentrations of pathogenic forms is too great. As a wise precaution, culture dishes should be taped shut immediately following inoculation and not reopened. For disposal, cultures should be incinerated, autoclaved, or immersed in, and flooded with, a strong disinfectant solution or dilute chlorine bleach solution.

In grades 7 and 8, observation of living organisms is an essential component of the students' learning experience. Teachers electing to use dissection as an instructional tool to investigate organism at these grade levels should use invertebrates. In grades 9 through 12, observation of living organisms provides unique perspectives on behavior of organisms. Teachers electing to use dissection at these grade levels should use invertebrates when possible; use of vertebrates for dissection should be limited and used only when the concepts to be taught can best or only be taught using a vertebrate specimen.

Alternatives to Dissection

Student views or beliefs related to dissection must be considered. Teachers must consider all perspectives, be sensitive to individual needs, and appropriately accommodate various perspectives. Alternative modes of instruction (e.g., computer simulation, coloring books, models, and the World Wide Web) must be available for students who do not wish to dissect animals or animal parts. It is the responsibility of the teacher to maintain decorum and respect for all individuals in the class and honor their decision to participate or not participate in dissection activities

Parental Consent for Dissection

It is recommended that a disclosure statement be distributed to parents at the beginning of the school year that includes a section on dissection and alternatives available for students. It is always wise to obtain signed parental consent forms prior to use of dissection as an instructional activity.

Observation of Living Organisms

Teachers wishing to bring animals into their classrooms should observe all of the guidelines for the appropriate and/or legal acquisition, care, and release of these organisms. If the candidate animal is considered wildlife, the teacher should examine state and federal regulations addressing collection and possession of zoological species. The use of docents is an appropriate way to bring some wild and domestic animals into the classroom.

Vertebrates and Invertebrates

Generally observation of living organisms in the classroom has specific responsibilities regarding the possession, treatment, and care of the organisms. The proper care of most vertebrates requires considerably more training and care than most invertebrates, it is however important to note that some invertebrates are protected. It is important that specific knowledge of a species be acquired prior to bringing that species into the classroom. State and Federal regulations pertain to most vertebrates and many invertebrates. Always check these regulations prior to accepting or acquiring animals. The Utah Code pertaining to "Collections, Importation, Transportation and Possession of Zoological Animals" may be found on-line at
http://www.rules.state. ut.us/publicat/code/r65 7/r657-003.htm
State of Utah regulations for collection and possession of wildlife for educational purposes classify species as prohibited, controlled, or non-controlled. These regulations cover crustaceans, mollusks, aquatic insects, fish, amphibians, reptiles, birds, and mammals.
Species classified as controlled require the educator to obtain a certificate of registration before collecting or possessing that species. The certificate of registration states the number of animals that may be possessed. An educational institution may be issued a certificate of registration for a prohibited species if, in the opinion of the Division of Wildlife Resources, its educational use is beneficial to wildlife or significantly benefits the general public without detriment to wildlife.

Regulation information and classification of specific species may be obtained by contacting a Division of Wildlife Resources office and/or obtaining a copy ofR657-3 "Collection, Importation, Transportation, and Possession of Zoological Animals" from the Department of Wildlife Resources.

Regarding School Visits

The use of docents is an appropriate way to bring most wild and domestic animals into the classroom. Many organizations, such as zoos, museums, rehabilitation centers, aquariums, and animal shelters, provide outreach programs for the classroom. When at a school, these groups must follow all school policies. It is the responsibility of the classroom teacher to make visiting organizations aware of school policies relevant to their visit. Teachers should always remain in the classroom with the students during the visit.

Appropriate Release

Butterflies are an example of organisms often used in elementary school. It is appropriate to do so. It is encouraged that these organisms be properly released. For this reason, spring is the best time of the year to raise butterflies. If you wish to release the butterflies after observing, you must use only organisms that are appropriate for release into the local environment. Many organisms are not appropriate for release into the environment. It is illegal to release any fish into Utah waters. Many other species are illegal to release. If a species is not native to Utah it should not be released. Even some native species should not be released. The Utah Division of Wildlife resources can provide information and guideline that address this issue. The Internet resources for the Department of Natural Resources is located at: http://v.rvvw.nr.state.ut.us/dwr/1homevpg.htm

Humane Treatment of Animals

Humane treatment of all animals used for classroom observation is required. When bringing animals into the classroom, a conscious effort must be made to provide guidance for students to develop an understanding of and value for life and living organisms.

- Acquisition and care of animals must be appropriate to the species.
- Student class work and science projects involving animals must be conducted under the supervision of a science teacher or other trained professional.
- Teachers sponsoring or supervising the use of animals in instructional activities (including acquisition, care, and disposition) will adhere to local, state, and national laws, policies, and regulations regarding the organism.
- A procedure for the disposal of animals at the conclusion of the study must be developed and implemented.
- Laboratory and dissection activities must be conducted with consideration and appreciation for the organism.

Laboratory Safety

Safety issues require that precautions be made whenever working with animals or animal specimens. Safe Operating Procedures (SOP) for each activity should be outlined prior to the start of any activity.

- Laboratory and dissection activities must be based on carefully planned instructional objectives.
- Teachers must instruct students on safety precautions for handling live animals or animal specimens.
- Laboratory and dissection activities must be conducted in a clean and organized workspace using care and laboratory precision.

Use of Human Tissue Fluids

Due to safety considerations human blood and fluids should not be used in laboratory activities. Students in classroom activities may use professionally prepared slides of human tissues. For Students in Grades 7-12 the following tissues may be used for observation and/or DNA analysis:

- Hair
- Properly sampled cheek cells (see procedure attached).

Health Sciences

Health Care Professionals with appropriate training, under appropriate conditions, and with proper consent may draw or sample blood, human tissue and fluids from students during exploratory "Work-based Learning" activities.

Note: The handling of blood, human tissue and fluids by students is not permitted.

Specialized Health Science and Technology program have a separate set of guideline for dealing with human tissues and fluids and permit the use of tissue under appropriate precautions. See: Health Science Guidelines http://w\'l\Y.usoe.kl2.ut.us/ate/healthscicnce

Appendix

1. A Procedure for safe cheek cell harvesting
2. Procedure for safe disposal of microorganisms

1. A PROCEDURE FOR SAFE CHEEK CELL HARVESTING

Materials:

- Cotton swabs
- Distilled water
- Methylene blue solution (safranin or iodine stain can be substituted)
- Clean slides and cover slips

Procedure:

1. Moisten the cotton swab with distilled water. Swab should be moist not dripping wet - too much water will dilute # of cells harvested.
2. Wipe the swab all around the inside of your cheek, then rub the swab on the clean slide. *
3. Add a drop of methylene blue (or selected stain), and add the coverslip.

* Rub the swab over the whole slide, twisting the swab to ensure distribution of the cheek cells.

Variations:
I) If resulting cells are too clumped to see, make a new slide as per above instructions BUT instead rub the swab on a slide that has a drop of distilled water on it. Stain as directed.
2) Remove some of the cotton from the swab to increase the # of cells harvested.

- *Note: this procedure can also be used to make Barr body slides.*
- *This procedure has been used successfully by Professor Dave Braegger at Southern Utah University Human Physiology labs for the last five years. Any student using this technique has drawn no blood.*

2. PROCEDURE FOR SAFE DISPOSAL OF MICROORGANISMS

It is not recommended that students randomly culture bacteria or fungi from biological sources (oral swabs, coughing, spitting, etc.). The potential for culturing dangerous concentrations of pathogenic forms is too great. As a wise precaution, culture dishes should be taped shut immediately following inoculation and not reopened. For disposal, cultures should be incinerated, autoclaved, or immersed in, and flooded with, a strong disinfectant solution or dilute chlorine bleach solution.