AV magazine

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HUMANE TEACHERS for HUMANE STUDENTS

ANIMALEARN DRIVES EXCELLENCE IN HUMANE SCIENCE EDUCATION pg 4

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American Anti-Vivisection Society

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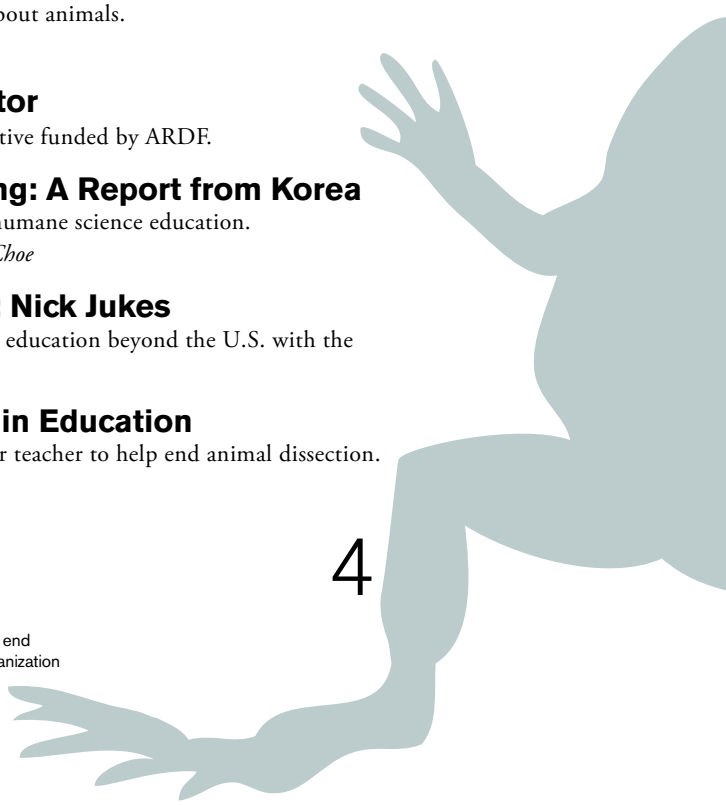
Humane Teachers for Humane Students

FEATURES

DEPARTMENTS



Founded in 1883, the American Anti-Vivisection Society's (AAVS) mission is to unequivocally oppose and work to end experimentation on animals and to oppose all other forms of cruelty to animals. AAVS is a nonprofit education organization using legal, effective advocacy to achieve meaningful, lasting change.

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First Word

YOU'VE GOT TO GIVE CREDIT where it's due, so I need to thank my high school biology teacher, Sister Mary Therese McCann, S.H.C.J. I can picture her in her white lab coat over her rather modern nun's habit with a twinkle in her eye and a parakeet on her shoulder. She taught me that biology was the study of life, and she had an enthusiasm for life's big and little miracles. Came with the territory I guess.

Sister Mary was a role model of integrity, duty, kindness, a love of learning, and a caring ethic about animals. She provided encouragement and inspiration to all of us who, at 15 years old, were eager to understand our capabilities and potential. I stayed after school with other members of the Biology Club to help take care of the animals she collected over the years. I adored the Peruvian Guinea pigs, who were sweet, curious, and responsive, as well as beautiful.

I'd like to think that today, Sister Mary would be delighted to excite her biology students with all the humane science alternatives that AAVS's Animalearn department showcases. It would be the perfect extension of her dedication to the best methods of teaching to bring out the best in her students.

Fortunately, with new technology, educators today have so many opportunities to innovate with alternatives to the harmful use of animals. There can be strong resistance to changing the status quo, as you'll read about in an article by Julie Shaeffer, a determined and dedicated teacher who had to work hard to overcome that resistance. Another primary barrier to change is access to, and understanding of, the new educational tools. Animalearn is happy to serve the education community—teachers, students, parents, and those in higher education as well—providing resources and expertise.

I need to express another thank you: to AAVS members, who, through their support of Animalearn, have shown that they recognize the importance of preparing the young people of today to become the productive and caring citizens of tomorrow for animals and for our world.

Thank you for caring,

Sue A. Leary

Sue A. Leary, President
American Anti-Vivisection Society

News

ISSUES AFFECTING ANIMALS

Chimpanzees will remain in New Mexico pending findings of a NAS study.

Reprieve for Chimpanzees

Nearly 200 chimpanzees, who had faced transfer to a research laboratory this year, will remain at their New Mexico home, for now. On December 30, the National Institutes of Health (NIH) informed outgoing New Mexico Governor Bill Richardson that the Alamogordo chimps, as they are called, would receive a reprieve from research.

Following months of protest by local advocates; animal groups, including AAVS; scientists like Jane Goodall; leaders from Congress; and Governor Richardson, NIH decided to put plans for transferring the chimps to the Southwest National Primate Research Center (SNPRC) in Texas on hold. NIH will make a final decision on a placement for the chimpanzees following the completion of a study by the National Academy of Sciences (NAS), which will assess the "need" for the continued use of chimps in research.

In 2002, the chimpanzees were relinquished to NIH following the closure of a notorious laboratory that had a long history of violating animal welfare laws. NIH entered into a 10 year contract with a private firm to provide care for the chimpanzees who remained in New Mexico. Their housing facilities were renovated, allowing the animals to live in social groups and go outside—a move that greatly improved their well-being. However, instead of the contract being renewed upon its May 2011 expiration, NIH announced plans last summer to move the chimpanzees to the SNPRC, which has also been cited several times for violating the Animal Welfare Act. Sadly, 14 chimps have already been transferred, and AAVS will keep our supporters informed of their situation.

> It is hoped that the study will recommend that chimpanzees are not needed in biomedical research.

Animal advocates have noted that the chimpanzees are eligible for retirement, in accordance with provisions through the CHIMP (Chimpanzee Health Improvement, Maintenance, and Protection) Act of 2000. It is hoped that the NAS study will recommend that chimpanzees are not needed in biomedical research, allowing the U.S. to join the European Union, which banned the practice last year.

PHOTOS BY VEER (THIS PAGE) AND BY ISTOCKPHOTO (OPPOSITE)

Companies Endorse Alternatives Initiative

Experts from multi-national companies such as AstraZeneca, Procter & Gamble, Unilever, and L'Oreal, have signed on to a European initiative to move towards ending the use of animals in research and safety testing. The AXLR8 initiative aims to monitor and coordinate investigation of 3R methods (refinement, reduction, and replacement of animal use), so they can be swiftly accepted by industry and regulatory agencies.

In a written report, the companies state, "Today we are at a new biological milestone, where we could—with sufficient international and political support…produce the means and the technology to test and assess the human and environmental risk of tens of thousands of chemicals per year without using animals." The report asserts that the traditional way of testing chemicals can take up to five years per substance, cost the equivalent of $3.9 million, and involve 800 small animals such as rats, mice, or guinea pigs. On the other hand, non-animal alternatives could test 350 substances in less than a week for a fraction of the cost. Some examples noted in the report include robotic screening of drugs, computer programs that can predict a drug's effect, and embryonic stem cells that can be used to create human tissue.

Troy Seidle, of Humane Society International, and Associate Coordinator of the AXLR8 consortium said, "This is the first step towards a road map that will see the phasing out of the use of animals in safety testing. The fact that industry is prepared to come to the table to meet with regulators and say they are prepared to do development, invest resources, and change the way we do things shows this is a real possibility, that [it] is not just pie in the sky."

Canadian Animal Use Statistics

The Canadian Council on Animal Care (CCAC) has released the results of its 2009 survey of animal use. Unfortunately, the report shows a notable increase in the total number of animals used (3,375,027 in 2009 up from 2,272,816 in 2008). This increase is, for the most part, due to a rise in the number of fish who were used in experiments. In the past year, fish numbers have increased threefold, mainly for aquaculture studies, which include investigating ways to raise fish on farms for human consumption. This puts 2009 at an all-time high for the total number of animals used in scientific studies in Canada.

Fish, birds, rats, and mice made up 90 percent of all animals used in Canada in 2009. It is likely similar in the U.S., which does not keep track of fish or birds, rats, and mice, bred for research because these animals are not covered under the U.S. Animal Welfare Act.

The number of non-human primates used in Canada decreased by about 20 percent, and the majority of these animals were used for regulatory testing to determine the safety of products. Again, a notable difference between Canadian and U.S. reporting is that the U.S. does not document the industries animals are used in.

The use of cats increased significantly by 27 percent, the majority of whom were used for educational purposes. In addition, dog use increased six percent, with about one-third being utilized for teaching. The majority of all dogs and cats were acquired from random sources, meaning they were not purposely bred for research and, therefore, may have been former pets.

Other species mentioned in the report include: frogs (71,160), ferrets (716), chickens (81,652), seals (661), rabbits (8,333), chinchillas (147), and turtles (5,237). The number and species of animals are compelling, considering this is just one country alone.

Animalearn Drives Excellence in Humane Science Education

By Laura Ducceschi

Animalearn, a division of the American Anti-Vivisection Society (AAVS), has been serving the education community since 1992. At the core of Animalearn's services is a comprehensive understanding of the needs of teachers, students, and administrators, fueled by our mission to end the harmful use of animals in teaching and training, while providing a valuable service to schools, colleges, and universities.

WHY ALTERNATIVES?

Though hard to believe, cats remain one of the most commonly dissected animals in classrooms, despite being beloved family members with whom many of us share our homes. Other animals used include frogs and fetal pigs, as well as sharks, perch, turtles, crayfish, grasshoppers, earthworms, and starfish. In total, it is estimated that six million vertebrate animals are dissected yearly in U.S. high schools alone, with an additional, unknown number used in colleges and middle and elementary schools.[1] Additionally, it is believed that the number of invertebrate animals dissected annually is comparable to that of vertebrates.

The animals come from various sources such as: their natural habitat, animal breeders and dealers, pounds, shelters, ranches, fur farms, and slaughterhouses. Live and dead animals are bought from these sources by biological supply companies where educators purchase what are commonly called specimens.

Because these animals are considered mere objects or products, lack of quality care, handling, and treatment often leads to trauma, injury, or premature death. For example, live animals are sometimes shipped in overcrowded packaging, which leads to injury, food deprivation, dehydration, and/or suffocation. These animals can also be exposed to extreme temperatures and rough handling.

THE SCIENCE BANK

Many educators and students do not want to harm animals in order to learn or teach science. Animalearn provides services to simplify the replacement of the harmful use of animals in the classroom with humane alternatives. The main component of Animalearn's service for teachers and students is The Science Bank loan program for K-12, college, university, veterinary, and medical education. The Science Bank is the largest free loan program in the U.S., providing thousands of educators, students, and parents with humane science teaching tools free of charge. There are over 450 items available on loan, including digital dissection CD-ROMs, interactive training manikins, realistic models, and videos, many of which are available in classroom sets.[2] The Science Bank catalog is available online at www.animalearn.org, and is easy to search. A comprehensive database allows users to select the type of product they want to borrow at the appropriate educational level in an effort to help them choose the best alternative to dissection or animal experimentation for their classrooms. In addition to the online catalog, Animalearn publishes an easy-to-use print catalog of The Science Bank, which is distributed to educators.

PHOTO COURTESY OF ANIMALEARN

In order to keep up with the latest in humane science teaching tools, Animalean is continually updating The Science Bank with the most innovative technology, which includes virtual reality and simulation, where students can learn anatomy and physiology by doing dissection with a computer mouse and not a scalpel.

THE CHANGING CLASSROOM

Since Animalearn's inception, there has been significant growth in the number of students who ethically object to dissection and animal experimentation and the number of educators who are switching from traditional labs to dissection alternatives because of their educational effectiveness. Additionally, many teachers are questioning the value of the use of animals for teaching and training, and are recognizing that students can learn equally as well, and often better, through the use of humane alternatives.

Changing a classroom from one where students dissect with a scalpel to one where students dissect with a computer mouse requires nothing more than an available computer and a CD-ROM. What it offers, however, is an engaging, interactive, and stimulating educational experience for students. Across the U.S., and around the globe, alternative methods of teaching science, biology, and other subjects where live or dead animals have traditionally been used are being implemented in classrooms. Educators who offer dissection alternatives to their students are helping animals by decreasing the numbers of animals killed for dissection purposes.

Nancy Guidotti and Jim Gill, Animalearn's 2006 Humane Educator of the Year Award recipients.

Educators who offer dissection alternatives to their students are helping animals by decreasing the numbers of animals killed for dissection purposes.

In order to honor educators who make an effort to help animals used in education and training, Animalearn established the annual Humane Educator of the Year Award. This Award goes to a teacher who demonstrates faithfulness to his or her ideals to promote a classroom environment that encourages humane education. Animalearn's 2010 honoree was biology teacher Julie Shaeffer. Ms. Shaeffer's efforts to incorporate non-animal dissection alternatives and cruelty-free science into her classroom, as well as her development of a specialized biology curriculum that integrates alternatives borrowed from Animalearn's The Science Bank, earned her this honor. (See "Overcoming the Dissection Paradigm," page 8)

SUPPORTING THE TEACHERS

Animalearn further supports teachers who wish to replace the harmful use of animals in the classroom with humane alternatives by providing training workshops free of charge. Animalearn travels to national and state education conferences where teachers can earn continuing education credits for attending workshops on integrating alternatives to harmful animal use into their lesson plans. These workshops explain how teachers can use The Science Bank, and they provide hands-on tutorials of how to use the technology. In addition, Animalearn provides in-services and training sessions at intermediate units, schools, colleges, and universities to create a comfort level with humane science among the educational community. Such sessions serve to familiarize and acclimate teachers with the use of the technology and how cruelty-free science education can benefit their students.

In addition to formal training workshops, Animalearn serves as a consultant for educators and administrators on a personalized basis, helping them select the most relevant items for their curricular needs. Recognizing the time constraints and curriculum requirements of the educational community, Animalearn provides an added value with these one-on-one free services, which not only equip educators with the latest technology but also stimulate interest in alternatives.

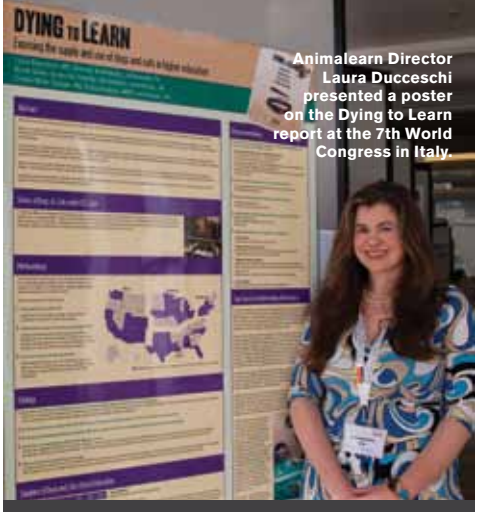
HUMANE EDUCATION

In addition to alternatives to animal use in science education and training, Animalearn also promotes humane education, or the promotion of humane values. Animalearn is part of an international coalition of animal protection groups, joined for the purpose of establishing a set of humane education benchmarks. There is an interest in gaining an understanding within the U.S. education community regarding the importance of utilizing humane education in the classroom.

Animalearn offers "Next of Kin," a comprehensive humane education curriculum that was developed by Rachel Fouts-Carrico with support from the New England Anti-Vivisection Society. It contains interdisciplinary activities on a CD-ROM, offering students options to participate in decision making and cooperative problem-solving tasks. The activities are designed to promote awareness, attitudes, and actions to help solve the problems that animals are faced with, whether living in captivity or in their natural environments. Designed for elementary and middle school, "Next of Kin" has been correlated to national education standards for math, reading, and science, so that educators can implement humane education into their curriculum while meeting specific requirements.

SUPPORTING THE NATIONAL SCIENCE INITIATIVE

Animalearn's services are particularly important and timely, especially considering the launch of the national science initiative in the U.S. Currently, there is a re-energized focus on improving K-12 math and science education in the U.S., which



Animalearn Director Laura Ducceschi presented a poster on the Dying to Learn report at the 7th World Congress in Italy.

inspired the creation of the National Math and Science Initiative (NMSI), a public-private partnership. This initiative was formed to address the declining number of students prepared to take college courses in math and science and equipped for careers in those fields.[3] According to proponents, the long-term impact of this problem is that the U.S. will not be able to generate the intellectual capital to fuel our economic growth. In a ranking of 31 industrialized countries by the Organization for Economic Cooperation and Development (OECD), U.S. students recently finished 14th in science, further illustrating this challenge.[4]

Animalearn's services allow teachers to support NMSI by providing their students with a more innovative method to teach and study science. The Science Bank provides a no-cost way for K-12 educators to engage students and spark their interest in science. Studies show that students learn science equally as well when using humane science products, and in many cases, even better than those using traditional methods.[5] And, they learn to respect the value of life in the process.

Animalearn recognizes the importance of occupying a role in the global process of ending the harmful use of animals in teaching and training.

A GLOBAL MOVEMENT

Animalearn recognizes the importance of occupying a role in the global process of ending the harmful use of animals in teaching and training. In support of this effort, Animalearn has participated in the World Congress (WC) on Alternatives and Animal Use in the Life Sciences in 2007 and 2009. At the 6th WC held in Tokyo, Animalearn presented a poster with Dr. Lynette Hart, entitled "Guidelines for the development of student choice policies regarding dissection in colleges and universities: An ethnographic analysis of faculty and student concerns."[6] At the 7th WC, which was held in Rome, Animalearn presented a poster entitled "Dying to Learn: The Supply and Use of Companion Animals in U.S. Colleges and Universities."[7] This year, Animalearn will be participating in the 8th WC in Montreal.

In addition, last year Animalearn took part in the Korean Association of Lab Animal Scientists (KALAS) International Symposium, which was sponsored by the Royal Society of the Prevention of Cruelty to Animals (RSPCA), in Busan, South Korea. Animalearn presented a lecture on The Science Bank loan program.

The customer-centered design of The Science Bank is being modeled by the Center for the 3Rs at Konkuk University in Korea. The project will develop a web-based platform for sharing information and exchanging ideas regarding alternatives in veterinary medical training, emphasizing refinement, reduction, and the replacement of animals in science education. This project was partially funded by AAVS's affiliate, the Alternatives Research & Development Foundation, and its education grant program. In addition to Asia, Animalearn has received requests to create a platform similar to the online Science Bank from other areas around the globe, including, most recently, the Middle East.

Animalearn has also partnered with InterNICHE, the International Network for Humane Education, to help increase the use of humane alternatives to the harmful use of animals in biology and zoology across the globe. A recent example of this partnership is Animalearn's donation and distribution of over 500 free copies of Digital Frog dissection software to help bring an end to the catching, killing, and cutting of frogs for use in classroom teaching labs.

Additionally, Animalearn has been working with Tanzania Animal Welfare Society's (TAWESO) Animal Replacement Project to help replace the harmful use of cats, pigs, frogs, and rats in schools, colleges, and universities in Tanzania. Animalearn has donated a variety of virtual science lab experiments and dissection software to help facilitate improved attitudes towards the humane treatment of animals in education, and to move toward incorporating the use of animal alternatives in the national education syllabus.

LOOKING FORWARD

Animalearn's reach has grown significantly each year, expanding beyond the border of the United States, and now occupying an international presence. Along with compassionate and progressive educators, students, and administrators, Animalearn is helping to make inroads in the global movement towards ending the harmful use of animals in teaching and training while promoting excellence in life science education. AV

Laura Ducceschi, MA, MBA, is the Director of Animalearn, the education division of AAVS.

[1] Animalearn. Retrieved January 28, 2011 from http://www.animalearn.org/faq.php.
[2] The Science Bank. Retrieved January 28, 2011 from http://www.animalearn.org/sciencebank.php.
[3] The National Math and Science Initiative. Retrieved January 28, 2011 from (http://www.nationalmathandscience.org/).
[4] The National Math and Science Initiative. Retrieved January 28, 2011 from (http://www.nationalmathandscience.org/).
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[7] Ducceschi, L., Green, N., & Miller-Spiegel, C. (2010)."Dying to Learn: The Supply and Use of Companion Animals in U.S. Colleges and Universities." *ALTEX*: Vol. 27, No.4. Retrieved from http://altweb.jhsph.edu/altex/27_4/Index.html.

PHOTOS BY ROB CARDILLO (THIS PAGE) AND CRYSTAL SCHAEFFER (OPPOSITE)

Animalearn, Animals, & Alternatives in Tanzania

Last year, Animalearn was contacted by the Tanzania Animal Welfare Society (TAWESO), an all-volunteer nongovernmental organization dedicated to raising awareness and ending animal cruelty in its country. TAWESO sought support for its Animal Replacement Project, which aims to increase awareness regarding the humane treatment of animals in education and to have alternatives incorporated into the Tanzanian education system. In support of this endeavor, Animalearn donated $10,000 worth of virtual dissection Digital Frog 2.5 software programs to replace the harmful use of animals in schools across Tanzania. Earlier this year, Animalearn was able to touch base with Dr. Thomas W. Kahema, Executive Director of TAWESO, to further discuss awareness efforts in Tanzania.

With help from TAWESO, more Tanzanian students will be able to learn biology using computers.

Due to a lack of resources, many schools in Tanzania paint life science charts, like these of the eye and heart, on building walls.

Animalearn What's the most promising change you've seen in the adoption of alternatives in Tanzania?

Dr. Kahema The Ministry of Education is ready to adopt the use of animal alternatives in schools. We have been talking with them, and there is a possibility that all teachers will be trained on the use of computers in the country. The only thing they wanted is to see is how applicable alternatives are.

Animalearn Tell us a little bit about the Animal Replacement Project and working with the Tanzanian government?

Dr. Kahema What we have done so far is to talk with officials at the Ministry of Education about the Project, and we managed to show it to the Ministry of Livestock Development and the Animal Welfare Advisory Council last year. As I am member of the Council, I took that opportunity to show the alternatives, because the conference had the facilities for projections. All members highly supported this idea of using alternatives in education.

Animalearn How do you think this will affect students?

Dr. Kahema In our country, most students dislike science subjects because they fear killing animals for the dissection classes. The alternatives from Animalearn will help to sensitize students and their teachers towards the use of animals in the education system in Tanzania.

Animalearn Do you see opportunities for positive change in the use of alternatives in education and training?

Dr. Kahema There is a great potential of using animal alternatives in Tanzania. We have many secondary schools, and every ward (collection of three or more villages) has a secondary school. For sure there are not enough amphibians to use for the practical sessions. We will have no amphibians in the country if every school continues to use them in education and training. Also, there is great potential of using alternatives in the country for more students who love science, as well as to have available study resources, because amphibian populations cannot match the need of many schools.

Animalearn What do you think of the Digital Frog 2.5 software as a replacement for animal dissection in Tanzania?

Dr. Kahema It is true that the Digital Frog 2.5 software is able to replace animal dissection in Tanzania because it covers all the systems required by the syllabus and the simplicity of using it. Whenever we are able to convince the government, and after we are supported with equipment and some funds to cover travel to various schools, the Digital Frog 2.5 for sure is able to replace the animal dissection in Tanzania.

Animalearn and AAVS are helping to raise funds so that TAWESO can implement its Animal Replacement Project. Special contributions are welcome. Please note AFRICA on your check.

A STEP BY STEP TUTORIAL

Virtual Dissection

BY LAURA DUCCESCHI

GIVEN THE NUMBER OF STUDENTS WHO ETHICALLY OBJECT TO DISSECTION, AND THE GROWING NUMBER OF EDUCATORS WHO ARE

switching from traditional labs to dissection alternatives because of the educational effectiveness they offer, CD-ROM dissection programs have become quite popular. There are hundreds of choices that educators and/or students have when selecting the right dissection alternative for their classrooms, and Animalearn's The Science Bank free loan program has over 450 of these alternatives available.

Changing your classroom from one where students dissect with a scalpel to one where students dissect with a computer mouse requires nothing more than an available computer, a CD-ROM, and, of course, the computer mouse itself. What it offers, however, is the promise of an exciting, innovative, and stimulating educational experience.

It doesn't take long for both students and educators who try CD-ROM dissection software to decide that they will never return to out-dated animal labs again. Once they familiarize themselves with how computerized dissection works, they report feeling very comfortable using the software and satisfied with the educational results.

What follows is a tutorial for Digital Frog II, one of our most popular loan requests through The Science Bank. Digital Frog is used in classrooms at middle school, high school, and college levels, and offers a computerized dissection of the frog. The CD-ROM offers more in terms of education than dissection ever could.

THE FROG IN DIGITAL

The Digital Frog, a product of Digital Frog International, is a software program that combines full-color photography, videos, three-dimensional animations, and text to teach frog dissection, anatomy, and ecology. A workbook and assessment materials are also included. Digital Frog is suitable for both Windows and Macintosh platforms.

The opening screen leads to the main menu, which allows you to choose Quick Tour (a description of how to navigate the program), Dissection, Anatomy, or Ecology. (**image 1**)

DISSECTION

The Dissection component (**image 2**) contains both full-screen color photographs and video clips to lead students through a traditional frog dissection, including the body cavity organs, head structures, and leg muscles. There are instructions informing you which cuts to make. You are then asked to identify the parts of the frog using your computer mouse to point to each of the frog's external features, which highlights each in red with a flashing checkmark. Moving the mouse over the video window allows you to rotate the frog to see external features from all angles.

Select a part of the frog to dissect, and point to one of the white dots, which changes the cursor into a scalpel, allowing you to make the first cut. If the incisions are not made correctly, the program does not register the cuts until they are correctly performed. On the left hand side of the screen, there is a video that demonstrates the incisions. (**image 3**)

Continue the dissection by cutting through the layer of muscle on the frog's abdomen, which takes you to a

Captured images from the Digital Frog tutorial.

full-screen picture of the frog's internal organs. (**image 4**) To simulate an actual dissection, you must dissect in the correct order. If you click on the wrong organ, such as the stomach, there will be a message that directs you to dissect the overlaying organs.

Similar to the first step in the dissection, you need to identify each of the visible structures and make the appropriate cuts. Then, a video will play, showing the removal of the particular organ. Following the video, you can view a close-up of the organ and identify the internal structures or a function, which takes you to a corresponding anatomy screen.

ANATOMY

The Anatomy component (**image 5**) provides a complete reference to all of the major body systems of the frog, using both text diagrams and animation. The major systems can be studied first at a system level and then on an organ-by-organ basis. This section includes the respiratory system, where the diffusion of oxygen and carbon dioxide across the respiratory membrane can be viewed; musculoskeletal system, where joints can be manipulated; circulatory system, where the path of oxygenated and non-oxygenated blood through a three-chambered heart is followed and compared with two- and four-chambered hearts; and cellular division, with meiosis and mitosis animations. (**image 6**) In the section titled Interacting Systems, you can study each system's role in basic body functions, while the Compare to Human section highlights the differences between frog and human anatomy.

Additionally, the Anatomy component allows you to learn more about the function of the frog's organ and body systems, showing things you would not be able to see in an actual dissection. The buttons on each of the anatomy screens link to related screens, showing how one organ works in relation to the system as a whole or giving more detailed information on important aspects of an organ. (**image 7**)

ECOLOGY

The Ecology component (**image 8**) looks at the life cycle of frogs, their behavior, and their biodiversity, with information on 18 frogs native to North and South America. (**image 9**) Information about the plight of declining frog populations and why this is happening is discussed. This section also includes common behaviors and external pressures and environmental concerns relating to frog populations. (**image 10**)

CONCLUSION

One of our most popular CD-ROM dissection programs available, Digital Frog allows you to dissect without harming frogs. Having this ability to repeat and reinforce your learning experience and become highly skilled and knowledgeable is something that CD-ROM dissections, but not traditional wet lab dissections, can offer.

With the quality of CD-ROM dissection alternatives available, we are likely to see the numbers of students requesting an alternative to dissection increase significantly.

For more information on the Digital Frog and the many other dissection alternatives available through The Science Bank, please contact Animalearn at (800)SAY-AAVS or info@Animalearn.org. You can also learn more by visiting us online at www.animalearn.org.

Laura Ducceschi, MA, MBA, is the Education Director at AAVS.

Overcoming the Dissection Paradigm in High School Biology

By Julie Shaeffer

"We can judge the heart of a man by his treatment of animals."
Immanuel Kant

To many, dissection in high school biology may seem a relic of the past; however, the majority of biology teachers that I work with still hold steadfastly to its use. As a biology faculty member with Boulder High School, I have experienced this first-hand. My choice to not use dissection is the subject of this article. This decision was strongly opposed by some members of my school's biology department and administration. While I was ultimately awarded permission to use alternatives, it was not without many barriers to overcome. I hope other biology teachers who oppose dissection and experience pressure to do it anyway can use my story to navigate this surprisingly tumultuous ground.

My story begins late January 2010, when I was asked for my "rat order" by a colleague, or, in other words, how many preserved rat specimens I would need for the anatomy unit usually taught in early April. I asked for a hold on ordering for my classes until I could address some concerns I had regarding dissection. Two weeks and lots of research later, I decided I would not be dissecting, and informed the other three regular-level biology teachers, as well as our department head, of my decision and rationale.

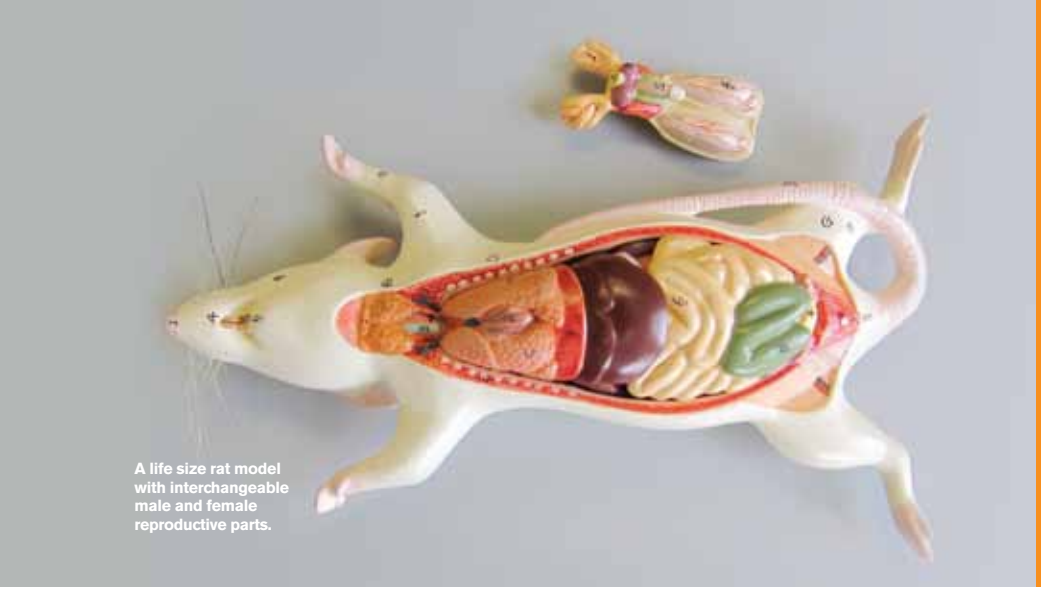
The next day, I scheduled a meeting with the school administration to inform them of my decision. During this meeting, I was told that "You will do dissection," and "You should be looking for a job elsewhere if I feel like you can't fit in here [and do dissection]." The discussion was heated and lasted 45 minutes. I explained my rationale for choosing not to dissect: the educational value of alternatives, my findings regarding cost and disposal issues, as well as a gamut of ethical concerns. With no resolution in sight, the matter was moved to the next level, and I was scheduled to meet with our principal.

One meeting turned to four, during the last of which I received a written directive that said I must do dissection or vacate my classroom without pay while a substitute teaches dissection. I filed a grievance against that directive, and three weeks later attended a meeting with our district assistant superintendant and head of human resources, the principal and assistant principal of my school, and two representatives from the teachers' union.

I'm not sure what it was that shifted the district administration's thinking. It may have been data I presented from an anonymous survey asking my students how many would like to opt out of dissection. It may have been letters from two students who had taken biology in previous years, sharing their negative experiences with dissection. Whatever the reason, I was given permission to teach a non-dissection alternative to all of my students who wanted it. Joyfully, during the first two weeks of April 2010, with the help of materials borrowed from Animalearn, I taught anatomy without harming one animal.

Planning the lessons was simple. I adapted the traditional rat dissection manual used by the other teachers in my department to correlate with the rat, cat, and shark models I borrowed from Animalearn's The Science Bank. Some wording needed to be changed. For instance, where the traditional manual said "cut here," my manual did not, but all of the structures students were expected to find during the traditional dissection were visible on the models. Use of the models required less time than traditional

PHOTOS BY ISTOCKPHOTO (THIS PAGE) AND COURTESY OF ANIMALEARN (OPPOSITE)



A life size rat model with interchangeable male and female reproductive parts.

DURING THE FIRST TWO WEEKS OF APRIL 2010, WITH THE HELP OF MATERIALS BORROWED FROM ANIMALEARN, I TAUGHT ANATOMY WITHOUT HARMING ONE ANIMAL.

dissection and I was able to also include detailed lectures on human anatomy specifics and comparative anatomy between species for each of the five body systems students studied during this unit.

Students who used the alternatives learned just as much about anatomy and physiology as students who performed the rat dissection. This was evident in the post-unit assessments, although the dissection group was tested only on rat-specific anatomy and physiology, while the alternative group was tested on human anatomy and physiology as well as cat, rat, and shark anatomy.

My decision to not dissect, however, was not without a price. By May 2010, my job was threatened, I was ignored by colleagues on many days, my research into dissection specimen sourcing and disposal was called inaccurate and slanderous, and I spent hours in meetings just to get to the place where I could teach those 10 days of class without harming animals. I was also informed one week before the end of the school year that I would be transferred to another school due to conflicting philosophies regarding dissection.

I often wonder why my colleagues responded this way. Research shows time and time again that alternatives teach the concepts of anatomy and physiology just as well as dissection.[1,2] Disposal of specimens creates much waste that could be avoided. The treatment of animals as they are collected, sold, transferred, and killed so that they can be used as dissection specimens would be unthinkable for most, but it is somehow okay to pay others (random source Class B dealers and science supply companies) to do it for us. Why, with all of these problems, is anyone still using dissection?

The responses I heard went something like this: "Studying the structure and function of living organisms is fundamental to the study of biology, and the shared experience of animal dissection is the only (and best) way." Sounds convincing. And hearing this from our supposed experts (biology teachers) has been enough to keep this outdated practice in use decades longer than it should be.

My response is this: The relationship between structure and function is, of course, fundamental to biology, but it can be taught with other methods. Shared experiences are also of great importance, but there are many shared experiences that could be incorporated into a biology classroom that do not involve the killing of animals or traumatizing of students, something dissection does to many. Why not share the experience of ethical behavior, the awareness of the effects of our actions on other living organisms, and of choosing the path of least harm? That alone would be much more empowering than dissecting a rat.

The summer brought many surprises for me, the most exciting of which was being named the Humane Educator of the Year by Animalearn, an award presented during the annual Taking Action for Animals conference in Washington, DC. Along with that award came $3,000 worth of dissection alternatives for use in my classroom. Another welcome surprise was finding myself still a biology faculty member at Boulder High for the 2010/2011 school year, and receiving the go ahead to pilot the use of non-dissection alternatives for all of my biology classes. I'm thrilled to be back, and I am empowered by the changes taking place at my school regarding the use, or non-use, of dissection.

As Jeremy Bentham writes, "A basic ethical principle asserts that if we have a choice between two ways of achieving something—one that causes pain, suffering, and death and the other that does not—then ethical behavior dictates the latter method." I completely agree. Let's overcome the dissection paradigm in high school biology together. **AV**

Julie Shaeffer has been teaching science in Boulder Valley schools for six years. She has found teaching science to go hand-in-hand with humane education and feels fortunate to have opportunities to discuss, teach, and write about these important issues.

[1] Patronek, G., Rauch, A. (2007) Systemic review of comparative studies examining alternatives to the harmful use of animals in biomedical education. *Journal of the American Veterinary Medical Association, 230 (1),* 37-43.
[2] Waters, J.R., Van Meter, P., Perrotti, W., Drogo, S, Cyr, R.J. (2005). Cat dissection vs. sculpting human clay structures in clay: an analysis of two approaches to undergraduate human anatomy laboratory education. *Advances in Physiology Education. 29*, 27-34.

Connecting with Students

By Bill Storm

Late at night, you, an enthusiastic medical student in London in 1815, attend your class in anatomy, and your professor turns to request you meet a cart just now arriving at the school's stable door. You open the heavy wooden double door, and your nose is met by the combined smells of lathered horse, fresh earth, and perhaps just the hint of decay. You witness two of your classmates lugging a heavy, six-foot-long, limp object wrapped in canvas from the cart bed and into the shadows of the school's surgical theatre. Their black overcoats, boots, and gloved hands are covered in fresh, moist earth, their faces radiant, their voices animated. Your learning will proceed, thanks to the activities of these body snatchers, or "resurrection men" as they were fondly known—illegal, but acknowledged as a necessary evil in the burgeoning medical school business of 19th century London.

Your 21st century sensibilities may not help you share the sense of wonder

PHOTO BY ISTOCKPHOTO

and excitement of those medical students, though they were part of our own modern age of enlightened science and the forbearers of life science educators everywhere. While the events and forces bringing change in our current sense of ethical conduct are beyond the scope of this article, it is useful to reflect on the journey that our current ethical construct is but one point on a continuum of change. We have some sense of where we have been, but where are we going as a culture, and what is our place as educators? Do we respond begrudgingly to change, or should we be leading it like that professor in the medical school? Where and what is our place on the cutting edge, so to speak?

Like all children in all times, our 21st century students have been lapping up the culture provided by their parents' generation, including those aspects of culture we think of as education reform and technological progress. The past 30 years have produced massive changes in both realms, and to expect students to arrive in our secondary science classrooms in a state related to our own experience as students would be the social equivalent of us being handed the fruits of a body snatcher.

As a reader of *AV Magazine*, it is likely you have arrived at a personal code of conduct related to the sacrifice of living animals, or at least have questions or concerns about it. It's also quite possible you are, yourself, a product of social trends and curricular reforms that brought life science values to you as a child. Whether by living through the experiences of Kermit the Frog and Miss Piggy on *Sesame Street* or by being a first-hand witness to the life cycle of a silk moth in kindergarten, understanding oneself as but one part of a complex web of life on our rather smallish planet is no longer unusual among young people.

Today's children have had no less a life-centric experience. A majority of students have not only had these life-affirming experiences, they have also ingested an unprecedented level of desensitizing violence through gaming and other entertainment media. Students coming into classrooms today are less homogeneous than ever in human history, and with the breakneck pace of media and life experience diversification, this trend will not reverse any time in the foreseeable future.

There is no single unifying experience of childhood any longer, making the entire notion of teaching a "class" increasingly anachronistic. But one can make some safe generalizations. For example, many students are entering secondary life science classes with a highly developed sense of responsibility to their world and its inhabitants, thanks to early science education and a society-wide call for greater ecological accountability for all. Consequently, many do not accept dissection as morally acceptable, and there is a great diversity among any group of students regarding any expectation to dissect or not dissect. In fact, students are very sophisticated regarding their rights in the classroom, but they are also keenly aware of tradition. Thus, students can bring a significant degree of confusion around nature, violence, and personal identity into the classroom.

In very dramatic contrast to this wide diversity of individual experience and expectations, though, are the young digital natives' connections to their peers through social media and an abiding reliance on their personal network. My 23 year-old son has honored me with Friend status on Facebook, giving me permission to "stalk" him and his friends as they move together into life (and no, I do not participate there). I have observed his personal network growing in numbers and complexity, moving from high school into college. When I went to college, my high school friends were mostly displaced by my college friends, and each major life transition thereafter resulted in a new set of nearly-exclusive contacts. Modern social networking means that my son's support system, with roots in preadolescence, persists in an evolving form with physical distance and changing venues presenting no threat, a form of interpersonal stability unknown to my generation.

I admit to being envious of this continuity of relationships my son and his peers are able to enjoy, but it forces me to consider the implications for teaching in our standards-based, resource-constrained world. The model of successfully teaching a "class," an entity that consistently responds in a predictably homogeneous fashion, may be a place that exists only in the mind of a teacher who came of age there. Is it any wonder teachers, particularly urban ones, increasingly find themselves the lone invaders in a foreign land? You can't speak their language, and you can't find their leader. With national dropout rates persisting at nearly 20% for some ethnic

All students value honesty in adults who hold power over them, perhaps above all other qualities we bring to the classroom.

subgroups, and continuing calls for better higher education and workforce preparation, it may be time to retool our practice and relationship to the "classroom."

During a recent professional development session in which life science teachers were being asked to consider alternatives to traditional dissection practices, one teacher became rather animated and insisted, "My students must understand what is real in their world!" This teacher, no doubt, was trying to make the case for his dissection habit, that a hands-on-animal-tissues practice is the only viable experience for authentic life science learning. The teacher was also inadvertently making the case for requiring his students to relive his own personal learning path, drawing on sensibilities and values formed three to four decades earlier. Although some may believe there was nothing wrong with that teacher's learning path, and it is one I shared, each day of life can bring us new information and greater awareness, and paths diverge, leading to new, unanticipated destinations.

The rich social networks inhabited by our digital natives work for one simple reason. Because there is far less broad-based homogeneity of life experience among them, the binding force is a deeply human, heartfelt, and compassionate connection to peers and friends. The teachable moment, the access point for teaching this highly networked group is not access to their networks, so don't even begin to think you can be part of it. It is, however, gaining access to that aspect of your students that makes their networks tick: recognition and deep appreciation for the experience and values of each separate student. To expect uniform responses from a collection of unique and diverse individuals is to consciously opt for failure for many of those students.

So what, exactly, is this going to look like in the context of 30 or more hormonal and unique students? There are standards to address, lessons to teach, exams to grade, and professional stakes to manage. However, there are a few ideas to consider. First, all students value honesty in adults who hold power over them, perhaps above all other qualities we bring to the classroom. To share with students your personal ethical constructs as you make instructional decisions about the use of animal tissues in the classroom, describing how you intend to manage your teaching task as informed by your ethics, is a powerful way to communicate to them your own struggle with a complex world. They will get it.

Also, as you do your planning for lab experiences, assume a need for a diversity of experiences. The law in many states requires that an "alternative" to dissection be offered to students who object. Use of the word "alternative" here communicates dissection as the normative, approved experience, that non-dissection experiences are inferior. Addressing young people who may not wish to dissect by using this unintentionally demeaning term can be stigmatizing in the same way that characterizing a student who wishes to dissect as being filled with blood-lust would be.

Additionally, communicate not only your acceptance of the diversity before you but a true valuing of the many points of view, still in development, represented in your students. There are future paramedics and orthopedists in your classroom whose hands will someday touch real flesh, as well as surgeons who will someday heal using robotic systems. Diversity of need calls for diversity in approaches and learning experiences. Having those diverse experiences (whether models, simulations, text, etc.) prepared in advance will give students options, ones they may even choose to explore multi-modally.

With the many resources available to us for instruction in the technological age, by caring for all students and the unique gifts they bring, we will be in the best position to prepare them for a world in need of highly developed talents in professions we cannot today imagine. **AV**

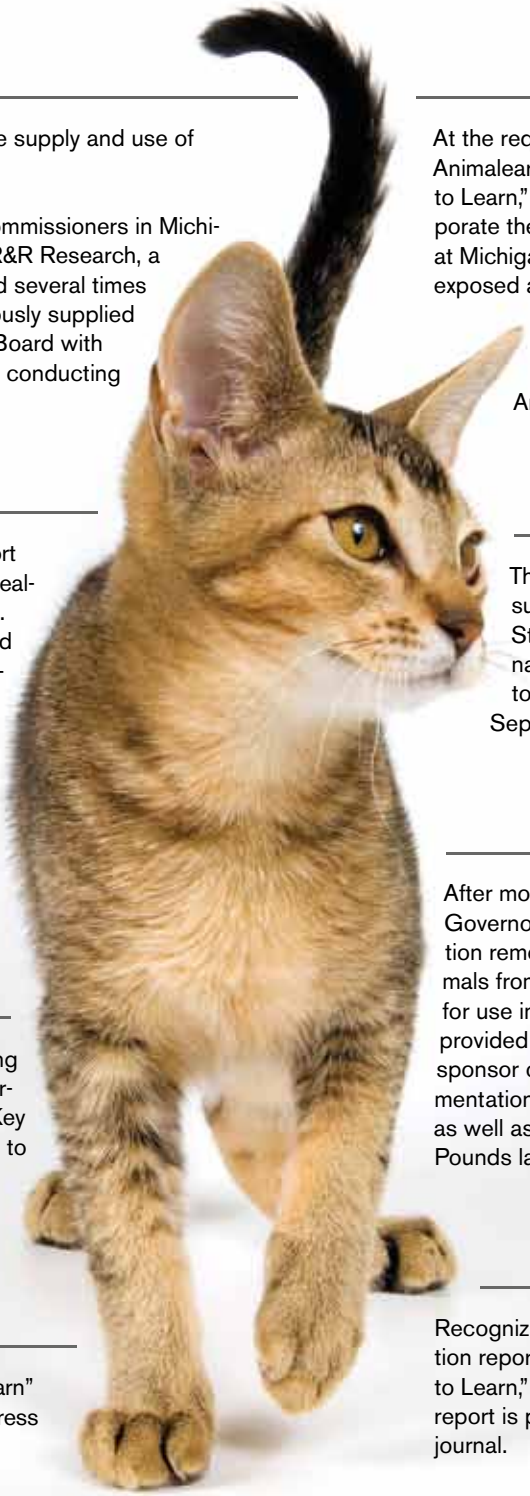
Bill Storm, MA, is Coordinator for Instructional Technology for Davis Joint Unified School District in California, and was a science educator for grades 4 through 12 for 23 years. Find his blog at http://billstorm.wordpress.com.

Describing how you intend to manage your teaching task as informed by your ethics, is a powerful way to communicate to them.

PHOTOS BY ISTOCKPHOTO

Dogs, Cats, and Education

A Timeline of Achievements from "Dying to Learn"



APRIL 27, 2009

Animalearn releases "Dying to Learn: Exposing the supply and use of dogs and cats in higher education."

This same day, the Montcalm County Board of Commissioners in Michigan votes to end its long-standing contract with R&R Research, a random source Class B dealer that has been cited several times for violating animal welfare laws. AAVS had previously supplied local animal advocates and every member of the Board with information about R&R, which was obtained while conducting the "Dying to Learn" report investigation.

MAY 2009

The National Academy of Sciences releases a report finding that animals from random source Class B dealers are not necessary for federally-funded research. Months before this announcement, AAVS submitted information regarding random source Class B dealers and their history of repeatedly violating welfare laws, as reported in Animalearn's "Dying to Learn."

As a university cited for purchasing dogs and cats from animal dealers in "Dying to Learn," Animalearn celebrates the University of Cincinnati's announcement that it will no longer purchase purpose-bred animals for classroom use.

JULY 2009

Animalearn was invited to speak at the annual Taking Action for Animals conference in Virginia, and participated on a panel entitled "Sound Strategy: A Key to Ending the Use of Animals in Labs." The "Dying to Learn" report was showcased as a case study on how to construct a successful campaign to help end vivisection.

AUGUST - SEPTEMBER 2009

Animalearn presents findings from its "Dying to Learn" report to a global audience at the 7th World Congress on Alternatives in Rome.

NOVEMBER 2009

At the request of a campus student group, Animalearn gave a presentation on "Dying to Learn," alternatives, and how to incorporate them into the college curriculum at Michigan State University, which was exposed as a user of a large number of animals obtained from animal dealers. Animalearn spoke to students, administration, and Animal Care Committee members.

MARCH 2010

Thanks in part to information supplied by Animalearn, Michigan State University College of Veterinary Medicine announces an end to its terminal dog labs, effective September 2010.

MARCH 26, 2010

After months of political wrangling, Utah Governor Gary Herbert signed legislation removing the requirement that animals from pounds must be turned over for use in research. AAVS had previously provided grassroots groups and the sponsor of the Utah legislation with documentation of pound seizure in the state, as well as the "Dying to Learn" report. Pounds later end this practice entirely.

DECEMBER 2010

Recognizing the importance of information reported and discussed in "Dying to Learn," an abbreviated version of the report is published in *ALTEX*, a science journal.

A Tail of Paradox: Learning to Care vs Animal Dissection

By Lynette A. Hart

How can there be such contradictory uses of animals in science classrooms? The juxtaposition of a classroom pet loved by children beside freshly dissected animal specimens, is perhaps hard to absorb and understand. Despite the availability of various guidelines for animal use that can be provided or adopted by school districts, the range of animal use in education has virtually no limits, because no governmental regulatory body oversees husbandry of classroom pets or uses of animals in instruction.

LEARNING WITH LIVE ANIMALS

The ubiquity of classroom pets reflects children's compelling interest in animals and the enjoyment of watching them and learning about what they do. These are often small animals, such as mice or guinea pigs, and, despite posing challenges to teachers for their care over weekends, vacation days, and summers, they are commonplace in classrooms. Many teachers like what living animals add to the classroom environment.

A new practice emerging in classroom and library settings is allowing individual children to read to a dog. As the children read aloud, the visiting dog quietly attends, helping to calm anxiety that may occur in typical classroom settings. For the child who is reading, the dog is a non-judgmental audience who facilitates relaxed reading, even for children who are struggling to learn how to read.

In a supplementary program offered to at-risk and low-performing intermediate school students in Los Angeles during three-week vacation periods, children teach dogs basic obedience commands at shelters, and also participate in group discussions related to conflict resolution. We found that these children, who are exposed to daily violence in their neighborhoods, increased their knowledge of pet care and the needs of animals, and also became less fearful of dogs, as compared with children not participating in this program.[1]

PHOTO BY VEER

These various ways of interacting with living animals in education are only some examples of teachers employing animals to assist in motivating and calming children for learning. Teachers of children with special needs or professionals helping children at residential facilities often involve animals in their treatment programs, which allows children to learn empathy for animals and methods of offering them humane treatment at the same time.

DISSECTION OF ANIMALS

While it may be hard to understand the reasons why students in many elementary and intermediate schools engage in dissection of formalin-fixed animals or animal specimens, the tradition of learning by dissecting has a long history. Initially, humans were the cadavers of choice in medical education. Conducted in specially constructed theaters during cold winters when bodies decompose slowly, an assistant dissected the body while the professor read aloud from ancient texts. This practice was refined, and scientists of the day began performing the dissections themselves, eventually acquiring new information about the human body. Human bodies for dissection were always in short supply; therefore, animal bodies were used as a supplement or to fill in when human bodies were unavailable.

A QUESTION OF TRADITION

The expansion of science education beyond medicine arose with the inauguration of universal science education. Everyone agreed that hands-on learning was critical in the sciences, and dissection seemed the logical technique for biology laboratories, along with examination of prepared skeletons. Human cadavers were not available for pre-college students, but animals could be acquired and became the standard resource for teaching biology.

This tradition has continued, virtually unchanged until the present, and veterinary medical education has led the way in developing improved teaching resources, including specialized software, reusable plastinated or freeze-dried specimens, and anatomical models. We now have a paradoxical situation in which animal dissection is largely disappearing from veterinary medical education, but persists in elementary and secondary education. If veterinary students do not require experience in dissecting animals, one wonders, why do elementary and secondary students need this experience?

LIMITS FOR TEACHERS

Because elementary teachers typically major in liberal arts, they generally lack a strong preparation in the life sciences. Most likely they dissected animals in biology classes, and perhaps this comes to mind as they search for ways of generating interest and excitement in science within their own classrooms.

Additionally, limited resources for teaching and lack of essential materials or budget to supply laboratory activities imposes a burden on motivated teachers who seek to offer exciting laboratories. In the past, county offices of education often maintained lending libraries of teaching resources that could be borrowed to match instructional schedules.

Although in-house funding and district resources have been diminished in many regions to the point that teachers find themselves building up their own private stashes of supplies, new avenues of teaching resources, such as dissection alternatives, have appeared. Although an abundance of non-animal resources are available, many are not rated by teachers, forcing educators to wade through the endless array of items that appear in a Google search. However, lending libraries such as Animalearn's The Science Bank alleviate this process, offering free humane education resources presented in a highly organized way, making the process of finding the appropriate, needed alternative much less overwhelming.

TEACHER PERSPECTIVES

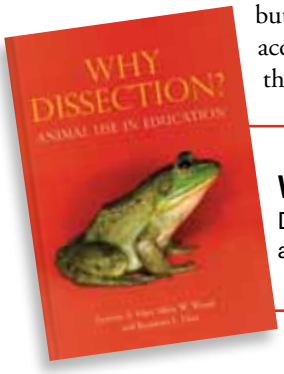
At all grade levels, teachers seek to motivate children to learn, and this requires gathering materials useful in keeping the children's interests.

When California elementary teachers were solicited to share their experiences and goals, it was learned that most of these teachers were keeping live animals and animal-related specimens in their classrooms, believing them to be effective foci of learning.[2] A key point gathered from these teachers was their belief that live animals, in addition to providing formal lessons in science and cross-curricular instruction, are important for teaching children humane values. Additionally, those teachers with strong backgrounds in science offered more formal and informal classroom activities related to animals, while those lacking science backgrounds were less likely to have live animals in the classroom or to conduct as many formal instructional activities about animals.

CONCLUSION

Teachers deal with a delicate mix of living animals in the classroom and specimens from dead animals. However, an increasing number of reusable free or loaned resources are beginning to be conveniently available, making it easier for teachers to focus on encouraging children to interact with living animals and learn about their humane care. Those teachers concerned or perplexed with ethical dilemmas associated with dissecting dead animals can now identify ethically-based resources and skirt the dilemmas. **AV**

Lynette A. Hart, Ph.D., is a Professor at the UC Davis School of Veterinary Medicine, and co-author of Why Dissection? Animal Use in Education.

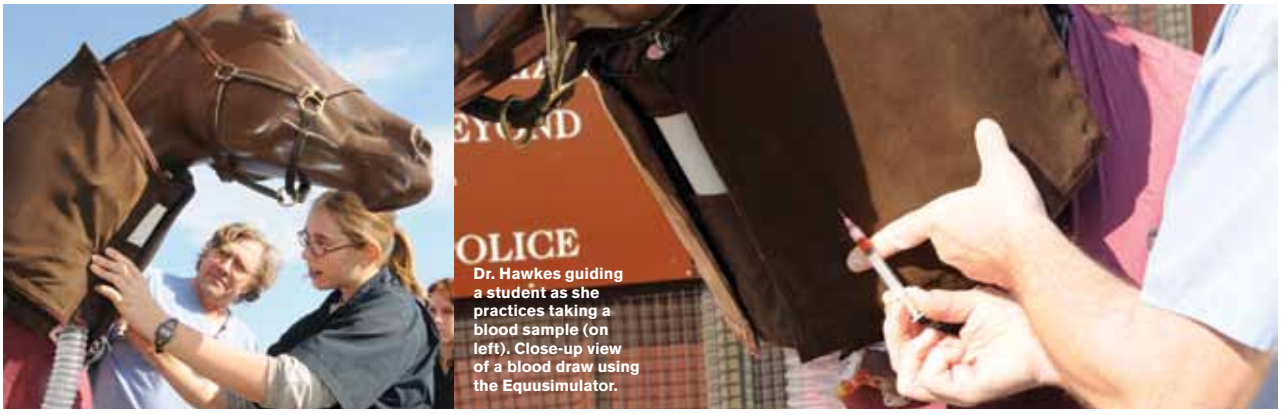


Why Dissection? Animal Use in Education
Discusses the use of animals in education, as well as dissection alternatives and their effectiveness in teaching and learning.

[1] Zasloff, R.L., Hart, L.A., and Weiss, J.M. (2003). Dogs as a violence prevention tool for at-risk adolescents. *Anthrozoos 16*:352-359.
[2] Zasloff, R.L., Hart, L.A., and DeArmond, H. (1999). Animals in elementary school education in California. *Anthrozoos 2*:347-357.

EDUCATION GRANT UPDATE

The Equusimulator



Dr. Hawkes guiding a student as she practices taking a blood sample (on left). Close-up view of a blood draw using the Equusimulator.

As a leader in the field of humane science education, Animalearn is in an excellent position to understand where there are still gaps in filling the needs of educators and students with alternatives to the use of animals. To address these areas, in December 2009, Animalearn teamed up with AAVS's affiliate, the Alternatives Research & Development Foundation (ARDF), which has a 15-year track record of providing funding for projects to develop new non-animal methods in research, testing, and education. That collaboration led to the establishment of the Alternatives in Education Grant Program. Last year, the Program awarded $30,000 to selected education projects, including a grant to Dr. Mary Rose Paradis of the Cummings School of Veterinary Medicine at Tufts University to develop a veterinary training alternative called the Equusimulator.

Dr. Paradis is working with Drs. Alicia Karas and Jack Hawkes at Tufts to create a sophisticated equine anatomical model designed to train veterinary students in medical techniques like blood collection, IV drug administration and catheterization, and other procedures that can be particularly stressful for large animals. The simulator can be placed around the neck a life-size horse manikin so that students can develop proficiency in accessing the trachea and jugular vein of a horse for medical intervention.

The Equusimulator consists of a soft, foam-filled sleeve containing tubing with a feel unique to the trachea and offers the same type of tissue resistance found in live animals. A window of a light synthetic fiber mimics the skin, giving students opportunity to practice blood draws, injections, and other procedures. A miniature pump acts as the heart, forcing fake blood through a jugular vein made of tubing that lies over a touch-sensitive switch. When the student holds off the vein, the switch closes a circuit, and the pump, which is powered by a rechargeable battery, turns on.

"You have to see this model 'in the flesh' to truly appreciate it," commented Dr. Karas. "It turns out Dr. Hawkes is an extremely gifted model architect. I'm hopeful that it will inspire more such models for use in teaching."

Currently, the present design is being tested by a large number of students, and the Equusimulator will be adjusted as needed, eventually moving to the next phase of the project, which is to evaluate how training on the simulator impacts student performance.

Animalearn Director Laura Ducceschi commented, "We are pleased with the development of the Equusimulator, because it addresses a lack of large animal training manikins in veterinary education, and commend Dr. Paradis and all those who have been working so hard on this." AV

"We are pleased with the development of the Equusimulator, because it addresses a lack of large animal training manikins in veterinary education."

LAURA DUCCESCHI,
ANIMALEARN DIRECTOR

PHOTOS COURTESY OF ANDREW CUNNINGHAM (THIS PAGE) AND BY VEER (OPPOSITE)

Veterinary Training

A Report from Korea

By Gwi Hyang Lee and Byung In Choe

Vet students in Korea may soon be trained without harming animals.

This year marks the 250th world anniversary of veterinary education. Veterinary science was introduced into the Korean curriculum in 1906 at the Agricultural, Commercial, and Technical College. Currently, there are 10 veterinary medical schools in Korea, one private and the rest national. Veterinary medical education in Korea is a six-year curriculum composed of two years of pre-veterinary courses and four years of veterinary courses.

Two new Korean laws legislating animal welfare and the humane use of animals in science came into effect in 2008 and 2009. Both laws, the Animal Protection Law and the Laboratory Animal Law, impose the 3Rs—replacement, reduction, refinement—on procedures using animals, and require ethical committee review prior to conducting animal experiments in research, testing, and education. However, no specific guidelines for education purposes have yet been formulated.

Since 1986, there has been a great increase in animal welfare research and public concern about animal welfare in Korea. Currently, general veterinary ethics is taught in four veterinary schools. A course that combines animal welfare and ethics is offered as an elective course at two schools, but no separate animal welfare course or curriculum is currently being offered at any of the veterinary schools in Korea.

Although audiovisual aids may be used as alternatives or supplements to the use of animals in teaching and training, and the effectiveness of such methods has been documented and legal requirements against animal use have been advanced in Korea, teaching resources and information on the 3Rs are inadequate to comply with the requirement. Many teachers and students are not well informed about animal alternatives, and these resources need to be familiar and readily accessible to be effectively used. No specific information and resources on animal alternative educational programs are currently readily available in Korea. At this early stage, alternatives to the use of laboratory animals are often viewed as supplementary educational teaching aids rather than replacements for animals. Some of the expressed beliefs that may limit the wholehearted acceptance of alternatives include: alternatives cost more, are difficult to acquire, threaten to undermine the academic freedom of the instructor, and are educationally inferior. Cultural differences among professors, and students' attitudes towards animals, need to be better understood and respected in order to promote tolerance in multicultural biological education.

However, the need for development and implementation of well-proven alternatives to animals in education is clearly recognized by a majority of the veterinary professors and students. School administration and government support will be required for further development or modification of educational materials for use in Korea as alternatives to animal use. Financial support from academic institutions and government can facilitate the development of more optimal resources, especially with adaptation to the Korean language. It is a worthwhile goal to establish a national policy to mandate courses covering humane experimental techniques, ethics, and welfare for professors and staff prior to conducting any invasive animal experiments. **AV**

Gwi Hyang Lee, Ph.D., is a Research Associate at the Catholic University of Korea. Byung In Choe, M.B.A, LL.M., Ph.D., is an Associate Professor of Bioethics at Catholic University and an Advisor at The 3Rs Institute at Konkuk University.

Global Efforts in Humane Education

An Interview with Nick Jukes, Co-ordinator of InterNICHE, the International Network for Humane Education

AAVS: You've been a long-time advocate for humane education. Has it become globally accepted?

NICK: There's been real progress over the past decade in terms of a growing movement for humane education and alternatives, and an increasing awareness and acceptance of innovative ways to meet teaching objectives. In many university departments, alternatives are now the norm.

How has it come about?

The widespread and increasing use of computer technology has opened doors to software alternatives. Also, financial considerations have forced a reassessment of some practices. So, the implementation of replacement methods has been gaining pace, and the pedagogical, ethical, and economic advantages of alternatives are being more widely recognized.

What do you think has been the driving force behind these changes?

Sustained grassroots activity is the key factor for success.

That's not always easy.

True, but there are always challenges to face and opportunities to take. Some are unique to specific cultures and situations in time, others are common to us all. Russia, Mexico, and India can illustrate this.

Tell us about the situation in Russia.

The challenges in Russia are great, because there's no relevant legislation and there's a tradition of widespread animal use during Soviet times. Also, Russia is a fairly conservative society, so innovation in education is unusual. But the situation there is increasingly positive, demonstrating the cultural and economic changes that are playing a role in the replacement of harmful animal use.

Nick Jukes with a student demonstrating a veterinary alternative.

Are lack of finances an incentive?

Many educational institutes have been struggling for funds since the collapse of the Soviet Union, causing a decrease in some animal experiments and dissection of purpose-killed animals. There hasn't been a parallel investment in other learning tools, however, and the resultant "resource vacuum" provides a major opportunity for alternatives to be introduced.

What types of alternatives?

A number of exciting projects between university departments and InterNICHE have introduced software and manikin alternatives, sometimes as part of new multimedia laboratories, with very positive feedback. Formal agreements have been signed with over 10 departments and faculties to introduce alternatives, leading to the replacement of over 20,000 animals annually. Translation of several alternatives into Russian, and the availability of freeware, have facilitated this process.

Is this trend growing in Russia?

Yes, and the introduction of good learning tools and modern technology, along with the prestige of collaborating with foreign organizations, is giving alternatives a good reputation. With increased interest from other universities now that the possibility of change has been demonstrated, academic conferences are beginning to address the issue, and some teachers are now actively promoting alternatives to their colleagues.

What's been the role of grassroots groups there?

Together with the Russian animal rights group VITA, InterNICHE has achieved very broad media attention for this implementation and replacement, with TV coverage reaching hundreds of millions of people, including other former Soviet Republics. For example, parallel progress and a similar degree of replacement is happening in Ukraine, where a new animal protection law demands the use of alternatives in education. All of this is happening despite animal protection groups having very little money.

They sound like very dedicated activists. What about grassroots efforts in other regions?

In Mexico, there's been an increasing number of humane education initiatives from

PHOTOS BY INTERNICHE

students and teachers in recent years. The introduction of alternatives by some teachers, and occasional but determined student conscientious objection, provide an impetus from within universities. Demonstrating how the issue has begun to be taken more seriously in the country, the association of veterinary colleges discussed the use of animals and simulators in education as a main theme in their 2010 meeting.

Sounds like real progress.
It is. But also exciting is an initiative for Mexico called the Center for Alternatives to Animals in Education (CAAE), which was established at the University of Guadalajara.

Tell us about it.
Closely linked to InterNICHE, whose Alternatives Loan System it hosts, CAAE began in 2008, and works with teachers and students towards full replacement and enhanced education and training. It hosts international events, organizes training in alternatives, and provides advice and alternatives to other centers and universities whilst working to implement replacement tools and approaches. It has alternatives such as software; models, manikins and simulators; a body donation program for ethically sourced cadavers; and the promotion of clinical work with animal patients.

Are live animals used in education training in Mexico?
Sometimes they are, and pounds are the main source of dogs who are used. However, a 2008 Mexican federal law has prohibited the transfer of stray dogs from city pounds to educational or research institutes. The law has begun to limit easy access to animals for practical classes in medicine and veterinary medicine. This, as well as state laws in favor of alternatives, will have a growing impact, and the push for alternatives will be easier.

You also mentioned India. What's happening there?
India is a very good example of how grassroots efforts and government regulations can together bring about change, and progress is taking place faster than expected. The Minister of State for Environment and Forests supports replacement, and local nominees of the government agency that controls animal experimentation, the Committee for the Purpose of Supervision and Control of Experiments on Animals (CPCSEA), have been increasingly refusing protocols submitted by universities to use animals in education.

How broad is CPCSEA's influence?
CPCSEA demands that education, research, and testing establishments have their own well-equipped animal houses, so the level of practical and ethical standards concerning animal breeding and use that must be met has increased. As a result, some establishments no longer apply for clearance, and the education experiments are abandoned or refused. With cheap computers now available, the transition to alternatives is being facilitated.

Are there other agencies that have voiced support for humane education?
Importantly, the Universities Grant Commission (UGC) is one. It deals with the zoology curriculum, and established a committee to address dissection, inviting InterNICHE as an expert organisation to present the case for alternatives, and heard feedback from teachers. It came out against dissection in 2010.

What will be the impact of this?
If low-cost or indigenous alternatives can be widely provided, the number of animals that can be replaced could number in the tens of millions. Following negotiations with producers, InterNICHE has also distributed over $500,000 worth of free products across India.

So there's hope for continued progress?
Yes. In the state of Gujarat in particular, widespread replacement has been achieved through information provision, outreach, and training in alternatives combined with sustained engagement and pressure on establishments. One university committed in 2008 to end the annual use of over 3,000 mice, rats, and rabbits for dissections and severe experiments. Freeware and other alternatives provided by InterNICHE helped this process. At other universities, just four copies of a freeware pharmacology CD replaced 3,000 animals; and since more than 4,000 copies were distributed nationally for free, the numbers of animals saved is likely to be very large.

Will there be decreases in other animals?
The annual killing of 15,000 guinea pigs and rats for their ileum [part of the lower intestine] will be ended as the syllabi in at least 78 private pharmacy colleges affiliated to a state university were adapted in 2010. Waste chicken ileum from the slaughterhouse must be used instead. While not strictly an alternative, there is potential for using non-animal alternatives such as computer software in the future.

That's wonderful. Any last words for humane education advocates?
Critical thinking, strength of conviction, and confidence in a humane vision of the world can support all campaigns. Also, it would be wise for campaigners to learn the basics of medical and life science terminology, and to understand the nature of practical classes that involve animals in order to focus on teaching objectives and to argue successfully for better ways to meet them. AV

FROM GUINEA PIG TO COMPUTER MOUSE

An overview of humane science education, including types of alternatives, case studies attesting to the effectiveness of teaching humane science, and an alternatives database.

Nick Jukes is co-author of From Guinea Pig to Computer Mouse. *He wishes to thank Elena Maroueva, Sofia Ponce, and Snehal Bhavsar for their activism and their input.*

Helping Animals in Education

By Nicole Green

In the ten plus years I have served AAVS's constituents, I have had the opportunity to inspire and motivate countless individuals who want to make a difference for animals used in the education arena. It is not just educators, students, and parents who are working to make change for animals; passionate activists and others not affiliated with a particular school or university are also making their voices heard on behalf of the animals who are unnecessarily probed behind the closed doors of educational facilities.

In my view, everyone has the ability to educate. If you care about animals, and you see injustice in your own community or in the world, it is your right and responsibility to take a stand and use your voice to speak out for the animals who share our Earth. Taking the time to open the eyes of a child about being kind to animals, whether you are a parent/guardian, grandparent, aunt or uncle, activist, or concerned community member, can be simple and rewarding.

As a parent, I not only want to instill humane values in my own son, but I also want to reach out to my community and encourage children to be compassionate towards all animals. I came across a noteworthy humane education program created by Best Friends Animal Society called "I Read to Animals." This is a public outreach program, which allows an "educational ambassador" to give elementary-aged children the opportunity to read to either live animals through a shelter program or stuffed animals (in the event that the venue doesn't allow real animals), in a public library or classroom setting. Not only is this program educational because it teaches children how to improve their reading skills, but it also provides an environment for healthy relationships with animals. Ultimately, "I Read to Animals" promotes an appreciation and respect for all creatures.

This is an example of something you too can do to educate kids who have not yet made that connection to animals. It is important for all of us who are aware of the injustices towards animals to plant the seeds of kindness in any way we can.

Activists can do many things to help animals used in education. The following are some of my own ideas as well as some from AAVS members who work hard through grassroots efforts to make animal use in education a thing of the past.

BE A PART OF THE CONVERSATION

In this world of rapidly growing technology, take every opportunity to contribute to blogs and/or news articles that are pertinent to animals used in education. Use your social networking accounts like Facebook or Twitter to address concerns or issues in your area. This is a great way to spearhead conversation about topics and create understanding among your friends and family members.

PETITION SAVVY

One of our constituents in Florida was outraged after a story broke in Miami about a teenage boy who killed several cats, and she decided to set up an online petition to stop cat dissection in the Miami school district. Isabelle was appalled that cat dissection is still practiced and decided to take a stand in her own community by not only setting up an online petition, which was very successful, but also by attending school board meetings. She even borrowed items from Animalearn's The Science Bank to share with the district to make it aware that there are wonderful educational tools that can be used instead of dead animals!

Online petitions are a great way to get a lot of signatures, but be sure to read the terms of use carefully.

DISSEMINATE DISSECTION KITS

I have spoken to a number of individuals who want to make a difference for animals; and one person who has really made an impression on me is Barbara, a dedicated AAVS member from Minnesota. Barbara works tirelessly to be a voice for animals and contacts me every year to talk about what she can do to help spread the word even further. As a member of

PHOTO BY VEER

her local animal rights group, she has tabled at local science teacher conferences to make science teachers aware of dissection alternatives. Additionally, Barbara has distributed Animalearn's Dissection Resource Kits to schools in her area and has even set up meetings with school administrators to encourage them to utilize non-dissection alternatives.

Find out what kind of events are going on in your community, such as fairs or local teacher conferences, and see if you can become involved. Animalearn will be happy to provide you or your group with materials to help educate your community about giving students a kinder way to learn about animal anatomy!

ANIMALEARNIN' AT THE LIBRARY

When I was a grassroots activist, I found library displays to be a successful way to educate the community about animal issues, especially if you are apprehensive about being in the public eye. Animalearn can suggest a number of books for your display and provide you with visuals such as fact sheets or posters to make your display more eye-catching. If the library is not open to showcasing a display, you can always offer to donate animal-friendly books to the library.

LEGISLATIVELY SPEAKING FOR ANIMALS

Many Animalearn supporters have made their voices heard by reaching out to their municipal or state legislators, asking them to sponsor dissection choice initiatives. Currently there are 15 states that have student choice laws and/or informal policies. If you are interested in working to establish a student choice policy in your state, I urge you to contact your legislators today! To find your legislator and how to contact him/her, go to www.aavs.org/legislators. And don't forget, AAVS can help!

OPINE FOR THE ANIMALS

If you follow your community newspaper and are upset about a local school that is highlighting its dissection lab, take this opportunity to educate your community about doing dissection with a digital scalpel. This is yet another great way to make your opinion heard and to give people in your community food for thought. You can use the Talking Points below to incorporate in your letter.

SHOWCASE A KIND MESSAGE

Another way to let the world know that you care about animals used in education is by purchasing message gear. I can't tell you how many times I have been stopped during my commute to work by people who are curious about the message on my tote bag, which says, "Who would you pet? Who would you dissect?" with snapshots of two different kittens and The Science Bank logo. If you are like me and want to showcase a compassionate message either on your sleeve, your mug, or tote bag, check out Animalearn's offerings at www.zazzle.com/animalearn. **AV**

Nicole Green is the Associate Director of Education for AAVS.

ANIMALEARN TALKING POINTS

To encourage use of humane alternatives in the classroom, the following talking points can be used when you contribute to an online forum, write a letter to the editor, or approach your local school district.

- **COST SAVINGS -** School districts can cut their budgets significantly if they replace animal specimens with humane dissection alternatives. A flyer with cost comparisons is available at: www.Animalearn.org/resources.
- **HUNDREDS OF ALTERNATIVES AVAILABLE -** There are a wealth of sophisticated computer software programs, DVDs, and realistic models that have been developed to meet the educational needs of students, and they are readily available and easy to use with Animalearn's free loan program, The Science Bank. Visit it at www.Animalearn.org.
- **PROFESSIONAL STUDIES PROVE EFFECTIVENESS -** Comparative studies published in research journals show that students who use alternatives perform just as well or better than students who participate in traditional dissection. To download a list of these studies, go to www.Animalearn.org/resources.
- **ENVIRONMENTAL HAZARDS -** Chemicals used to preserve dead specimens, such as formaldehyde and formalin (diluted form of formaldehyde), may be respiratory irritants, carcinogenic in humans, and environmental pollutants. Careless or irresponsible disposal of these preservatives or animal remains can contaminate water and soil and potentially harm wildlife.
- **HEALTH CONCERNS -** After animals are killed specifically for dissection purposes, they are often preserved with formaldehyde, noted for the sharp odor of its highly irritating gas. Formaldehyde is considered a probable human carcinogen. According to the U.S. Environmental Protection Agency, this chemical preservative can be linked to cancers of the throat, lungs, and nasal passages, especially with prolonged exposure. This raises concerns about the health of teachers who use preserved specimens in class after class, year after year. Even short-term exposure to formaldehyde can produce a harmful effect on the eyes, skin, and lungs, including bronchitis, and asthma attacks. Children may be more susceptible to the respiratory effects of formaldehyde than adults, according to the Agency for Toxic Substances and Disease Registry (ATSDR).
- **BIOLOGY SHOULD BE THE STUDY OF LIFE -** Biology is the study of living organisms and should teach respect for life, not devalue it by treating animals as disposable objects. It is a superior learning experience for students to study biology in a humane manner without having to dissect animals.

AAVS Action
MAKING A DIFFERENCE FOR ANIMALS

TAKE THE LEAP!
Go Cruelty-Free

This year marks the 15th anniversary of the Leaping Bunny Program, the only cruelty-free certification program that consumers can truly trust for finding compassionate cosmetic and household product companies that do not test on animals. In recognition of this milestone, Leaping Bunny has stepped up its Take the Leap to Cruelty-Free Products campaign, which aims to gather 100,000 pledges to go cruelty-free by November 19. The hope of this project is not only to empower consumers but also to demonstrate the public's desire for compassionate products.

A 100,000-consumer-strong stand certainly sends a powerful message to product companies, government officials who drive regulations and laws, industry insiders, and the media. Already, over 13,000 compassionate shoppers have pledged to Take the Leap to Cruelty-Free Products, and the number increases every day. Be a voice for the animals, and pledge to go cruelty-free! Visit www.LeapingBunnyPledge.org.

Leaping Bunny Growth

As the Chair of the Leaping Bunny Program since 2007, AAVS takes great pride in the growth that has occurred over the past three years, and 2010 is perhaps our best year to date. Nearly 50 compassionate companies were certified as cruelty-free last year, a nearly 15% increase. Nine Leaping Bunny companies are also partners of the Program, and donate a portion of their proceeds to Leaping Bunny.

We're also very pleased that the Leaping Bunny label is continuing to be recognized for its reliability and integrity. Previously, Leaping Bunny was highlighted in *Mother Jones* and *E Magazine*, and last year, *Natural Solutions Magazine* included it among its most meaningful labels. Additionally, last year Leaping Bunny launched its own Android app (the iPhone app appeared in 2009), and we hope to unveil a Blackberry app this year.

To learn more about the Leaping Bunny Program, please visit us online at www.LeapingBunny.org.

Animalearn Report Highlighted in Science Journal

In 2009, Animalearn released "Dying to Learn: Exposing the supply and use of dogs and cats in higher education," which revealed that colleges and universities are obtaining companion animals from inhumane sources, and also discussed alternatives to their use. Since then, Animalearn's report has been highlighted in several arenas across the country, and was presented at the 7th World Congress on Alternatives and Animal Use in the Life Sciences in Rome.

Most recently, a condensed version of "Dying to Learn" was published in the peer-reviewed alternatives journal, *ALTEX*, which is co-produced by the Center for Alternatives to Animal Testing at Johns Hopkins University. The article included a list of universities that use dogs and cats for education, as well as whether they obtain them from animal dealers, pounds, or other sources. Animalearn also made recommendations on how to replace the harmful use of dogs and cats in higher education.

Universities are encouraged to create curricula that use alternatives to dogs and cats, as well as to establish educational programs that are beneficial to animals. Training educators on how to locate and properly implement alternatives is also important. Additionally, Animalearn advises universities to develop policies that promote humane practices, such as student choice initiatives and prohibition of random source Class B dealers to acquire animals.

PHOTOS BY ISTOCKPHOTO (THIS PAGE) AND COURTESY OF MINDY'S MEMORY (OPPOSITE)

ARDF Continues Leadership

Since its establishment over 15 years ago, the Alternatives Research & Development Foundation (ARDF) has been a leader in the promotion of alternatives development, validation, and adoption. As part of this effort, ARDF has not only given out $2 million in grants to researchers developing and using alternatives, it has also established the William and Eleanor Cave Award. Named in honor of former AAVS President William Cave and his wife, Eleanor, both of whom devoted much of their time to pushing alternatives to the forefront, the Award recognizes excellence in the ever-growing field of alternatives.

In 2010, the recipient of the William and Eleanor Cave Award was *ATLA*, Alternatives To Laboratory Animals, a peer-reviewed journal specializing in methods promoting the 3Rs (replacement, reduction, and refinement) in animal experimentation. To honor the publication's extraordinary influence on the development of the field of alternatives in the U.S. and worldwide, the Award was presented to *ATLA* editor Michael Balls at the 2010 In Vitro Alternatives Form in Washington, DC. ARDF was a sponsor of the Forum, which focused on the important challenges facing scientists today as outlined in the National Academy of the Sciences' report, "Toxicity Testing in the 21st Century: a Vision and Strategy."

Additionally, ARDF President Sue Leary was asked to participate in the ILSI Health and Environmental Sciences Institute (HESI) workshop, "RISK21: Realizing the Future of Risk Assessment." The conference was an interactive forum for sharing feedback, ideas, and concerns regarding various aspects of chemical testing, and involved government, academia, industry, and non-profit groups. Ms. Leary presented ARDF's perspective on moving away from animal use to implementing non-animal methods of investigation, and is expected to provide feedback for the HESI Risk Assessment Steering Team.

One of the Magnificent Eight sees his new home at Mindy's.

Rescued Animals Benefit from AAVS Support

Part of AAVS's mission to end the use of animals in research, testing, and education is our support of sanctuaries that give haven to animals rescued from laboratories and other abusive situations. Since the early 1980s, AAVS has awarded grants to sanctuaries that provide a safe place for animals to heal and live in peace. In 2006, AAVS formalized its grant program by establishing the Tina Nelson Sanctuary Fund, named in memory of AAVS's Executive Director from 1995-2005.

As perhaps AAVS's most rewarding program for donors, the Sanctuary Fund positively and directly impacts the lives of animals in need, and, to date, over $750,000 has been awarded to worthy sanctuaries. AAVS is pleased to announce the sanctuaries receiving grants from the Fund in 2010.

CHIMPANZEE SANCTUARY NORTHWEST

Home for seven chimpanzees who were used primarily in hepatitis research and as breeders, Chimpanzee Sanctuary Northwest was established in 2008. Today, each of these chimps has a vibrant and unique personality, whether it's Foxy who loves troll dolls or Missy who can't get enough frozen bananas.

JUNGLE FRIENDS PRIMATE SANCTUARY

Ever expanding, this year Jungle Friends took in 10 special needs monkeys who were released from a lab, as well as 25 capuchins from a closed sanctuary. They join over 100 other new world monkeys who were rescued from abuse, the pet trade, and research.

MINDY'S MEMORY PRIMATE SANCTUARY

Now home to 100 primates, Mindy's worked to meet the needs of several animals last year, including eight macaques, known as the Magnificent Eight, who were released from a New Jersey lab.

RYERSS FARM FOR AGED EQUINES

Though many people are not aware, horses are used in research and drug production. In addition to abused and retired horses, many others–including Stanley and Ralph, who were used to make anti-venom, and several foals rescued from the Premarin industry–have called Ryerss Farm home.

Giving

SUPPORT THE AAVS MISSION

Sampling of some of the humane science materials available through The Science Bank.

Compassionate Education

ALL SCHOOL STUDENTS, from kindergarten through college, should have a choice when it comes to dissection. Offering over 450 humane education products, The Science Bank is the country's largest free lending library of dissection alternatives, which includes DVDs, CD-ROMS, models, and realistic manikins. Animalearn staff process hundreds of requests from all over the United States and even internationally. You can help expand The Science Bank and ensure that materials are available to all compassionate students by designating a special gift for Humane Science Education using the enclosed envelope. You may also donate securely online at www.aavs.org/donate.

For information on planned giving, leadership gifts, recurring gifts, or other support, contact Chris Derer, Director of Development & Member Services, at cderer@aavs.org or 800-SAY-AAVS. When including AAVS in your estate plans or sending a donation, please use our legal title and office address: American Anti-Vivisection Society, 801 Old York Road, Suite 204, Jenkintown, PA 19046-1611. EIN: 23-0341990. AAVS is a not for profit 501(c)(3) organization to which contributions are 100% tax deductible under federal and state law.

TRIBUTES

HONORING LOVED ONES

In memory of Jane E. Donahue.
Joseph and Ethel Donahue
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Faria and James Dretler
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In memory of my brother, Dirk C. Kellogg, and his dog, Riley. Dirk—Riley led a good life; I know he is free of pain, and you guys are walking together and happy again. I miss you both so much that my heart hurts. I love you so much!
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In memory of Mercy and Grace, two of Nora's beautiful daughters who were FeLV+ and have gone to join their "mama-bear" in heaven this year.
Alana Willroth
Saint Paul, MN

You can honor or memorialize a companion animal or animal lover by making a donation in his or her name. Gifts of any amount are greatly appreciated. A tribute accompanied by a gift of $50.00 or more will be published in the *AV Magazine*. At your request, we will also notify the family of the individual you have remembered. All donations are used to continue AAVS's mission of ending the use of animals in biomedical research, product testing, and education.

Members' Corner

I HAVE MOSTLY FOND RECOLLECTIONS OF 1983-1984, my ninth grade year as a Pennsylvania public school pupil. I had long fancied myself a bit of a class clown, which wasn't always in my best interest, as trips to the dean's office will attest. While my attendance was excellent, there was one class I would rather have cut—biology. The course started off well enough, with basic textbook studies and quizzes. Unfortunately, the dread of dissecting "specimens" loomed darkly all year. No one objected when the time came…what choice did we have?

To be fair, the course instructor, Mr. Richardson, was one of my all-time favorite teachers. His hip demeanor and great sense of humor translated into a very engaging and effective teaching style. Mr. Richardson was notorious for awarding "half zeros" to students who answered questions incorrectly, failed to participate, or misbehaved; I racked up my fair share throughout the year. My goofing off aside, Mr. Richardson did inspire a genuine interest in learning.

We were partnered in pairs during the lab portion of the class; my buddy Brett and I took turns slicing up animals sacrificed for our education. While I can vividly recall the animals we dissected—earthworm, crayfish, frog, and pig—I can't say that I remember anything of value from those experiences. Unlike the lessons and principles learned in other classes, dissection did not impart any sort of long-term, practical knowledge applicable to everyday life. One thing I'll never forget is the overwhelming stench of formaldehyde, and neither will one of my fellow students; after the first specimen jars were opened to release that noxious odor, she fainted and fell over backwards in her chair.

On a more positive note, that same year our class went on a field trip to Washington, DC, where we toured many of the amazing historical institutions in our nation's capital. Walking through the Smithsonian National Air and Space Museum and the Museum of Natural History left far more indelible impressions than anything I'd done involving a scalpel.

Following the enactment of similar legislation in Florida and California, in 1992 a student choice law was passed in Pennsylvania. Although this came too late to help me and my junior high classmates, thankfully since then, many students have had a choice regarding dissection. I wish I had access to the resources of Animalearn and The Science Bank back in the day; every once in a while, I tool around with frog models here in the office. You're never too old to learn!

So to all you kids in school, I say it's okay to be a cutup…just not in biology.

Chris Derer, Director of Membership & Development

While I can vividly recall the animals we dissected–earthworm, crayfish, frog, and pig–I can't say that I remember anything of value from those experiences.

PHOTOS BY ISTOCKPHOTO AND VEER

Resource Guide

As the #1 resource for humane education, Animalearn has a plethora of fun learning activities and teaching tools, covering all education levels, and most are available online at Animalearn.org.

THE SCIENCE BANK
The largest lending library of humane science products in the U.S., The Science Bank has over 450 CD-ROMs, models, videos, and manikins—all available for free. From the Crayfish Model Activity Set to the 3D technology of FrogLab to Sniffy the Virtual Rat to spay and neutering manikins, The Science Bank has it all.

"DYING TO LEARN: EXPOSING THE SUPPLY AND USE OF DOGS AND CATS IN HIGHER EDUCATION"
Documents the hidden practices of universities that obtain animals from random source class B dealers, which sell former pets to education facilities where they are used, and often killed, for dissection and live surgeries in teaching laboratories. Includes alternatives to animal use, shelter medicine programs, and sample school policies.

HUMANE SCIENCE EDUCATION:
MAKING THE GRADE
AV Magazine Winter 2006
Alternatives to animal use gain wide acceptance because they are effective.

REACHING FOR THE FUTURE:
THE EVOLUTION OF HUMANE SCIENCE EDUCATION
AV Magazine Fall 2002
A look at humane science in the classroom at all levels of education from experts in the field.

ANIMAL PROFILES
Includes fact sheets on five of the most commonly dissected animals (cat, rat, pig, earthworm, crayfish). Geared towards younger students, the profiles help to foster better appreciation and respect for these animals before they are faced with dissection in higher grades.

VIDEO TOUR OF THE SCIENCE BANK
Join Dr. Sara Busch, DVM, as she walks you through The Science Bank's latest humane teaching tools for veterinary education.

COST COMPARISON
Demonstrates the cost effectiveness of dissection alternatives.

COMPARATIVE STUDIES OF STUDENT PERFORMANCE
Lists 28 scientific studies demonstrating that students trained using humane teaching methods perform as well as those trained by harming animals.

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