

ZOOLOGY TEAMS



IN ACTION

Using Animals to Initiate Scientific Inquiry

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ABSTRACT: The benefits of using animals in the science classroom have been discussed, debated and written about for some time. Using animals as initiators of inquiry-based science and managing the welfare of the animals by creating student-run “Zoology Teams” is addressed in this article. *This article promotes National Science Education Content Standards A, C, and F, and Iowa Teaching Standards 1, 2, 3, 4 and 8.*

Animals stop me in my tracks. Even as a young child I would stop whatever I was doing to squat down and observe any creature that hopped, wiggled, crawled, flew, slithered, or limped across my path. Physiologically, my whole body changes when I encounter an animal. My attention automatically focuses, my breathing stills, my voice drops to a quiet

whisper and I stop moving. I alert anyone nearby with hand signals and draw them over excitedly to share in the experience (whether or not they want to). To this day I can honestly claim to be an observer of anything that is alive, particularly animals. Not everyone responds to animals in this way, but as I grew up I found many kindred spirits, many of whom were in my science classroom.

Becoming a science teacher was right up my alley. Science allowed me to continually engage myself in animal studies. I incorporated this passion into my science curriculum and filled my classroom with as many living organisms as I could responsibly manage. This was quite an endeavor when my teaching position took me to overseas posts in Thailand and Kuwait. In those particular situations, the animals found their way to my classroom via my students or the custodial staff. Word gets around when there's an animal lover on-site. In Thailand, exotic insects, reptiles and amphibians magically appeared on my desk. Even the deserts of Kuwait delivered me a pair of entertaining hedgehogs, and a rescued rabbit from the terrible conditions of the open-air animal market near my school.

The scene continually repeated itself; an "entranced" child or adult, gently holding the animal offering, eyes shining with curiosity and intrigue, enters my classroom and a serious hush falls over the room. Usually, an entire entourage of mesmerized on-lookers follows in a processional and the news travels all over the school: "There's a blue lobster in Ms. Hudson's room!"

In every situation I was fortunate to have the support of my administrators. Not always because they were "animal observers" themselves, but because of the incredibly charged energy that radiated from my science classroom. As long as I adhered to the local district guidelines surrounding the use of classroom animals, I was allowed to choose my own course of direction. Besides, my Zoology program was a big hit with the kids and the community. Excited students arrived early to school and stayed late in order to interact with the animals and me. Sometimes parents were found drifting into my classroom on the wave of enthusiasm generated by their child. It never failed, the animals were magnets for human interest. Why not? We too are animals and, by our very nature, we are attracted to other animals.

The practice of using inquiry based science and having animals in the classroom is a natural fit. There is never a dull moment because the animals' life activities continually supply the fuel for keeping the fire of inquiry questioning going. One such example is when the question "Which mouse will Guttata (the corn snake) prefer, the pinkie or the fuzzy?"

came to me via email from an inquisitive third grade boy after I had introduced his class to my snake's eating behavior. The entire class took part in that investigation that prompted a live experiment directed by my new young herpetologist. He directed an assistant (a previously declared snake phobe) to drop two mice into opposite ends of the cage. The pinkie (hairless newborn) was set on the left side and the fuzzy (slightly older newborn with fuzz) on the right side. After approximately 10 minutes of intense silent observation, my snake ate the pinkie first, then swallowed and ate the fuzzy!

Following the experiment, a lively conversation ensued. Its focus: The control of the variables surrounding the conditions of the experiment was faulty. "The snake was distracted because someone was moving the table!" "We didn't get any answer because she ate BOTH of the mice!" "This isn't enough information, we need to repeat the experiment!" Was this an example of the beginnings of inquiry? According to the NSTA standards it is:

NSTA supports including live animals as part of instruction in the K-12 science classroom because observing and working with animals firsthand can spark students' interest in science as well as a general respect for life while reinforcing key concepts as outlined in the NSES (NSTA, 2005).

Other questions that have sprung like leafhoppers from my students when using animals in the classroom are:

- ▶▶ "Does the tarantula ever burrow into sand or only the soil?"
- ▶▶ "What would happen if we fed the crayfish only vegetables and no meat?"
- ▶▶ "Do mealworms always go to the light or to the warmth the light provides?"

I never have to dig for students' curiosity because even the non-animal lovers are easily hooked on the fascinating behaviors that animals exhibit. Those who are uncomfortable with animals or show little direct interest in them are at the very least engaged in the electrified atmosphere of the classroom and in their peers' excitement. I also find that non-animal lovers harbor a depth of feelings and past experiences that have influenced their relationship to

animals. These serve as powerful points of discussions that revolve around positive and negative stereotypes of animals that percolate throughout our culture.

Evolution of a Zoology Team: The practical workload and time commitment

Often I am met with hesitance and skepticism from teachers who fear the time and expense of caring for animals in their classroom. These teachers may be well aware of the educational benefits for students and the ease with which inquiry-based science can be implemented, but they question their ability to commit to the perceived workload and expense. Their fears are legitimate. Animals need much care in order to thrive, and money must be allocated for food, equipment, and veterinarian attention. Limited science budgets barely supply the basics for often-neglected science programs, so how can additional animals be brought into the budget?

Teachers should not have to invest their own money to care for animals that are used to support instructional inquiry. The column on the right provides some resources for supporting animals in the science classroom. With the increased sensitivity to animal rights, do be prepared to make clear how animals are being used in a humane way that supports student learning.

Having experienced the frustration of acquiring resources to support the use of animals in the classroom, I developed a model “Zoology Team” based on a program by Sam S. Chattin in Scottsburg, Indiana (Chattin, 2006). I had learned about Chattin’s successful middle school program while completing my graduate degree and I was so impressed by his results that I ventured out on my own. Sam created the A.R.K. Project “Animals Rehabilitating Kids” program in which his students ran and managed a rescue and rehabilitation facility for wild animals. These students worked directly with the wild animals and took complete responsibility for their care. In fact, the management and care of the animals was the focus of the science program at his school. A scaled down version of Chattin’s model is what I molded into the Zoology Team.

The Zoology Team Model

The Zoology Team approach centers on a group of 8-10 students who are educated to care for classroom animals and educate others about the animals’ natural history and ecological significance. Students must apply for a position on the Zoology Team by filling out an application, having an interview with their teacher and providing at least one recommendation from an adult that has worked with them before. A parental permission form and a release of responsibility from injury form, developed with the aid of an administrator, must be completed and is included in the application materials.

These are the only requirements for acceptance. Students did not have to have high grades, or be “gifted” athletes or performers. Popularity and or physical beauty did not win a student a position on the Zoology Team. Commitment to animals and the desire to learn more about them is the primary motivator. As a result of these criteria, the teams that I worked with over the

Supporting Animals In the Classroom

Zoology Community Night

Plan an evening event where students in teams make short presentations regarding how the animals support learning in science. Have student teams lead activities for parents and other community members who attend. Use this event to raise donations for animal care.

Bottle Drive Deposit Boxes

Establish sites where community members may donate redeemable containers. At those sites make clear how the money raised will be used to support inquiry and learning in the science classroom.

Local Animal Groups

Approach local groups such as your Audubon Society chapter and ask for support in caring for animals and using them in appropriate ways to .

Wish List

Feature a specific wish list in a School Newsletter or Website asking for a donation of needed supplies for animals’ care.

years were a heterogeneous bunch of delightful characters. Athletes, scholars, as well as detention “regulars” filled out applications. Oftentimes special education students radiated toward the position, as did troubled kids who could relate to the classroom animals more easily than their peers and teachers. Research has noted that the relationship is beneficial for these specific students:

“There is even evidence that the mere presence of animals alters a child's attitudes toward him- or herself and improves the ability to relate to others” (Rud & Beck, 2000).

“There is accumulating evidence that children and teenagers with emotional disorders are positively helped by psychological and physical contact with animals (Orlans, 1979).”

When a student needs to be at school to take care of animals that may die without their attention, the student shows up. It was often the stereotypically most “unreliable” individual who was my most responsible Zoology Team member.



Applicants understand that a number of commitments must be met if they become a member of the Zoology team. They will need to satisfactorily complete training that focuses on proper animal care and safety (for the animal and the caregiver). They will have to take care of their assigned animals during agreed upon duty shifts. These shifts may be scheduled before or after school, during lunch or recess. A summer responsibility shift is also required in which the student is expected to take home one animal or come to school and care for the animals during scheduled school breaks. Zoology team members' work must be done carefully and completely because an animal's life and health depends on team members providing appropriate care. Each member is expected to research an animal of interest and become an “expert” on its natural history. A research presentation must be developed and shared with a school and/or community audience. All members are also committed to one of the various fundraising projects that occur during the year.

Upon acceptance to the Zoology Team, the new student members are first thoroughly trained by the teacher and then supervised and given ongoing training by existing team members. After being on the team for a semester and observing and assisting during educational presentations, new Zoology Team members begin leading their own presentations. Public speaking skills and presentation development skills rapidly develop.

Self-assessment skills are developed as each new member learns new procedures for taking care of and handling the animals. The students must learn how to troubleshoot and solve problems individually and as part of a team working with others because times exist when the teacher is not present to take care of such matters. The team meets weekly to discuss the week's schedule, any problems that may have occurred, any conflicts among the team, and to order new supplies. These meetings may or may not be attended by the teacher.

Benefits Abound

Being on the Zoology Team is and should be considered an honor. These students are given special privileges for the responsibilities they carry. Their gradual expertise becomes the hallmark of their reputations. A number of my Zoology Team students have even gone on to careers in the animal sciences or other science areas.

Zoology Team members also support a better science education for their peers. Many biology teachers feel they do not have the time to sustain an inquiry-oriented biology program (Costenson and Lawson, 1986), and the Zoology Team relieves teachers of many time-consuming tasks related to using animals in the classroom.

Animals can trigger a powerful sense of curiosity in some students and stewardship in others. They are also natural initiators of inquiry-based science. With the right support model in place like the Zoology Team, teachers can find themselves providing quality science education experiences, satisfying their responsibilities to the national standards and benchmarks, and fueling their own passion for animal studies.

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