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Is the Stink of Death Worth It?

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Abstract

This is a commentary to the case narrative, "Baby Shark, Doo Doo Doo Doo Doo Doo Doo" written by Austin David Heil and Aarum Youn-Heil.

When my daughter was four, we took her to the beach where we would take daily walks up and down the coastline. As with any trip to the beach, waves would occasionally wash up and deposit a lifeless fish or other sea creature on the shore. I remember one day while walking with her we found a dead crab and she was fascinated! "Why did it die?" she asked. Then she began to poke at it to see what was "inside." She was hooked. When she enrolled in college some 14 years later, she became a biology major.

Opportunities to observe animals, living, dead, or virtually, have the potential to engage and excite students in unparalleled ways. Curious students, like my daughter, <u>can explore</u> the structure and function of organisms and discover an appreciation for the complexity of life. While the National Science Teaching Association's Position Statement on the Responsible Use of Live Animals and Dissection in the Classroom (NSTA, <u>2008</u>) doesn't specifically address the use of preserved specimens <u>for observation</u>, it does recognize that providing students the opportunity to interact with organisms gives them the opportunity to build observation skills, appreciate the complexity of life, <u>and explore</u> the structures and processes of various organisms. A systems approach to how the body works to carry out life's functions can be explored as students observe the arrangement and organization of an organism's external anatomy. In the case presented here, comparative anatomy can <u>inspire curiosity</u> and engage students in the practice <u>of</u> <u>asking questions</u> based on scientific observations.

Both NSTA (2008) and the National Association of Biology Teachers (NABT, 2019) have position statements that address live animals in the classroom and dissection but neither makes recommendations for the use of preserved specimens for other activities, such as the one highlighted in this case. However, both do offer some guidelines that apply to this case. Among these guidelines are making sure that activities are well prepared and appropriate for the age and maturity level of students. Additionally, it is recommended that preserved specimens should ALWAYS be obtained from reputable resources; either reliable scientific supply

companies or FDA-inspected facilities. Finally, <u>appropriate safety</u> guidelines must be in place such as goggles, gloves, adequate ventilation, and <u>proper supervision</u>. Specific learning outcomes should be clear, and there should be an emphasis on fostering respect for living organisms and all we can learn from them, whether in their natural habitat or in the lab.

Because Austin was an informal science educator working at a research facility, the sharks would have been collected using processes approved by the institution's Animal Care and Use Committee for scientific research. Therefore, Austin has taken care to use appropriately obtained specimens. Further reading of the case shows that he has specific learning goals related to comparative anatomy, with an instructional focus on the crosscutting concept of structure and function guiding the lesson. Austin followed all safety guidelines for his students and returned the sharks to the researchers after the activity.

However, in activities involving the use of live animals or preserved specimens with young children, there are some additional considerations. Austin was caught off-guard by the reactions of some students when they were presented with the opportunity to observe preserved sharks. The age and maturity of the students may have accounted for their response, catching Austin by surprise. In this regard, it is important to prepare children for experiences with living or dead organisms in advance. Finally, as is recommended

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for dissection activities, it is always a good idea to offer alternatives for those students who object to or are not mature enough for studying preserved animals.

Were the third graders in this case mature enough to handle preserved specimens and issues related to life and death? While students' maturity level can be difficult to judge, it is important for teachers to tailor activities to the maturity level of the students when planning instructional activities involving preserved animals. The reaction from Willow and Max indicates that they associate sharks with a lovable character from one of their favorite movies, and they appear to be upset by seeing the dead sharks lined up for investigation on the lab table. Evan's response, equating the lifeless sharks to the fish his father throws back into the water, indicates he understands that living things die, but his comments may be counterproductive to fostering the respect for living organisms necessary to the activity. This wide range of student responses can result in confusion for students at this age or work against the learning goals of the activity. As a summer camp educator, Austin probably has experience with students of all ages and likely understands child development; however, he may not have enough history with this group of students to assume that they will all engage equally in the experience or have the maturity to be appropriately respectful throughout the activity.

If teachers determine that their students have the necessary maturity for a lesson involving preserved organisms, they should prepare them for "the stink of death" before the activity. Preserved specimens may literally stink from formalin, and students of any age may have an aversion to the chemical smell. Perhaps this could have been an outside activity. In this case, Austin had intentions of excitement with the element of surprise, but that may have caught some students off-guard and unprepared. Considering the young age of children in this case, it is especially important to provide them with an orientation to the activity prior to being shown the shark specimens. A discussion with students could center around the purpose of the activity and the real-world applications for what scientists can learn from observing structural anatomy. Students need opportunities to express their concerns or work through potential repulsion in advance. Since this is likely the first experience these children have with preserved specimens, Austin may want to explain the purpose of the safety precautions he has put in place. If time permits, children should have opportunities to ask questions and discuss any concerns in advance. More than likely, the third graders in this case would be interested in learning about how these sharks were obtained and when using them is (and is not) appropriate. This kind of discussion can foster consideration and respect for living organisms.

Such a conversation could also address the final and most important concern for this experience: the option for students to participate in an alternative activity. Ava's response suggests that she sees these animals as cuddly, living organisms that have been unjustly slaughtered. Ava is expressing an objection to using dead animals for learning with her age-appropriate language. Additionally, some students may even be from vegetarian or vegan families who believe that killing animals for their own benefit is cruel and harmful. It is likely that, for many children, this was their first encounter with preserved specimens of any kind. Thus, the reactions of some students when presented with shark specimens are understandable.

Since Austin used the sharks in the context of a (voluntary) summer camp, parents likely chose to sign their students up for a program that involved deep-sea shark specimen observation. However, in a traditional classroom setting, a teacher should provide an alternative activity for students who are not ready or willing to investigate with dead animals. Although the position statements of both NSTA and NABT recommend alternatives be offered for dissection only, teachers should consider the appropriateness of an alternative for this activity as well, given the age of the students. While many deep-sea sharks are not able to be housed in typical aquariums and are seldom caught on film, there are other opportunities for observing most animals. Observing such beautiful creatures while living (in the aquarium or on video) can yield an understanding of differences in anatomy and behavior. Are the adults all the same size? Do they all move the same way when swimming? Do they have the same fins in the same places? What does the eye placement tell you about them as predators? What else can students learn about various sharks from watching them in their natural habitat?

Austin's enthusiasm and dedication is admirable. It is important for informal educators like Austin, as well as classroom teachers, to consider a wide range of developmentally appropriate factors before presenting students with preserved animals to study in any type of investigation. Student age and maturity is definitely an important consideration in this case, and students must be adequately prepared for genuine learning to occur. With the considerations discussed above in mind, teachers can design the best learning experience for their young students to meet learning goals, with or without using preserved specimens.

References

National Science Teaching Association. (2008). Responsible use of live animals and dissection in the science classroom. https://sta tic.nsta.org/pdfs/PositionStatement_LiveAnimalsAndDissection.pdf

National Association of Biology Teachers. (2019). Position statements. https://nabt.org/Position-Statements-The-Use-of-Animals-in -Biology-Education

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