Teaching Philosophy

Although I never actively disliked science as a child, it was not until high school that my fascination with the subject bloomed. Biology, chemistry, and physics broke the world around me down into tiny interconnected pieces, like a huge mosaic that I had never been able to see up close. This passion for science is why I teach; I want for every student to have that eye-opening moment I had in my freshman biology class.

My objectives as a teacher are numerous, but I think the most important take away from a students' scientific education should be the ability to use the scientific method to solve real-world problems. In addition to building strong science process skills, I also believe that scientific literacy is an essential skill. Without strong content-area vocabulary and reading comprehension skills, our students go out into the world reliant on others to read and interpret scientific literature for them, getting their knowledge in simplified and possibly biased forms. Therefore, I think that regular practice reading and decoding scientific literature, as well as practice writing and speaking with proper terminology, is vital to creating a more scientifically literate society.

Beyond my hope that my students will learn and do well academically in my class, I have several aspirations for them as they continue with their lives. Firstly, I hope that they learn to not shut down their own questions, doubts, and curiosities about the world. With the skills gained in my science classroom, they should instead feel comfortable seeking answers for themselves. Secondly, I hope that students learn not to fear failure, and recognize that being wrong is just a stepping stone to learning, not a mark of unintelligence. Failure, and perseverance in the face of it, is essential to the scientific method.

Fostering the kind of environment which supports these goals requires me to consider the way I conduct my classroom and myself. Firstly, for me to preach about the value of science, data collection, and analysis but not apply these principles to my own teaching would not only be hypocritical but detrimental to my practice. I firmly believe that frequent formative assessment is key to understanding where my students are and what I can best do to help them be successful. This means tracking student scores and performing item analysis on in-class assignments, homework, and pre- and post-assessments to identify areas of weakness and implement appropriate intervention strategies before students fall behind. I also believe that if I expect my students to continue lifelong learning, I must hold myself to the same standard and pursue continual professional development. This includes attending training and conferences, participating in professional learning communities, and using student performance data to reflect on and improve my practice. Finally, I believe that time spent doing lab and inquiry-based activities should not be strictly relegated to the development of scientific process skills, but should be a primary instruction tool, used to teach and reinforce new information in addition to practicing vital scientific skills like collecting and analyzing data.

As educators, we have a lot of debates about what the role of public education is and what “preparing” our students for life after high school translates to in practice. In my opinion, science education should not merely broaden students' understanding of the natural world, but also give them a concrete and highly transferrable skillset when it comes to problem-solving. This, in essence, is my philosophy of teaching: I teach to create a generation of scientists, whether their work is in cancer research, finding the perfect banana bread recipe, or simply doing their due diligence in researching chemical interactions before attempting a drug-store

dye-job. Lackluster science education breeds complacent and uninquisitive adults, and complacency holds our society back from discovery and innovation.