

We learn by doing. As active participants engaged in worthwhile hands-on, minds-on experiences, we construct our own meaningful understandings. At all developmental levels, in order to grow and mature emotionally, intellectually, and socially, students need a safe, caring, and stimulating environment. Students benefit from working together in a respectful, kind, democratic learning community asking and answering questions and thinking critically to solve problems. It is my privilege and responsibility to nurture rapport and a relationship with each student so she can meet her fullest potential. I need to meet each student where he is and together we can build from there. I need to affirm students' efforts, progress, and thought processes. It is my responsibility to help students better understand themselves and others and progress towards more sophisticated understandings and advanced skills. Students need to be effective thinkers and lifelong learners. I am committed to fueling a love of learning.

There are many elements integral to creating a stimulating student-centered inquiry-oriented environment. A certain amount of cacophony and messiness is inevitable, but in this lively environment kids are taking responsibility for their own learning and are actively engaged. To orchestrate purposeful learning requires careful preparation. Worthwhile discussions result from encouraging students' inquisitiveness, asking probing questions and then listening carefully to students' responses. These conversations require students to rely on their scientific reasoning and clearly communicate their thinking. I am mindful that how we talk helps us to make sense of learning and ourselves. To be the "guide on the side" rather than the "sage on the side" demands that I be as knowledgeable as possible about how students learn and the concepts I am teaching. I am constantly amazed by the questions kids ask and how they cause me to think, really think. Through careful preparation, I am better able to be flexible and responsive to those "teachable moments."

Undeniably, when students are happy, comfortable, and content, they are open to learning. Whereas, when students feel dissatisfied, disinterested, or negative, learning is blocked. Emotional intelligence (mood of each child, each day) is a significant aspect of learning. Emotional attributes for success in school and life are self-awareness, appropriate mood management, goal motivation, empathy with others' feelings and respectful, mature interpersonal relationships. I am committed to nurturing each student's confidence, curiosity, self-control, ability to cooperate, and facility to communicate. Therefore, my colleagues and I organize cooperative learning experiences and invite students to self-assess. These purposefully directed social interactions help students to learn how to work well together and science. Positive attitudes need to permeate our dynamics. Additionally, I think a healthy dose of laughter is a key ingredient in the classroom. Sometimes we laugh at kids being kids or a silly pun. Other times, I laugh at myself.

As an elementary science lab teacher at Saint Anne's and as a Visiting Professor of at Adelphi University Ruth S. Ammon School of Education, I perceive science as a way of doing. Science is basically asking questions and then working to find answers and often ending up with new questions to pursue. The nature of inquiry and the enterprise of science involve

methodically and logically investigating. Yet, they also demand imagination and creativity. Important scientific attitudes including desiring knowledge, respecting reason, relying on data, being honest, persevering, and being curious. Coupled with these inherent values are indispensable skills: hypothesizing, observing, predicting, manipulating and controlling variables, measuring, gathering, organizing and analyzing data, rethinking, generating new questions, concluding, communicating results, and solving problems. So that's what we should be doing in our classrooms.

Science is a body of knowledge economically organized into general concepts, principles and theories. So that's what we should be learning. Learning needs to be clear, compelling and challenging. BIG scientific concepts such as systems, order and organization, evidence, models and explanation, change, constancy and measurement, magnitude and scales, evolution, equilibrium and stability, patterns of change, optimization, diversity and variation, and structure and function provide unifying paradigms. A conceptual approach brings coherence to information and experience, ensures more sophisticated comprehension and longer retention. Science is a rich history of human enterprise full of interesting stories. Science, math and technology are closely connected. Science plays out in social and personal perspectives and in our lives. The heart of science is inquiry. Science seeks the simplest, most understandable explanations. In science, students are reading and writing to learn. Science is exciting. I want students, both elementary and collegiate to value and feel all that. Our world demands scientifically literate citizens.

The 7E cycle and instructional model promotes students actively constructing their scientific conceptual understandings and further developing skills. Specifically, the stages are Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend. Eliciting prior knowledge is critical to ascertain misconceptions and build on what they already know. Engagement ensues. Interest is sparked and a need to know is created. The next phase is Exploration. In this stage, children ask questions or experiment to answer a question. Students utilize their process inquiry skills. Often students collaborate in groups. Naturally, the learning cycle progresses to Explanation. Here, the focus is to develop scientific conceptual understandings. As teacher, I try to guide the discussions so the scientists develop more sophisticated understandings of theories, generalizations, relevant vocabulary. I want us to think things through together. We work to answer the question or questions from the Explore phase. Throughout the learning cycle, the teacher needs to be cognizant of using multimodal approaches accommodating individual's different strengths and needs and closely listening to how students think. Incorporating instructional technology helps many students. Animated and interactive websites promote students understandings of processes, cycles, systems and interrelated parts. Smart board notebook is an excellent way to augment learning.

To ensure transfer of Learning we Elaborate. We have to apply our knowledge in some way. It could be connecting what we just learned with something else we've previously discussed. It could be to place our new learning in the context of one of the BIG IDEAS in science, integrating math with technology or connecting with real life application. Extend is key to the transfer of learning too. Here the challenge is to apply the new knowledge to a new context. Sometimes there is choice for the students of the products they can use to communicate and apply their learning. Evaluation is identified as the last E, yet evaluation is occurring

throughout the learning cycle. Responding to kids' questions and observing their interactions during Explore, Explain, and Expand phases provides many opportunities to check for understanding. The 7E learning cycle isn't linear as authentic evaluation is ongoing and embedded, both formative and summative. Scientific inquiry involves the construction of knowledge via engagement in worthwhile learning.

Naturally, my philosophy of learning and educating has evolved through experience. Primarily, my students, elementary, middle school and college, have taught me what matters most, what works and what does not. The adage, "When one teaches, two learn," rings true. As an adjunct Professor and currently a Visiting Professor at Adelphi University, I have grown through collegial and administrative support and my work with conscientious, enthusiastic students who want to make a difference. Philosophically, the Education School's core values: scholarship, reflective practice, social justice, inclusive community, wellness and creativity and the arts underlie our course's objectives and experiences. The synergy between teaching at Saint Anne's and Adelphi University provides countless opportunities for me to engage in reflective practice and scholarship and to grow as a learner and teacher. I am a research practitioner honing my craft committed to helping students to be creative, analytical thinkers and lifelong learners.