

## My goals as an educator are to empower students to...

- **construct their own knowledge.**

I want my students to be active sense-makers in my classroom, generating their own questions about the phenomena at hand and developing their own ways to explore them. My main role as a teacher is to stimulate their curiosity and then provide them with the freedom, space, and support to pursue their own ideas productively. For example, I recently taught an 11th grade unit centered on student sense-making of static electricity. We experimented with ways to make a rubber rod rubbed with fur attract or repel a grain of puffed rice, and then the students worked in small groups to develop their own mental models to explain the unseen processes at work. To shift the focus onto the students own ideas rather than getting the right answer, I challenged them to create their explanations without using typical vocabulary words such as charge, electricity, or energy. The result was a set of wonderfully creative and rich explanations involving clever metaphors such as happy particles or sleeping wizards and dragons. We had excellent discussions comparing their different explanations and the students were able to dig into the nuances of the phenomena in a much deeper way than simply being able to repeat a textbook explanation.

- **grapple with rich, meaningful questions.**

Paths for student inquiry need to be sufficiently rich and complex to give lots of opportunity for worthwhile intellectual struggles at a variety of levels. The questions also need to be meaningful and approachable to students, whether that comes through choosing material the students are already passionate about or connecting the topics to relevant issues in the students' lives. Guiding students on long-term, self-directed projects is a particularly effective way to do this. As students work towards their long-term goals, they are motivated to learn the skills they need to tackle the many smaller problems along the way. I have experienced this through the Destination Imagination (DI) program, a team-based creative problem-solving competition where teams choose a challenge for the year and develop a solution to present at a tournament. I spearheaded the Acera School's participation in DI, serving as team manager for three middle school teams and coordinating the whole Acera DI program. DI challenges range from engineering-based (e.g., build a device to move objects through a course) to artistically-based (e.g., write a play telling a story from three different perspectives) and are designed to encourage holistic, divergent, and innovative thinking skills. One unique feature of this program is that team members must do all the work themselves - the parents and team managers cannot provide help, ideas, or "interfere" in any way with the team's progress towards their solution. One of my middle school teams spent many hours trying lots of ineffective ways to attach two pieces of wood together before they figured out how to build a structurally sound frame, but they learned much more from the repeated failures than if I had just showed them how to do it.

- **be curious, creative, and critical.**

To become lifelong learners, students need to hone their curiosity to notice and wonder about happenings in the world around them, imagine creative and bold ideas about the things they are noticing, and reason critically to apply their own and others' ideas to understanding and improving their world. I see science class as hands-on, minds-on practice to refine these key abilities. Fundamentally, science is an organized way that we as a society create new knowledge based on our experiences, and by practicing the scientific process, students develop skills that apply more broadly to learning from experience in all walks of life.

When students have the opportunity to learn through tackling challenging problems embedded in meaningful contexts, they will be empowered to apply their minds, hands, and hearts to complex global and societal problems where no one knows the right answer yet.