



Bioengineering at Killip Elementary

4/17/2015



Aaron Tabor helps a Killip student prepare and view a slide

Aaron Tabor and **Sarah Burcher** presented on **bioengineering** during Killip's intersession to seventeen 5th grade students.

Aaron is recognized for both his strong teaching and his innovative research. He has master's degrees in pathology and in anatomy and physiology, and is currently working toward his doctorate as a

wound specialist at **Development Engineering Sciences, LLC** with **Dr. Robert Kellar**. Aaron teaches biology at both **Northern Arizona University** and **Coconino Community College**, and works with students on the Bridges to Baccalaureate program at CCC. Aaron was voted CCC's **Part-time Instructor of the Year**. You can read the full article that honors his achievements [here](#).

Aaron showed some gory pictures of wounds, that the students loved, and taught them about the role of platelets in healing wounds, and how bioengineering platelets can increase their healing power! Killip Educator Jillian Hernandez wrote this about Aaron's presentation: "The students loved having Aaron visit and present on his research and work. Aaron was incredibly engaging and welcomed all of the students questions. The students were inquisitive about the process behind creating PRP and he not only explained it clearly but brought samples for the kids to see. It was apparent that Aaron is not only passionate about what he does but that he is able to communicate about it in a way that honors young learners. Simply put, he is a teacher. He brought in microscopes and skin slides so the students could see skin cells in different situations. He also brought in sheep's blood so the students could create their own slides and look at them under a microscope. We appreciated his expertise and the hands-on approach to learning about bioengineering. One student who had to leave early the day of Aaron's presentation asked me if I had saved the presentation so he could see it. I look forward to working with Aaron again in the future!"

Sarah Burcher is a graduate student in **Dr. Kiisa Nishikawa's** lab at Northern Arizona University. She also holds the honor of being a **Science Foundation Arizona Graduate Research Fellow**. Sarah has been instrumental in developing environmental science curriculum for **STEM City** and creating a website that explores soil, water, and forestry investigations and kits that you can access [here](#). Sarah met with the students at the beginning of the intersession to give them an introduction to bioengineering. The students favorite parts of her presentation were the glow in the dark cats (of course), but were also engaged by the prosthetics, biosuits, and bioengineered bacteria. Sarah returned at the end of the week to observe the frog habitats the students designed.



Killip students design a chamber to keep a frog happy and humid

The students based their investigations on a unit from the award-winning [Engineering is Elementary](#) curricula. This unit, *Just Passing Through: Designing Model Membranes*, has students learning to think like bioengineers as they design a model membrane to mimic the properties of real membranes in live organisms. The storybook *Juan Daniel's Futbol Frog* sets the scene, as students read about a boy who engineers a membrane to keep a frog alive. Students learn how membranes function and apply their knowledge of the basic needs of living organisms to the engineering design

challenge: designing a frog habitat with a model membrane that delivers just the right amount of water.

Sarah explained: "The students were given materials such as sponges, foil, cheese cloth, and felt, and tested them by pouring water through them and seeing how it was absorbed. Then they constructed a "membrane" of the materials, with the objective of their membrane allowing some water through but not all. They poured half a cup of water on it, left it overnight, and then came back to see how it worked. They measured the flowthrough, and discussed how saturation, materials, and the order of materials can affect the design, and talked about how they could do it differently next time. They also learned about the engineering design process (finding a problem, devising a solution, testing, reevaluating) and discussed how they could apply it to everyday life."



Thank you Sarah and Aaron for your contributions to Bioengineering at Killip!