



## Cultural Solutions In Nature

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In this project, students investigated biomimicry—the quest for solutions to human problems by mimicking processes in nature—through a scientific and cultural lens. They researched existing examples of biomimicry, such as scientists learning from spider webs how to create material strong enough for bulletproof vests, and using models of bats’ echolocation in darkness to develop a “smart” cane for the visually impaired. They also researched an indigenous culture and used concepts from biomimicry to design an innovation that addressed a need within that culture. Each student created an interactive display addressing the physics concepts involved in their innovation, as well as a fable that suggested solutions to cultural sustainability issues through the use of their innovation. The fables were shared at exhibition, published in a book, and sold to raise money for people from indigenous regions around the world.

### Essential Questions

How can humans overcome problems through the use of innovations in biomimicry?  
How can biomimicry enhance the sustainability of indigenous cultures?

### Teacher Reflection

This project encouraged students to be innovative thinkers. They collaborated with adult researchers on ideas that could be used in the field of science and educated the public through television appearances and community exhibitions. The project challenged students to think from an interdisciplinary perspective and reminded us, as teachers, about the natural connections between our disciplines. The content we asked our students to master was difficult, and they rose to the occasion, developing innovations they were proud to present to the community.

—Jenny Pieratt

### Student Reflection

Now that I look back on the exhibition of our work, I see many positive things that came out of it. We worked on it in both classes and our entire team was able to work side by side to put forth a great effort. I got to talk to and meet new people at the exhibition, while sharing my fable and innovation of a skate shoe that emulates a kangaroo’s jump. I feel proud of the work I accomplished, and the exhibition was a grand success.

—David Phillips, 9<sup>th</sup> grade

To learn more about this project and others visit the HTH Digital Commons  
and Matt Leader’s and Jenny Pieratt’s digital portfolios at

<http://www.hightechhigh.org/dc/>

<http://staff.hthnc.hightechhigh.org/~mleader> and <http://staff.hthnc.hightechhigh.org/~jpieratt>

