Call Sign: Courage
Kelly Jacob, Chris Olivas, and Max Cady, 8th Grade
High Tech Middle North County

Students collaborated with the USS Midway museum to capture the stories of Naval Aviators and celebrate the 100 year anniversary of the “Wings of Gold” insignia. In humanities, students read *Unbroken* and interviewed current and retired aviators to capture their stories involving call signs and moments of courage. In science, students learned about Newton’s Laws and the forces of flight in order to build flying vehicles for the San Diego Air and Space Museum’s “Fly Your Ride” competition. Students also created a digital scratch project to showcase photos and momentos of the aviators’ experiences. This project culminated in an exhibition onboard the USS Midway Museum.

Teacher Reflection
Though the project centered around aviators, the heart of the project was looking at human experiences and the importance of telling and archiving stories. The students and aviators each created lasting impressions on each other, and having an authentic audience drove students to produce high quality portraits and stories that both students and aviators were proud to stand next to. We were proud of our students’ growth mindset in planning, designing, building, testing, and revising their vehicles for the competition at exhibition. This was a great project to apply NGSS 3 dimensional learning.

Student Reflections
My partner and I made our flying vehicle thinking it was going to work with no problem, but we were wrong. We used our original vehicle to look at the flaws and how to improve it. Then we made a second, third, and fourth draft, each time looking through every flaw. We eventually made a working vehicle and were proud that we kept working on it until we got it right. —Canon

I now have a different perspective on the people that serve our country. I saw war through their eyes, and it really made me appreciate everything that they do for our country. —Dani

To learn more visit: 8thgradehumanitiesjacob.weebly.com/call-sign-courage.
Fourth and Fifth grade students at ASCEND learned about the fragility of a local urban watershed and considered how human activities can be both destructive and restorative. This expedition drew content from science and history and learning was expressed mainly through art and writing. As a culminating task, student docents led families and other community members on a tour of the visible products of their learning. These included botanical drawings and research writing highlighting native plants found in the Sausal Creek watershed. Students reflected on their role as community members and have seen how real world problems are solved through collaboration, perseverance, and compassion.

Teacher Reflection
We realized that all the smaller process steps along the way to publishing the field guide were also essential products for students to use as launching points for their docent tours during our exposition of student learning. Aside from the final art and research for the field guide, students presented writing, reflections, and art from field trips and classroom activities. Additionally, we were pleased that students had the opportunity to educate the local community on the delicate nature of human impact on our natural environments. Students and the school community benefited by becoming advocates for responsible choices and stewardship of the environment. Ultimately, they learned that their voices truly matter and can make a difference.

Student Reflections
Everybody that saw my work was very surprised that someone as young as me had so much stuff to show and that made me realize that all of my hard work really paid off. —Dyana

I learned that people can make change for good. For example, Friends of Sausal Creek are trying to grow native plants and plant them back in Sausal Creek. —Jaime

To learn more visit http://efcps.org/our-schools/ascend/
Give Me Shelter
Sacha Casciato, Math/Science; David Visser, Humanities
Charley Jacob, Makerspace
High Tech Middle North County

In this project we discussed the issue of homelessness and poverty to encourage students to develop empathy and to see the world from different perspectives. Students took a closer look at the underlying issues of homelessness. We examined the issues of resource availability, equity, and access. We grappled with questions about over represented populations. Students took a hard look at their own biases and misconceptions and developed a better understanding through community service. Students created change with public service announcements, demonstrations holding cardboard signs with facts and statistics, and the creation and implementation of community food pantries.

Teacher Reflection
We saw a tremendous shift in our students’ thinking and perceptions about what it means to be homeless. Throughout the process it was evident that students were growing as empathetic individuals who wanted to create change in their local community. Each student worked to help the homeless population in our community gain access to much needed resources.

Student Reflections
This project was based on empathy and helped us see how the other half of the world lives, and that we can do so much to change the world if only we try.

—Emersyn

The campout made me realize that the homeless live in harsh conditions, like cold, rain, and hard places to sleep. Having to build our own shelters helped me understand because ours fell down in the middle of the night.

—Ashby

I had seen some homeless people in the park in Escondido but it was drastically different to see the camps downtown.

—Bree

To learn more visit: Mrvisser.weebly.com, Mrscasciato.weebly.com, or Charleyjacob.weebly.com
Here Now, Gone Tomorrow

A Children’s Book on Climate Change and Its Impact on Endangered Species

Created by High Tech Middle North County & High Tech Middle Chula Vista

As a collaborative project between the Chula Vista and North County campuses, students created and published a children’s book detailing their chosen endangered species challenged with the impacts of climate change. Students created a watercolor illustration of their endangered species which was included in the children’s book. Our created children’s book is now being used to help educate other students and the public, on how human impact has become problematic for our wildlife. This project was aligned with the Next Generation Science Standards.

Teacher Reflection

This was such an impactful project dealing with a very important issue, not only in our country, but worldwide. Students were able to be scientists, researchers, artists all in one through this project. To have the students create their own learning around this issue by exploring this phenomena really allowed for them to want to become activists. Also, the cross-school collaboration allowed for our schools to come together. We feel literacy is very important and we wanted to find a fun way to incorporate it in a math and science classroom. We saw students step out of their comfort zone, and we teachers did too. We had no experience using watercolors, and it was great learning experience, which we shared with our students.

Student Reflections

I feel good about helping the earth, because now I know ways to save the environment in the future. —Rishi

I didn’t know I could paint. My animal looks really cool! —Leo

The best part was seeing my book on a website. People can buy it and my name is there. —Illeana

To see or purchase the book, visit http://www.blurb.com/b/7640975-here-now-gone-tomorrow
Living North County
Carol Cabrera, Kurt Schwartz, and Julio Zuniga, 9th Grade
High Tech High North County

Students explored six different North County communities through the lenses of their different classes: Humanities, Spanish, Physics, & Math. We visited Carlsbad, Encinitas, Escondido, Oceanside, Vista, and San Marcos. Students not only visited the cities, but scheduled and conducted interviews, filmed activities that high school students engage with in these areas, created short films, designed info-graphics, and studied the culture of these various communities in depth. Ultimately, in groups of nine, students designed an eighteen box spinner that was displayed at our exhibition.

Teacher Reflection
Taking a close look at what exists in our communities, in our own backyards was definitely the highlight of this project for us. So often, we think of history as what exists in books, but the truth is that we are constantly making history, and that history is living in our communities right here and now. One of the highlights of the field trips for us was watching our students hike through Annie’s Canyon in Encinitas. What was interesting for the students to realize was that the subjects that they are studying in school can apply to their everyday lives in the communities in which they live. We also really enjoyed having a challenging product for the students to collaboratively build with their hands.

Student Reflections
I liked getting to talk in Spanish during the exhibition. It was really fun. I didn’t know that San Marcos was known as a chicken park.
—Mariana

The Surf Museum in Oceanside was really interesting, and it was cool to see Bethany Hamilton’s surfboard. The building of the box was pretty fun too. There were times that it was stressful when things couldn’t fit and you had to request for more, but at the end, seeing the finished project was pretty cool. I mean, we made that.
—Jake

To learn more visit http://misscarolcabrera.weebly.com/living-north-county.html
Matter That Matters  
Nicole Lively, Humanities and Sophia Oller, Chemistry  
High Tech High Media Arts

In this collaborative Humanities and Chemistry project, students worked in partnerships to comprehensively research a “problematic” element, compound, or material and its effect on society, both historically and currently. For example, one pair investigated chocolate and its connections to child labor; another explored carbon and conflict diamonds. In Chemistry class, students created an image that represented the conflict and used electrochemistry to etch it into a copper plate. Photographs of the copper plates and the research paper from each group were compiled into a book, which was displayed at Exhibition and is available on Amazon. Our goal was for students to understand how resources in our natural world acquire value and the positive and negative effects of the pursuit of ownership of those resources.

Teacher Reflection  
What we really enjoyed about this project was that the interdisciplinary collaboration felt really natural and authentic; students were able to synthesize their knowledge from both classes at a higher level, and it was rewarding to see. There was also lots of room for student choice and we ended up with with a beautiful and rigorous final product. Seeing students at Exhibition fluently switch between talking about the electrochemistry of copper etching and historical conflicts over resources was inspiring.

Student Reflections  
The importance of a material is influenced by its chemistry a lot, because its chemistry gives it the properties that make it important. —Roan

I learned that you always should look into a conflict. Always see the full story and never just blindly accept the media’s version of it. —Eden

To learn more visit http://nicolehthma.weebly.com/ or sophieoller.wordpress.com. Amazon book link: https://www.amazon.com/dp/1541076818/ref=cm_sw_r_sms_c_api_adHVybKR5ZD25
One Drop at a Time
Christine Sullivan, 3rd/4th Grade Social Studies and Language Arts
Austin Discovery School

There were three major components to this project: A class novel study of the novel *A Long Walk to Water* by Linda Sue Park, students researching and writing a persuasive speech, and the building of soapboxes. The novel served as a case study of how millions of people in Africa lack access to clean drinking water. After reading the novel together as a class, students were asked, “What are the top environmental crises faced by the world today?” Students took several weeks to research topics such as: deforestation, reviving the world’s oceans, air pollution, agriculture and transportation systems. The final product of their work was to write a 1-3 minute persuasive speech. For our exhibition of student learning, the 3rd and 4th graders were asked to read their speeches aloud at our school-wide celebration of Earth Day on April 22, 2016. During the weeks leading up to Earth Day, our class took a field trip the Austin Tinkering School. Then using woodshop tools, students worked in teams of four to construct soapboxes so that during exhibition they would both literally and figuratively, “Get on their soapbox” and speak about an environmental cause.

Teacher Reflection
Students are living in an era where climate change is their inheritance. It was inspiring to see them be both passionate and well informed as they delivered their speeches. Having an audience of students ages K-8th grade and their parents, helped the students believe that their words mattered.

Student Reflections
All Americans have a voice! So let’s use it! —Alyssa

Always remember, ‘Don’t make greenhouse gas, so that we can all last!’ —Jaxon

So here goes my pep talk, you might be small compared to this world, but you can help! —Liberty

To learn more visit http://www.austindiscoveryschool.org/
We students thought it pretty important to think about one of the most critical things facing our generation – our health, our energy, and our youthfulness. We often hear mixed messages about what to do and what not to do. But, you rarely hear or read about the practices of indigenous people. Sometimes we forget to check out history when we try to solve problems. What can we learn from people who were connected to their food, their land, and to each other? What were/are they doing differently? How were they able to avoid some of the common diseases we see in our communities today? There were a lot of questions that we wanted to answer!

**Teacher Reflection**
I wanted a project that gave students the opportunity to challenge and investigate. But I was amazed at how much students learned during this project. They could identify fat and water-soluble vitamins and share the role that certain vitamins play in the body. This was completely foreign information to them. I really wasn’t sure how they would respond to trying new things like organ meats, kombucha, bone broth, sour dough bread, raw cheese, kefir, sauerkraut, and homemade butter. By the end of the project, students genuinely appreciated these foods (notice I didn’t say they enjoyed eating each of them… yet) and understood why they were valuable to so many indigenous peoples. A year later, I still have students that talk about the project. They share about their learning, and show they continue to investigate matters that are critical to our health.

**Student Reflections**
Ancient people knew how to prepare foods, and found the best ways to get nutrients from food. —Owen

You should try to stay healthy with the right foods, instead of spending money on medicine with side effects. —Aaron

To learn more visit [http://www.hightechhigh.org/hte/](http://www.hightechhigh.org/hte/)
Throughout our twelve-week expedition, Second Graders became botanists and entomologists as they cared for and cultivated plant and insect life. We integrated arts and science curriculum to study painted lady butterflies, silkworms, fava beans and marigolds. Both in class and at home, students watched the life cycles unfold in real time and compared each species’ stages of growth. This science expedition interwove the ASCEND values, ELD, writing, the arts, community service, and technology. At our school-wide EXPO day, students sold hand-crafted informational coloring books on the life cycles of fava bean plants and painted lady butterflies. Second grade scientists shared their informational reports and led members of the community through a tour of our 3D plant and insect sculptures. Our expedition culminated in class performances of seedling and butterfly poems.

Teacher Reflection
It was amazing to watch our students transform into scientists. When insects came to our classroom in their larval and egg stages, these budding entomologists demonstrated compassion as they cared for and observed the insects in their stages of growth. In science-integrated ELD students practiced and internalized new scientific vocabulary that they later used in their investigations. We kept a bilingual blog and a 24-7 insect webcam so that students could observe the life cycles of our insects from home. In art, students connected their studies to create 3D models that were larger than life, which proved to be very fun and messy!

Student Reflections
What was fun about EXPO was that we got to give away our seeds after we gave tours to the people who came to visit. —Erick

The coolest thing at EXPO is that I performed a poem in front of probably sixty people! We played instruments and did a poem on stage to represent seedlings. We did the poem in English and Spanish, to show how a seedling becomes a bigger flower. —Jayla

To learn more visit https://ascend2science.blogspot.com/
Design Challenge: Beekeeping in Doha, Qatar
Lisa Bastedo, Maria Manacheril, and Rachel Rust,
10th Grade Biology
American School of Doha

After doing an in depth study about the decline of honeybee populations in the United States, our students were presented with a challenge to design beehives that would be able to withstand the harsh conditions here in the desert of Qatar. Students read about local beekeepers and the problems they faced and then designed hives to solve problems such as extreme temperatures and dust storms. Students tested their prototypes and followed that with a redesign. Despite having limited resources for this sort of project, they were able to produce impressive hives that were indeed effective in solving their problem. The student designs ranged from internal cooling systems to insulated outer layers to the hive.

Teacher Reflection
This was our students’ first introduction to the design thinking process and engineering practices in NGSS. We were impressed with students’ engagement in the project and their genuine concern for declining honeybee populations. Going forward, we would like to be sure that students are personally connected with the local beekeepers that are here in Qatar so that we can have implementation of their designs by the beekeeper.

Student Reflection
It is important to listen to other people’s ideas and not just your own as we need to put as many ideas as we can on the table in order to have a good design.
—Jude

I previously had no idea that there were so many types of beehive designs.
—Andia

The high temperature and dust have a huge impact on the survival of bees here in Qatar, but with a well thought out design, we can solve those problems.
—Eleya

To learn more visit http://www.asd.edu.qa/