A Hero In My Eyes
Diana Sanchez, Humanities, High Tech High Media Arts

After studying the question, “What is a hero in today’s society?,” students created a textual and visual representation of a hero in their life. Students utilized literary devices, sensory details, and the narrative form to create a written character sketch of their hero in a heroic moment, and then represented that moment through photography.

Teacher Reflection
I like to start the school year with an identity project that helps me get to know my students, and helps them get to know one another, to build a strong classroom environment. This project encouraged students to think about who has made an impact on their life. For most students, this was a piece of cake. They knew who they would select. For a few who had trouble identifying someone, this was their first challenging project in a project-based school. Working with these students, I learned about the struggles that prohibited heroes from rising in their lives, and about their sources of motivation. The highlight of this project for me was seeing the pride in my students’ eyes as they saw their black-and-white pieces displayed throughout the school.

—Diana Sanchez

Student Reflection
The Hero in My Eyes project opened my eyes to a whole side of my mother’s life that I may not have seen otherwise. We conducted interviews with the person we viewed as our Hero. This gave me the chance to learn what my mom went through being a single mother: how hard it was to raise a baby by herself, only at the age of seventeen, with barely enough money to support us. It taught me to appreciate my mother more than I already did. Not only did it show me another side of her, it showed me another side of writing. We were taught how and when to use literary devices, descriptive writing, interviews, and narrative for our character sketches. I used these elements to put a voice in my writing, one that made my audience feel like they were really there as it all happened. I was able to convey why she is my hero without directly saying it. I can say that the Hero in My Eyes is one of my favorite projects so far. It helped me develop my writing skills and my relationship with my mother.

—Brandi Coley, 9th grade

To learn more about this project and others visit the HTH Digital Commons and Diana Sanchez’s digital portfolio at http://www.hightechhigh.org/ and http://staff.hthma.hightechhigh.org/~dsanchez/
Middle school students studied the Aboriginal Art form, including non-naturalistic abstract designs and naturalistic paintings of human, plant and animal figures. They then selected a wild animal they felt represented their personality, wrote an artist statement about the qualities they shared with their animal, and created an animal self-portrait using the traditional dotting technique and abstract design elements used by aborigines.

**Teacher Reflection**

Australian Aboriginal art is the oldest living art tradition in the world, with paintings in rock shelters dating back 20,000 years. This art incorporates the use of concentric circles, “u” shapes, and lines with earth tones from substances collected from the natural world. I introduced the project early in the year, and it was a good way to get to know my students. Every single piece was amazing—even students who struggle with art produced careful, thoughtful work that they were proud of. Fifteen of the pieces are now hanging at the Encinitas Health Clinic, where they have drawn rave reviews from physicians, patients, and visitors. I’m happy with the results, but next time I’ll introduce critique earlier in the drafting process, using models from this class to initiate conversations about what qualities are present in beautiful work.

—Andrea Barrett

**Student Reflection**

Creating my painting using the traditional aboriginal technique was incredibly soothing. I considered it to be yoga for my mind. I enjoyed creating my dot painting because it was a meaningful way to express myself. The animal that I chose to represent my personality was the African Pygmy-kingfisher. I chose a colorful bird because it allowed me to play around with a variety of colors. I also chose this bird because it has a long beak for going after its prey and this represents how I go after what I want. Aboriginal art tells a story, so I decided to incorporate a narrative in my painting. In my work the bird is perched in a tree in the African desert, daydreaming about rain. I am pleased with my final piece. I enjoyed learning a new technique and look forward to incorporating it into my artwork in the future.

—Bethany Shedrick, 8th grade

To learn more about this project and others visit the HTH Digital Commons and Andrea Barrett’s digital portfolio at http://www.hightechhigh.org/ and http://hthidps.hightechhigh.org/~abarrett/
For the Graph-It Design project, each student used Excel software to create their own “mathterpiece” of an image pertaining to a historical figure. Students identified 124 sets of data points from an image of their choice, and derived 25 different linear equations to reproduce the image. They then presented and displayed their work gallery-style during an exhibition night.

**Teacher Reflection**
As a teacher, I enjoy leveraging the power of Excel in different ways. In this case, it helped me to integrate art and mathematics. Also, Excel software acts like a video game because it assesses students’ work in real-time. When they entered data points and equations, they could see whether or not it aligned with the original image. This instant feedback made them check their work every step of the way. This taught perseverance, because even though the graphs involved a lot of work, the students wanted them to look great for the exhibition.

—Al Solis

**Student Reflection**
Pictures can easily be drawn or taken, but this project proved to be not as simple. We used Excel to draw our picture, but rather than drawing in lines, we calculated the equations for each straight line on an x-y axis and entered the equations into Excel. The first thing that I did once I had my picture was to plot the points on an x-y graph. Then I connected the dots and started to solve for the equations of my lines. Even though we were only required to solve for 25 lines, I solved for my entire portrait of Rene Descartes. In the end, I was really proud of the fact that I did not draw any lines and I was amazed at how well my picture looked compared to the real portrait. I was in awe as the lines popped up onto the screen as I entered in the equations. It really helped me visualize line equations. From this single project we learned about a vast range of concepts, from slope, y-intercept, equations of lines, parallel lines, perpendicular lines, and to how to graph lines in Excel.

—Matthew Lung, 9th grade

To learn more about this project and others visit the HTH Digital Commons and Alfred Solis’ digital portfolio at [http://www.hightechhigh.org/](http://www.hightechhigh.org/) and [http://staff.hightechhigh.org/~asolis/](http://staff.hightechhigh.org/~asolis/)
The Blood Bank Project
Blair Hatch, Biology/Multimedia, High Tech High
Jeff Robin, Art, High Tech High

This project was a collaboration between the San Diego Blood Bank and HTH seniors, as well as between an art teacher and a biology/multimedia teacher. Divided into pairs, students explored bloody topics ranging from leukemia, sickle cell anemia and the Aids epidemic to the use of blood in film, the history of vampires, and the role of blood in religion. They then created a painting on a blood-related theme on a large piece of custom cut wood. A rectangular opening housed a laptop displaying a DVD presentation with audio and motion graphics they had designed to teach the community about their topic. Students’ final projects were exhibited at the JETT Art Gallery in San Diego.

Teacher Reflection
This project signaled my return to science teaching in a partnership with our art teacher, Jeff Robin. The project allowed me to improve upon my early attempts, long ago, to have students create multimedia presentations in science. Additionally, I delivered traditional science instruction and assessment through lecture, weekly tests, lab dissection of a fetal pig and cat, a midterm and a final. The combination of traditional and project-based instruction offered both the breadth and depth required for college level science. Knowing that the art would be exhibited at a gallery served as excellent motivation for the students, and the well attended event was a community showcase for the school.

—Blair Hatch

Student Reflection
My classmates and I didn’t just learn the crude essentials to create a movie, or learn the rules of mixing and conserving paint. We learned about the astounding life that blood brings to society. It travels through our heart, oxygenates our brains and bodies, protects us from diseases, simply keeping us alive. At the same time, we had the opportunity to share its message with our community. Without it we cannot strive, live, or even have the opportunity to give. When there are flaws, we have epidemics such as AIDS, or leukemia, or anemia. At the same time, blood is prevalent in entertainment. Without so much as a drop in action or horror movies, there would be no Hollywood. This opportunity was nothing like I have ever had, and looking back, it was the most work, but the most fulfilling project I’ve done in high school.

—Gabby Aligada, 12th grade

To learn more about this project and others visit the HTH Digital Commons and Jeff Robin’s & Blair Hatch’s digital portfolios at http://www.hightechhigh.org/ and http://staff.hightechhigh.org/~jrobin/ and http://staff.hightechhigh.org/~b hatch/
In this interdisciplinary project, students created a two-sided identity mask. On one side they represented their personal identity, as it has been formed through their socialization by family, friends, and the media. On the other side they represented a chemical element that they felt best symbolized their personality.

Teacher Reflection
This was our first project of the year. It was a great way to create a positive culture in our classroom, while introducing students to the basic principles of sociology and chemistry. It takes a certain amount of trust to breathe through a straw and allow someone else to completely cover your face with wet plaster for 15 minutes or so. The students bought in to the process and had a great time. It also was a great way to build a culture of critique and refinement, as students worked through multiple drafts to get to their final product.

In the end, there was a wide range in the quality of the masks. In reading the student reflections, many students with less developed masks mentioned that they wished they used their class time better. We modeled and did several critiques, but because creating the masks was such an involved process, many students had trouble revising concepts once they had begun. When I teach this project again, I will make sure that students take the process of generating ideas and drafting their masks as seriously as making the masks. Then they will have a clearer vision before they begin designing and painting.

—John Fisher

Student Reflection
In this project we made an impression of our face and designed it to show our hidden identity. After getting an impression of my face I started to layer the mask with more plaster until the mask wasn’t fragile anymore. When the first mask dried I made a second mask for my chemical identity. Though at first I thought I would have two separate masks, one for humanities and one for chemistry, I ended up having my element mask on the outside and the humanities mask on the inside. In the end I think that I was really able to achieve the concept of “Beautiful Work” and have the project up to my standards.

—Devon Stanley, 10th grade

To learn more about this project and others visit the HTH Digital Commons and John Fisher’s digital portfolio at http://www.hightechhigh.org/ and http://staff.hthcv.hightechhigh.org/~jfisher/
Students produced Spanish children’s books and gave them to Spanish-speaking children. In pairs, students in my Spanish I class were assigned a basic Spanish vocabulary unit such as clothing, colors or animals. Each pair created a list of the most common words and verbs in that unit and gave a mini-lesson to the class, providing them with handouts and activities. The student-led lessons generated a strong understanding of important vocabulary, and each pair used this knowledge to write and illustrate a story for a simple, colorful, and creative children’s book. When the books were completed, the students practiced reading them to each other before we took them to an orphanage in Tijuana, where they read the books to the children. After a full day of reading, laughing, bonding, and playing in Spanish, we donated the books to the orphanage so they could build their first library.

Teacher Reflection
This was one of the longer and more memorable projects I have done. My students placed great importance on being accurate in their spelling and conjugations, and on creating stories that would impress and engage Spanish-speaking children. They worked hard to make the books unique and professional. It was exciting to see them bring their stories to life. They spoke beautifully in Spanish, trying hard to make no mistakes as they read to their audience. The project ended with tears of happiness and sadness as we said goodbye to our new friends. My students not only learned important content, but they also made a difference in other people’s lives.

—Johanna Jorfald

Student Reflection
When I was told we were making a Spanish children’s book, I didn’t really understand what an eye-opening and true learning experience this was going to be for me. The actual experience of going to Tijuana and reading the books we made to the orphans was life-changing. Even though Tijuana, Mexico is only a 20 minute drive, the atmosphere is drastically different. This project taught me a new language, a new culture, and most importantly, how to make a change in someone else’s life.

—Katie Smith, 12th grade

To learn more about this project and others visit the HTH Digital Commons and Johanna Jorfald’s digital portfolio at http://www.hightechhigh.org/ and http://staff.hthma.hightechhigh.org/~jjorfald/
Is it safe to go in the water? This question began an exploration of San Diego's beaches and bays, and of the biological, ecological, political and cultural factors that affect the overall health of local coastal ecosystems.

In biology, students analyzed indicator bacteria levels at six popular coastal locations, as well as the health and diversity of microscopic life in local plankton populations. They used ordinary equipment such as microscopes and more sophisticated equipment on loan from a local non-profit group. Students then trained community members about how citizens could participate in water testing and help preserve coastal ecosystems.

In humanities, students generated original research questions and pursued these as journalists. Some produced short documentaries, editorials, or photo-essays based on their biology research. Others produced large-scale pieces of art with accompanying artist statements. One group published a professional quality 12-month tide calendar, which they sold locally to raise money for further projects. Student projects were critiqued by panels of peers, teachers and local experts before exhibition.

Teacher Reflection
The critical factor was that we started with questions that truly made all of us curious. Scientific results and the ensuing humanities projects required rigorous testing methods and protocols—our research had to be done “right,” and each cycle of tests generated new questions. In this sense, original research involved a self-perpetuating cycle of inquiry and motivation.

—Randy Scherer

Student Reflection
My video explained the dangers of surfing in polluted water. I did a lot of original research to find bacteria levels at different beaches and to learn what kinds of illnesses come from polluted ocean water. I also interviewed a doctor, a local surf shop owner and a member of Coastkeeper, an environmental nonprofit.

—Stephanie Luna, 11th grade

To learn more about this project and others visit the HTH Digital Commons and Brandon Davidson’s & Randy Scherer’s digital portfolios at:

http://www.hightechhigh.org/
http://staff.hthma.hightechhigh.org/~bdavidson/
http://staff.hthma.hightechhigh.org/~rscherer/
Pinhole Photography
Rachel Ching, Math/Chemistry, High Tech High International

Project Description
Students built pinhole cameras and took black-and-white photos, which they then developed, scanned into a computer, and manipulated using Photoshop to create their own unique piece of digital art. In the process, students learned about the optics involved in cameras—how the light ray's path affects the size, orientation and distortion of images. They also learned about the chemical reactions that occur between light and the silver bromide on the photo paper, as well as the chemical reactions in each step of the development process of a photograph.

Teacher Reflection
This was my fourth year doing this project. In the first year I focused on technical aspects such as constructing and using the camera, and working in the darkroom. The next year, I increased the connection to the outside world with visits to the Museum of Photographic Arts and to Chrome Digital, the last full service photography facility in San Diego. In the past two years, I have tried to boost the professionalism of the final works of art and of our exhibition. This year, students wrote artist statements to accompany their pieces, and we mounted all the work in a similar fashion to mirror a professional gallery.

My students really enjoyed this project. Many had only used digital cameras, and the idea of developing photos in a dark room was “magical” to them. They valued the opportunity to showcase their artistic creativity through the project, something people might not expect from a math/science class.

—Rachel Ching

Student Reflection
After hearing Rachel tell me that I was going to take pictures using an oatmeal canister, suddenly this project piqued my interest. Not only was I able to make some neat photographs, but I was also able to learn about how a camera takes pictures. Because of this experiment, I have found a whole new respect for photographers. At first, I was confused by how something simple, such as taking a picture, could be considered art. Now, because of this experiment and research, I learned that a photographer is a person who is able to catch the beauty of the world.

—Natasha Smith, 10th grade

To learn more about this project and others visit the HTH Digital Commons and Rachel Ching’s digital portfolio at http://www.hightechhigh.org/ and http://hthidps.hightechhigh.org/~rching/
Twelve Steps to Beautiful Work
Steven Levy, Expeditionary Learning

Here are twelve progressive layers of scaffolding that teachers might employ to help students achieve high quality—and beauty—in their work.

1. **Assignment.** “Make a poster showing what you have learned about ancient Greece.”
   
   **What kind of work might you expect from students? What else would they need?**

2. **Components.** “Your poster must be 2 ft. by 3 ft. It must represent culture, politics, religion, or architecture. It must include an example of how that aspect of ancient Greece affects our culture today. There must be a title and captions for each illustration/photo explaining why it is important. There must be a map of ancient Greece.”
   
   **How might this poster be higher quality than the first? Would describing the components be enough?**

3. **Characteristics of a quality product.** “Your poster must be organized, balanced, creative, and pleasing to the eye. It must use color, space and borders effectively.”
   
   **How would this help increase the quality? What else would be needed?**

4. **Models.** Use samples of exemplary student work to show what quality looks like. What does “organized” look like? Balance? How can color enhance meaning? What is effective use of space?

5. **Design rubric.** Describe different levels of quality. Look at student work and professional models to name the attributes of weak and strong work. Identify 4, 3, 2, and 1 levels.

6. **Mini-lessons and workshops.** Teach skills needed to complete the product. Offer lessons on organization, relevant content, balance and color, word choice, sentence fluency, etc.

7. **Self-assessment.** Help students assume responsibility for their own learning. They can assess themselves on the rubric.

8. **Feedback from others.** Students can learn how to give effective feedback, based on the rubric, that is kind, helpful, and specific.

9. **Multiple drafts.** Students focus revision on one aspect at a time. They get feedback after each revision.

10. **Conference with teacher.** Students get feedback from the teacher before producing final drafts.

11. **Exhibition.** Publicly display work to peers, to the community, to experts in the field.

12. **Reflection.** What did I do well? Where did I meet the learning targets? Where did I fall short? What do I need to work on to reach them next time?