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2014 Senior Independent Projects

Alex Bigelow: I explored being on the other side of a guitar lesson: teaching. My three students (ages 15, 12, and 10), and I worked on skills according to taste and style. We worked our technique using songs by Ozzy Osbourne, Taylor Swift, Cream, The Cars, Old Growth Forest, Coldplay, Mountain, Living Colour, The Beatles, The Beastie Boys and more. It was fun playing, and learning about music and the guitar, while also exploring anything that came up during our lessons.

Noah Dirks: Throughout my years at The Academy, I would periodically think about what my senior project would be. Each year at Spring Exhibition the rows of work from the year's graduating class presented an endless realm of enthralling possibility and petrifying enormity. By the end of my junior year my ideas had consolidated enough and I had written enough research papers that I knew I wanted to build something physical. The idea of a boat just came naturally to me as it was something I had considered attempting in the past and it fell in perfectly with my lifelong love of boats and fishing. I chose to build a stitch and glue constructed sailboat known as the "Passagemaker." It is 11' 7" long with a ¼-inch hull, a four-person capacity, a wide range of applications, and total weight of about 90 pounds. It took countless hours of work to construct and was by no means free of complications and frustrations, but I enjoyed every second.

Mollie Donohue-Meyer: I chose to spend the year learning beginning building techniques by way of building a yurt. Because I initially wanted to study something to do with sustainability, my project has a small focus on sustainable forestry in that all the material used for the lattice, the roof poles, and the inner crown is wood I harvested myself. I used almost entirely black birch saplings, about half from my family's woods in Ashfield and the other half from my advisor, Mr. Forbes', woods in Charlemont.

In another effort to build sustainably, as well as traditionally, I built the yurt with minimal power tools, and tried to keep the design relatively close to the traditional Mongolian design. It's definitely imperfect, and there are clearly still a lot of finishing touches to do. I've never done anything like this before, and I'm incredibly grateful for all the help, especially guidance, that so many people so willingly gave me along the way.

Karina Feitner: For my senior project, I researched natural and artificial coral reefs, and received my certification and dove in Florida along the way. My project ended up separating into three parts. First, I learned about natural reefs, what makes up the base, how the colorful soft coral grows, and the different types of ecosystems created by each type of reef. Second, I moved on to learning about the artificial reef movement. This controversy is huge, and a serious issue in regards to marine biology, and was so

interesting to research. Throughout the research process, I took scuba classes in Greenfield, and in March I went down to Florida and dove on the Florida Barrier Reef. I chose this project because I knew nothing about it when I started, and I learned so much about natural and artificial coral reefs, the environments that they create, and how to scuba dive.

Ezra Ginzberg: Many years ago, I first began brainstorming ideas for the project I knew I would have to complete during my senior year at The Academy. I knew my project would have to not only include my love of the outdoors but also have a final product that would serve me in some way in the future. For a while before my senior year, I had played with the idea of having a camp-style cabin in the woods that I could use as a hunting camp, fishing cabin, or wilderness retreat. I decided that experiencing the building process from the ground up was the best way to complete this goal. Through this project I was able to experience logging, milling, and building in New England, not only giving me a cabin that I will be able to use for years to come, but a set of skills and experiences that will last me a lifetime.

Mike Handsaker: For my senior project, I worked on my own original proof of the four color map theorem, which states that for any given map, every region may be colored so that no two adjacent regions share the same color. Conjectured in the 1850s, the four color conjecture went unproved for over 120 years before it was finally proved in 1976 with the use of a computer. For my senior project I studied much of the mathematics behind the proof and then constructed my own proofs of both the five color theorem and the first part of the four color theorem.

Henriette Horgen: I started this year without a single idea about what I wanted to do for my senior project. After a few interesting suggestions from my host family I decided to do body building and fitness training. I met a trainer once a week and started a very strict diet. After Thanksgiving I realized that the diet didn't work for me, so I stopped and decided to write about fitness, health and nutrition instead. I researched how the muscles work and do a task, how they're built up and how we can make them stronger, our metabolism and ways to speed it up and slow it down, what steroids and a few other drugs do to our bodies, different exercises, body building, and nutrition.

I started this project with little knowledge, even though I've been interested in this for many years. Among many other things I have learned what not to do and what to do based on my goals, that I should never diet, the effects of certain drugs on our bodies, and how to increase my muscles' volume.

Noah Jacobson-Carroll: With my cohorts Alex, Paul and Ramzi (a.k.a. "the guys"), I have immersed myself in the "band experience," delving into the intricacies of songwriting, band leading and recording. Mirth and toil, passion and lunacy, the mundane and the absurd, *fun* and *school* – these are but a few of the bizarre combinations that have surfaced throughout the course of a school year. And now, I present to you my most beastly project of all time: *Profanity*, a short compilation of original music from our band, Old Growth Forest.

Yunfan Jiang: My senior project started with a question, which is "If this school had \$100,000, what we would do with it?" As an investor, I helped my client, Ms. Todd, the Head of School, to make the decision on this imaginary socially responsible investment. I went through whole problem-solving processes, including communications with my client, evaluating various investment options, and my personal analysis of individual

options, and I made comparisons between them. Finally, we came to a decision based on green investment. I want my project to suggest a straightforward investment strategy for the school. I hope this strategy will be technically valued and will be useful for the school's investment future.

Hannah Lessels: This year I explored scientific illustration. At first I wanted to focus on one species and make a guide to its anatomical features. However, because I lacked a science lab and was very limited by which specimens were available to me, I decided not to limit myself. I did illustrations of any real specimen (skulls, fish, etc.) that I could find in order to discover which techniques were most effective in clearly displaying its anatomy. I experimented with media, tone, composition and contrast to make pieces that were useful as learning tools and that had artistic appeal. I studied famous illustrations and anatomy books and made labeled illustrations with the hope that the viewer will learn basic anatomy and enjoy the artistic aspects as well.

Elizabeth Purington: My project is titled "What Does It Mean to Be a Purington?" Inspired by my enormous family and the power of family resemblance, I decided to look into my family's genetics and added an artistic spin to the project after seeing Ulric Collette's genetic portraits. More scientific approaches, like surveys and research, enabled me to look at both visible and non-visible traits, but photography allowed me to explore the facial features of the Purington family in a way that words and science could not. My end product brings together the photography, my scientific analysis, and personal observations in order to answer my initial question. And while I didn't find one trait that unites us all, the many angles of my project allowed me to understand that being a Purington goes beyond physical traits and is in reality a way of life.

Martina Rehmus: For my senior project, I created a food blog that follows the ideas of the Slow Food Movement. The movement began to counter the fast food culture and the growing trend towards eating and buying processed, nonlocal food. In an effort to increase awareness, Slow Food raises concerns about the extinction of certain, most often indigenous, foods from all over the world. The movement officially began in 1989 after Carlo Petrini and a group of followers protested the prospect of a McDonald's opening in Piazza di Spagna (site of the Spanish steps). Before that, however, the group was a casual alliance of people in Bra, a city in the north of Italy, who wanted to preserve the ancient techniques of winery. Since then, the movement has grown to encompass over 150,000 followers in over 150 countries.

With each of my blog posts, I tried to include an element of the movement using either tidbits of the philosophy or including information. Throughout the course of the year, I wrote 14 blog posts. My project is a mix of photography, writing, cooking and research.

Andrew Row: My project was to record an album of original music and inventive covers of blues jazz fusion and traditional Hindustani music. I ended with five completed tracks, two of which were original fusion pieces, two of which were covers and one was a traditional Hindustani raga played on sitar. I wrote detailed analysis about three of these tracks discussing: recording, arranging, composing, dynamics, modal and harmonic theory, the physics of musical sound, and the creative process of playing and recording music.

Paul Sperry-Fromm: For my senior project, I decided to explore a topic that I was already somewhat familiar with: sports writing. I had been writing about basketball on a personal blog since junior year and I wanted to take further steps to improve my abilities

and insight as a writer. I explored various aspects of basketball writing, from objective reporting, to opinion based pieces and analysis. I read a lot and drew influence from my favorite writers. My final product was a book of my writing and my blog.

Regan (Zitian) Sun: Since the late 1980s when the United States discovered that North Korea was secretly developing nuclear weapon, the crisis in the Korean Peninsula has attracted attention around the globe, especially after the North Korean nuclear test in 2013. Undoubtedly, the Korean Peninsula is one of the places in the world where a regional war is most likely to happen. To understand the current situation in northeast Asia, a sophisticated research project is necessary. This senior project is dedicated to seeking any possible solution for the current crisis by analyzing the history of the Korean Peninsula and its significance for the surrounding area.