



The Great Iron Pour

Essential Question

Through hands-on immersion into historic techniques and processes, the study of metallurgy, chemistry, materials science, and industry, as well as working with professional sculptors, can we come to a clear understanding of the enormous significance of the age of metals while developing a personal aesthetic relationship with cast iron as an artistic medium?

Description

The Great Iron Pour ECS is a hands-on immersion into the world of making and pouring molten metal to create art. The course involves a historic study of the discovery and use of metals, the industry of iron and steel making, the chemistry of metals and refractory materials, and sculpting in wax, clay, and other materials.

Student art is informed by exposure to galleries, museums, and by visiting artists. Iron casting is physically demanding and teamwork is important as the whole class moves together toward the goal of melting iron and pouring it into molds to make art. This course also includes the pouring of aluminum and bronze, and students learn basic steel forging.



Wax on, Wax Off

By Coltin B. '26 & Ben Mc. '27'
March 5, 2024

To start the big week, a professional sculptor named Carolyn Ottmers joined us and will help us during the ECS. Teachers Hans Wolfe and Kaja Reynolds and Mrs. Ottmers gave a brief introduction. We then listened to presentations where five people presented about talented artists. We began working with our clay. For the next few hours, we designed our ideas out of clay before eating lunch. After lunch, we all returned to work with our clay before working with plaster and wax. Mrs. Ottmers had given us a trick with wax where we used Dawn dish soap to minimize its stickiness.

The second day kicked off at 8:00 a.m. with everyone breaking into their plastered pieces to dig out the clay inside so we could pour wax into our molds. A challenge a few people faced was safely opening the plaster molds. We had to cut the plaster with butter knives and then eventually twist open the molds. If the plaster wasn't cut right, we had to start over at the clay again. Once the plaster was completely dry, everyone cut holes so we could pour wax into our molds. We waited for it to dry. Cracking into the plaster molds with a hammer and a chisel was a highlight for many of us. Some of us moved more than 2,000 pounds of sand throughout the day, as well as a lot of iron. This is the iron that will be melted down and poured during the big day. A group of seven students and Mr. Wolfe managed to move a 550-pound piece of metal! By wedging a crowbar and a metal pipe into a hole, six people lifted the piece while one guided and another pulled it. Eventually, with the ingenuity of Mr. Wolfe, who gave it some wheels, it was smooth sailing from there! Everyone went back to working hard on their art pieces for the last hour of the day.



Working with Wolfe's Wacky Wax

By Phoebe H. '27 and Sophia P. '27

March 7, 2024

On the morning of March 6, our 5th-grade buddies visited the Carriage House to learn about our ECS. We talked to the students about all the pieces we were making and the process of creating wax molds for iron. They were fascinated by the differences in texture and material between wax and clay. They also enjoyed visiting the iron yard and learning the process of breaking down iron. After they left, we continued to work on our art pieces, and many of us moved to work on our wax patterns and experiment with our different mediums. We experimented with different methods of carving and melting wax, including using a heated wand to melt the wax into a smooth surface and using it to carve out areas on our pieces. Despite some wax difficulties and the slow process of working with wax, Harper B. '27 started work on her third piece, a hammerhead shark, after creating and perfecting two adorable cows, a momma cow, and a two-headed calf. Norah O. '25, worked on a wax nest and a wax egg, smoothing out the sticks and creases between the connection points, and began work on her cloud and butterfly piece. While we worked we jammed out to the Iron Pour Playlist 2024 on Spotify after having everyone add songs. The students also braved the harsh reality that was Mr. Wolfe's "The Proper Use of a Sledgehammer" test. We were organized into 5 different teams and when it was our turn, we all donned heavy leather yellow protective clothing and cowboy boots. We had to hit the target 5 times - out of those 5 we hoped to hit the target dead on center the majority of the tries. If we didn't, we hoped for Wolfe's mercy. After the test, it was time to clean up and head home. We all went home with the goal in mind to finish our pieces and return with our new and improved skills in mind.



On March 7, we continued to improve our skills using wax. Jaiden S. '24 continued her impressive work on her model of an elephant skull. Harper finished the koi fish she began yesterday, and Izzy V. '25 made a delightful little llama with a top hat. Norah continued her work on a bird's nest inspired by the artist she researched for her presentation. After the wax maker was bubbling and exploding, we were very careful around that particular area of the art room. After yesterday's test, we continued to break iron and improve our skills with the sledgehammer. We have tons and tons of iron to break down in time for our pour (1,500 pounds to be exact). After lunch, our guest artist Carolyn Ottmers showed us more techniques, tricks, and tools to perfect our sculptures. We studied for and took a quiz on the rise and fall of the Copper Age, and the rise of the Bronze Age.



Sledgehammers & Spruing

By Lawrence G. '27
March 11, 2024

This was the first day back after a short 23-hour break on Sunday. In the morning, we did a quick stretching/dancing session before immediately getting to work. Mr. Wolfe taught us spruing, which had us attach our artwork, which was cast in wax, to red wax sprues so that the metal would flow evenly to all the pieces. All the statues were sorted by weight and size, so statues like Richard's "Thinker" would be put in a group of similar-sized objects, such as Harper's axolotl. This was also the last day of breaking down large pieces of iron with sledgehammers, so everybody pitched in to get as much of it done as possible. It was grueling work, especially with the sun beating down while we were wearing leather jackets and chaps. This combined with the constant movement caused some people to tire out quickly. However, it needed to be done, so everyone worked through the struggles and joys to finish the job together.



Ironing Out the Details

By Nathan S. '24
March 12, 2024

We picked up right where we left off, except this time it was on a weekend. Despite the initial reluctance and slight sadness of being on campus on a Saturday, we jumped right back into our wax sculptures with the goal of adding final touches before moving on to the next step. This point in the process is where people found some trouble, from small pieces breaking off, or details not coming out on our pieces how we'd hoped. But aside from these minor setbacks, everyone made tremendous progress and got their individually beautiful pieces to where they needed to be. For the few who had finished their waxes early or needed to get out some anger, they headed outside with our freshly repaired sledgehammers, back to the 1,000+ pounds of iron that needed to be broken down into meltable size chunks. Still being relatively new to the sledgehammering process, everyone proceeded with extra caution as small iron shrapnel was flying across the courtyard in front of the Carriage house. After a few hours of breaking iron, taking the occasional snack break, and dancing and song outbursts, we had successfully destroyed a majority of the iron. Some people that found extra pride and joy in the destruction process were Micah R. 24' and Kashmala K. 26', who would stay outside for hours non-stop and did so with smiles on their faces. These past few days have allowed the group as a whole to get to know each other better through either being exhausted from the dirty work or sitting around a pot of molten wax and sharing stories about our lives. Headed into this next week, we are at a good spot, with all of our waxes done and the iron almost completely ready for the pour, but there's still lots to be done and I could not be more excited to see what this week has in store for us.





A Foundry Frozen in Time

By Richard X. '25'
March 13, 2024

After I woke up from my beauty nap I took on the bus en route to the foundry, I found myself in the middle of nowhere—or so I thought. As students trickled out of the bus, none of us was overly enthusiastic about what was next, that was until we stepped inside the Steam Locomotive Foundry's workshop. My jaw dropped. Large metalworking machines, tools of all varieties, and a miniature steam engine just casually hanging around. In a day and age where automation seems to be the norm, I was astonished that places like this still existed where real humans work objects into existence.

Marlin is the current owner of Uhrich Locomotive Works in Strasberg, Colorado. His father, Virgil Uhrich opened the foundry in 1947. Marlin was a fabulous “tour guide” who wasted no time explaining to us the technicalities of working with metal; throwing around big words that I'm sure most of us don't exactly understand, but will understand better after the Iron Pour on Monday. Marlin did proceed to explain to us the different terms that he used, which was super helpful. A lot of us found the lecture intriguing, but it pales in comparison to what happened before our very eyes.

Marlin brought us over to the foundry to witness an iron pour. I'm not exactly sure if it's the pungent smell or the glowing hot metal, but everything that happened inside the foundry was pure magic. Not only was it engrossing, but it also set an example of what we students will have to do when the Iron Pour comes around.



After we had delicious chicken soup that Merlin kindly made us, we headed to the theater, owned by his father, Virgil, and now it has been passed on to Marlin's sibling. Although I'm sure none of us were expecting an IMAX theater, I'm also positive that none of us were expecting to sit in an ancient theater to watch real films (yes, the stuff that comes in rolls) from the mid-1900s about iron. I know it sounds like not the most enjoyable experience – and some of us were begging Marlin to put on Ratatouille – the films were shockingly captivating and informative. We learned about the different properties of different metals and why iron is better than steel in particular areas. Along with popcorn that was generously salted, it made for a perfect ending to our trip.



People of the Foundry



Jacob (Here he is making a sand mold)

- Only been working at the foundry for three weeks (highly skilled)
- A Strasburg local
- Family owns a ranch with a miniature railroad track



Mike

- Served in the Vietnam War
- A capable foundry guy
- Also an avid photographer
- Shoots 35mm film and has a collection of more than 11 lenses!



Marlin: 84 years old, still working full time, has 14 grandkids, training others to take over someday, as knowledgeable as they come!

- All-Knowing, Owner of Uhrich (when it comes to working with metal)
- Has an endless supply of stories, knowledge, and kindness
- Countless years of experience