Antonia Block - Wilmot High School, SD
Green Chemistry Camp
SDSMT 2017

My name is Antonia Block, from Wilmot, SD, and I had a phenomenal time at Green Chemistry Camp at School of Mines this week.

There is so much to do here! We have new labs every day, each different and interesting in their own way. The majority of the day is spent learning in the labs, but we also spend plenty of time sightseeing at Dinosaur Park, Mount Rushmore, Reptile Gardens, and going on trips to Prairie Berry and Sanford Underground Labs. And when we aren’t running around, we spend our evenings (and mornings!) chilling in the dorm rooms, playing games like pool or watching movies with friends in the Commons, or going to the gym to work out and play basketball.

My favorite part of camp was learning in general. I was nervous about coming to camp with no background knowledge in chemistry, but all of the instructors were excellent and made sure we all understood the concepts we covered. My favorite lab was making a fuel cell car, which basically equates to a car that runs on water instead of fossil fuels. It was also great to meet campers who are just as enthusiastic
about science as you are!

Chemistry is very interesting because it is literally what makes the world go round. We have learned so much, and yet, as a species, we have just scratched the surface. (I think chemistry is cool because of all the secret loopholes that drive change in the world.) A better understanding of how our world works equals better technology being developed, which equals an increased positive impact on the world and decreased negative impact, which is the whole point of Green Chemistry!

This camp has inspired me to go and make a difference in the world like nothing else has before. And, the camp got us kids excited about science in a way that ordinary high school classes don't seem to.

If I could give one piece of advice to future kids coming to Green Chemistry Camp, it would be to think big. Like, really big. Global. You can do things you never thought you could be capable of. All it takes is an open mind, some creativity, and passionate dedication.

So come to Green Chemistry Camp!
Dear Sponsors,

Thank you so much for making my time spent at the South Dakota School of Mines Green Chemistry Camp possible. Words cannot truly express how grateful I am. You see, almost 3 years ago I suffered a second-impact concussion that had repercussions that made normal life difficult, I had trouble keeping up in school, and social situations made my anxiety go through the roof. But most of all, I’ve spent the last two years depressed, and during the summers I missed going to overnight camps. But then everything started falling in to place. Around January of 2017, I felt less anxious and depressed and I was finally keeping up in school, by the time summer camp sign ups rolled around, I felt ready... But then, I realized we couldn’t afford it. My medical expenses had dried up the bank. My mom told me that there were scholarships to some of the camps I wanted to go to and I held onto that idea. When I found out I had gotten the scholarship and could go to this camp, I was overjoyed, and tightly
So, I've had a great time this past week learning how to work in a lab, how to work through chemical equations and getting to know new people from all around. I was especially excited about the biodiesel experiment because I had learned about it in fifth grade (it felt like part of the old me was coming back).

Thank you so much for this amazing opportunity, it has been a great experience.

Sincerely,

Mackenzie Boyd

Green Chemistry camp 2017
I must start off by saying thank you because of the scholarship you gave me. Without it, I would've never met so many amazing people. I would still have many chemistry questions unanswered. So thank you very much. I learned from these questions that had, as in: "Can you measure the rate of decay of an alpha, beta, or gamma emitter? Tell me what the atom is?". Yes was the answer. Now answered many of my questions, which I really appreciate. I loved the labs we did throughout the week, constantly learning from them. An example was when Dr. Smorocznak explained to me, personally in detail, of how the battery has catalysts that make Hydrogen into beta particles, which from the Hydrogen sends a stream of electrons. It all combines after the oxygen went through the other catalyst which the electron, alpha particle, oxygen, and combine to make water. Learning amazing processes like that make me want to stay and learn more at this college. I am really looking forward to next year to apply for a scholarship to experience an out of the amazing camp next year where I can meet more people and make friends again. This summer Chemistry camp has got me excited on wanting to come to this college. This camp has provided me amazing experiences which I will never forget.

Thank you very much.

From: Braeden Barry
The Green Chemistry camp was filled with plenty of activities that kept us busy the whole time. The activities were very interesting, such as creating a solar cell and biofuel. The best part was that the projects we did were high-level chemistry experiments, so there was a challenge. For most of the experiments, there was an informational presentation so we could learn about what we were doing. I am from Kwajalein in the Marshall Island so my choices for extracurricular science activities are limited. Since I am interested in chemistry, this was a fascinating, interactive camp that had too many experiments for me to choose a favorite. This camp had plenty of activities, field trips and experiments to please anyone interested in chemistry.

- Madeline Teigen, US Army Garrison Kwajalein Atoll, Marshall Islands
My name is Isabella Yone Hill, and I grew up in Pine Ridge SD, but I live in Omaha NE. I am starting high school at Central downtown. This camp has been really fun. The experienced was wonderful. I learned many new things that I will probably learn in 11th grade. I really liked this camp. I'm glad I came. And I hope the following years forward there's more programs like this so I can keep attending. This was an eye opener on how I can help Earth be more healthier and not become dirtier to where people won't survive. Thank you to everyone who taught me new things the past 5 days. I hope I see you guys sometime again!

Love, Isabella Yone Hill
Dear Sponsor,

Thank you very much for giving me the funds to attend the green chemistry camp hosted at the School of Mines and Technology in Rapid City, SD. I learned a lot about green chemistry that I never knew before. I never knew how much chemistry could help the environment. It was so much fun and exciting doing all of the lab experiments. All of the products we made were safe to the environment. We also got to see all that South Dakota has to offer and learned about the chemistry involved. This camp definitely helped me meet new people and learn what I want to do in my future. This experience will stay with me forever.

Sincerely,

Olivia Linderman

Timberlake, SD
Green Chemistry Summer 2017
Green Chemistry (review)

by Elizabeth Carlisle

Summer 2017

I thought that this camp was really fun. I really enjoyed being able to see more things outside of the lab. It was creative, informative and very inspiring. The camp made me decide to start off my college career in chemical/engineering classes. I really liked being able to see the campus and what classes are like. I think that the classes should start later in the day so that kids are able to sleep a little. Other than that, I really enjoyed the camp. It was a very cool and unique experience.

Thank you so much to our chaperones and the professors that came in to teach and watch us.

St. Thomas More '2020

Elizabeth Carlisle
I would highly recommend this camp for anyone with even the slightest interest in science. As an incoming freshman, I didn’t have any chemistry experience and I was a little nervous about not understanding. But all of that changed when we started with the experiments. I can’t believe how much the Green Chemistry camp has increased my knowledge about chemistry!

We did many fun labs during the camp and they have all been helpful to learn more about this area of science. Whenever I didn’t understand something, the director of the lab was very patient and would take the time to help me understand it completely. The camp staff make you comfortable no matter what your age or grade level.

In the evenings, we visited many main attractions in and around Rapid City. Some of them were connected with Green Chemistry concepts and others were just fun to visit. I had a great time making new friends and laughing with the group. And, Dr. Filipova is awesome! I really enjoyed this experience at South Dakota School of Mines and Technology and I know it will help me in my future!

Kennedy Konrad
Kennedy Konrad, Incoming 9th Grader
Tea Area High School
Tea, South Dakota
Dear Sponsors,

I would like to start off by saying thank you for giving me the chance to experience such an amazing camp. I won't ever forget it and will take some of the knowledge I've obtained with me for the rest of my life. My favorite thing about the camp was the Sanford Lab Water Treatment Plant and I probably never would have been able to experience that if it wasn't for you. I have had an awesome time here at the School of Mines and would like to thank you again for giving me this chance to enhance my knowledge of chemistry and possible careers in the chemistry field.

Sincerely,

[Signature]

Trey Bollinger

Timber Lake High School, SD

Green Chemistry Summer Camp 2017
Dear Sponsors,

Thank you for sponsoring my attendance at the South Dakota School of Mines and Technology Green Chemistry camp. This opportunity has opened many doors for my future. From the job opportunities to the networking, this camp has been an amazing experience that I will be forever grateful for. While attending the camp, I learned many things. From making biodiesel to assembling cars that were fueled by hydrogen and oxygen. My favorite thing that we did at the camp was making the biodiesel out of vegetable oil. This was very cool to me, because I feel like if it was able to be performed at a high scale, and you could get enough people to commit to it, it would be create a much healthier world for the generations to come. The knowledge that I have gained from this camp will lead to further endeavors in the scientific field. Before my attendance at the Green Chemistry camp, I was unaware of the need for environmentally friendly practices. If it wasn’t for your scholarship I wouldn’t have had the privilege or opportunity to attend this camp.

Sincerely,

Ty Ducheneaux

Ty Ducheneaux

Timber Lake High School, South Dakota

Green Chemistry Summer Camp 2017
I must start off by saying thank you, because of the scholarship you gave me. Without it, I would have never met so many amazing people and I would still have chemistry questions unanswered, so thank you very much. I learned from those questions that I had: "Can you measure the rate of decay of an alpha, beta, or gamma emitter and finding what the atom is?"

Yes, was the answer. You helped me learn all those answers and more. I loved the labs we did throughout the week, I was constantly learning, like when Dr. Smirnova explained, to me personally, how the battery has catalyst that makes hydrogen into beta particles, which sends out a stream of electrons and it combines after the oxygen goes through another catalyst which makes water. Learning an amazing process that makes part of me that want to stay and learn more about this college. I am really looking forward to the next year to apply for a scholarship to experience another amazing camp next year where I can meet new people and make friends again. This summer chemistry camp has got me hooked on wanting to come to this college. This camp has provided me amazing experiences I will never forget.

Thank you very much,

Braden Bury
Dear sponsors,

I cannot express how far my gratitude extends. Being able to go to South Dakota School of Mines and Technology’s Green Chemistry Camp has opened my eyes to a wider and more pressing issue that is facing our great planet. Learning about solar powered fuel cells, solar panels, bio-fuels, and other green resources that would replace the current harmful resources was very interesting. It made me believe that there is without a doubt a way for our planet to help itself. Obviously this isn’t being done on a very large scale yet, but with my generation and the future generation’s help, it is a possibility to say the least. Although I am not sure what I will do as a career or where my future will take me, I know that my interest in green chemistry and its importance will certainly have something to do with it. However, without your sponsorship I might not have considered attending this camp as much as I did, thus I might not have been able to come to these realizations. So in short, thank you for guiding me towards a future that has become brighter after attending this camp.

Sincerely,

[Signature]

Beau T. DuBray

Timber Lake High School, South Dakota

Green Chemistry Summer Camp 2017
Dear Sponsor,

Thank you for giving me the opportunities to go to the Green Chemistry camp at the South Dakota School of Mines. It is a truly unique opportunity to get to know the campus and to learn more about topics that I am interested in. I truly appreciate the chance to come here. We got to make our own biofuel, slime, and fuel cell cars. We even changed iron into copper. Not only did I learn about the chemistry of these experiments, but I learned about the many careers that chemists can go into. We visited many labs where alumni worked and learned about how chemistry is in everything. As much as I loved learning, I loved the people even more. I met amazing people with similar interests to mine. We watched movies, played games, and talked and sang in the car rides. Dr. Filipova was amazing. She was an excellent teacher, and also very funny. We learned and laughed the whole week. She seemed to make every topic interesting. I am sad this week is over, and I hope I can come back again. Thank you for everything this week has given me.

Claire Bernard

Bishop Heelan Catholic High School

Green Chemistry

Summer 2017
GREEN CHEMISTRY CAMP

A wonderful experience!
I thought that all the staff were very knowledgeable and welcoming. The labs were exciting, the activities were fun, and the people were wonderful. The lectures were also incredibly engaging and interesting; an amazing academic adventure. It had a perfect balance of free time, classroom/lab time, and outside activities. A highly enjoyable and recommended time! Thank you to our sponsors for making this possible.

Made by Kate Richardson
Brianna Vocu  
July 30, 2015  
Green Chemistry Camp

This summer I went to a camp called Green Chemistry at the School of Mines in Rapid City. I thought it was a very good learning experience. We did a lot of things in the six days I was here. I was never bored always busy. Some labs we did while I was here is Atom Economy, Dye-Catalyzed Air Oxidation of Glucose, Making Our Own Biodegradable Plastics, Biodegradable Packing Peanuts, Isolation and Identification of Casein from Milk, and Dye-Sensitized Solar Cells. My favorite lab was the Dye-Catalyzed Air Oxidation of Glucose. I thought it was fun doing it and seeing them change colors. During the camp I learned how to use different chemicals and how to make different things. The doctor and chaperones were really nice, they always wanted to help and they always checked to see if you were doing good. And I really like the campus. I’m thinking about coming here. I also like the food here. I like how we traveled to a lot of different places. Some places we went to were Dinosaur Park, the Fire Station, Sanford Lab Homestake, Reptile Gardens, the Police Department, Armadillos, Hay Camp, Hill City, Prairie Berry, and Mt. Rushmore. My favorite place we visited was the Sanford Lab Homestake. I’m thankful I got to come here and experience working in a lab.

Sincerely,

Brianna Vocu
Cameron Vela  
Green Chemistry Camp  
July 30, 2015  

This camp was a great opportunity to learn about chemistry and forms of clean energy that are relevant today. It was also a great place to meet people that love science as much as I do. I would like to thank SDSMT and Dr. Filipova for making this camp posable.

Sincerely,

[Signature]

Cameron Vela  

Myranda Bender  
Green Chemistry Camp  
July 30, 2015  

My name is Myranda. I’m from Spearfish SD and I came to the Green Chemistry camp at the School of Mines and Technology. I’m interested in becoming a veterinarian when I’m older and thought this camp would be a fun way to experience a more hands on approach to Green Chemistry. While I was here I got to do lots of labs such as the Dye-Catalyzed Air Oxidation of Glucose lab, the Biodegradable Packing Peanuts lab, or the Soy Ink lab and many others. We also heard from multiple speakers and got to stay in the dorms at the School. Through all the labs, speakers, and field trips I’ve learned so much about Green Chemistry. I would like to thank all the people who made it possible for us to be hear.

Sincerely,

[Signature]

Myranda Bender
This week seems to have gone by in the blink of an eye. It seems as though only a moment ago I was arriving in the late hours of the night and crawling into my bed in the dorms. Now, we’re beginning on the second to last day. The people who are here have come from all across the Midwest. It really gave me the opportunity to expand on my perspective just a little bit more. Living on the reservation most of the year tends to close your mind to the world a bit, and this was just what I needed to remind myself of the other people who are working to change the world.

One of the first projects we did was building molecules. I had previously never worked with a molecule set, and it was a great experience for me. The activity helped me better understand atom economy, which is the amount of the original ingredients that didn’t end up as by-products. Chemistry has never exactly been my strongest subject, because I’ve never really had any classes on it.

Later, after we had established a simple description on what green chemistry was, we built a car. This car ran on deionized water which was powered by oxygen and nitrogen. This offered even more hands-on experience and kept me well focused. The pleasure of building something and watching it work is extraordinary, and building my first fuel-cell car is something that I will always remember.

Now that we’re drawing to a close with the program, I realize how much I’ve taken in. I would love it if other people from my school would be able to experience this, because I never really see any seriousness from my classmates there. If they could go to things like this, and realize that science can be just as fun as sports, we could really begin to prepare for our generation to push forward in the world.

Sincerely,

Dorian Sage
Brooke Hogan, Senior from Olathe North High School (Kansas)
July 30, 2015
Green Chemistry Camp

The Green Chemistry Camp has been a great opportunity. The best parts were the lectures. Since I am going into my senior year of high school, it’s really important that I feel out the colleges I am considering. The lectures have allowed me to do that. They provided a realistic college setting in which I was able to get a taste of the School of Mines experience. Before camp, South Dakota School of Mines & Technology had been one of my top choices. This camp has solidified my judgements and has made me feel more comfortable entering the application process. I know for fact that I could be comfortable here.

Apart from the classroom aspect, it’s been great getting to know the other students. I’ve been able to get to know kids from small towns and reservations. I got to teach the younger students and collaborate with students my age. Most of all, I made friends. I’ve begun to build a network of acquaintances across the Midwest.

The Green Chemistry Camp should be held every year. Chemistry is what I like to call a “hidden science.” Students don’t really get exposed to chemistry more than just the basics until high school. Even then, it’s often not prioritized. Chemistry isn’t promoted as well as other mainstream sciences such as biology. Kids who come to the camp widen their academic horizons, discover new interests, and learn more about what they value in the classroom.

Sincerely,

[Signature]

Brooke Hogan
Sierra Hauff  
July 30, 2015  
Green Chemistry Camp  

The Green Chemistry camp has been a wonderful experience. It gave me a better understanding of how a chemistry lab functions and what it takes to get a chemistry degree. The camp taught me the importance of procedure and the joy of having successful experiments. Thank you to everyone who helped make this camp possible. Also, thank you to Dr. Filipova and the School of Mines students that put in the time to show us the possibilities of eco-friendly chemistry. It has open the door to protecting the earth through creative chemistry.

Sincerely,

Sierra Hauff

Sophia Wroblewski (Gordon, Nebraska)  
July 30, 2015  
Green Chemistry Camp  

I came to the Green Chemistry camp because I like science and I thought it would be fun. We did a lot of experiments. Some of them were fun, but the soy ink didn’t really work out that well. I really liked the biodegradable plastic and the biodegradable packing peanuts. I also liked making the fuel cell cars.

Sincerely,

Sophia Wroblewski
Joey Chance Garnette  
July 30, 2015  
Green Chemistry Camp

Thank you to Dr. Fillipova and her students for taking time out of their summer to help us learn about Green Chemistry. The time, effort, and organization put into the camp was tremendous and required a lot of enthusiasm and commitment. The teaching from Dr. Fillipova and other professors was excellent. This camp helped me understand what Green Chemistry really is while working with very nice professional people during the time I was here. I had first become acquainted with Dr. Fillipova when she came to Batesland School (where I attended 8th grade this past school year) and created opportunities for me and my classmates. She had provided hands on experiments in my classroom while visiting my school. Dr. Fillipova also invited my class to the School of Mines campus to work in the lab where we experienced learning chemistry with neat hands on experiments. This is when I found out about the Green Chemistry program at the School of Mines and I soon became very interested in signing up to participate in the summer camp.

The Green Chemistry camp was a great place for me to spend my time learning this week. This camp will enrich my education with knowledge of Green Chemistry and how it effects our lives every day. I really never thought Green Chemistry would actually change lives. I learned there are ways to help reduce the production of waste and reduce the usage of the Earth’s natural resources and, I had no knowledge of that before I came to this camp. I had few opportunities at my school to do hands on experiments and I did not have opportunities to gain knowledge of what green chemistry is.

I would also like to thank the School of Mines staff for helping to put on the Green Chemistry camp by providing the transportation, dormitory and food services. This camp was organized and well run. The students and staff assisting in the summer camp were very nice, and they provided us with valuable information and hands on experiments to be actively involved with.

I’ve had a great experience at this camp and I would most certainly come back to another camp here. The camp was a great place for me to be this summer to continue learning about chemistry and science. The camp was fun and very educational as we learned about safe and responsible ways to take care of the environment in which we live. I would highly recommend that all students attend a Green Chemistry camp with Dr. Fillipova to enrich their education and have a great experience. I believe that this camp will encourage students to attend college and especially the South Dakota School of Mines & Technology. Thank you so much to the sponsors who made this all possible with their financial support!

Sincerely,

[Signature]

Joey Chance Garnette
Sierra Foley  
July 30, 2015  
Green Chemistry Camp

I would like to thank all of the people and organizations who came together to give me the opportunity to attend this camp. The knowledge I gained was priceless and it gave me an inside look at South Dakota School of Mines and Technology’s campus, classes, and professors. I decided to attend the Green Chemistry camp because there was nothing else like it in the area. I enjoyed chemistry in school and wanted to further my knowledge on the subject. Students from many different chemistry backgrounds allowed it to be a fun but challenging experience.

I enjoyed every lecture and experiment we did, and the field trips were educational and built on what we learned. My favorite experiments include the biodegradable plastic and building a fuel cell because we got to hold and test our product and compare the greener version to the products we use in our everyday lives. The camp showed me that chemistry is a part of everything we do and need. The professors were wonderful and answered any questions we had. However, I would recommend that incoming campers have a basic chemistry knowledge or have taken a semester of chemistry in school so that the advanced topics make sense and they know their way around a lab.

I know many people worked hard to make this camp possible. I want to thank South Dakota School of Mines and Technology, the professors, and outside sponsors that allowed me to participate in this camp. It was a wonderful combination of labs, lectures, and friends that I will remember forever.

Sincerely,

Sierra Foley
I attended the Chemistry Camp at School of Mines and Technology. I thought that this was a very interesting camp and I found it to be a really good learning experience. Some of the things we did were making biodiesel from vegetable oil, dye-sensitized solar cells, isolation and identification of casein from milk, and making our own biodegradable plastic.

We also visited Reptile Gardens, Hay Camp, Mid Continent Testing Labs, and Sanford Lab Homestake. We learned about mining and fermentation, while having fun with a wonderful group of people. We got to go to places we probably wouldn’t have went if it weren’t for this camp.

It was a good experience to meet new people and learn about the many opportunities we can have when studying about chemistry. I may not study chemistry, but it’s good to know the different things that I can do. I can try new things if I want to.

My favorite lab was making biodegradable plastic. Although, I enjoyed all of the activities. You can learn a lot while having fun. I think that it is very important to enjoy what you learn.

Overall, I really enjoyed the camp. I would come here again if I had the chance. The people were great and I actually enjoyed learning here. The things taught were taught in a good way.

Sincerely,

Woniya Fast Horse- Janis
Casey Boyd, Senior at Castle View High School (Colorado)
July 30, 2015
Green Chemistry

I hope to become an extravagant, illustrious, researcher in the field of chemistry. While I knew I loved chemistry, this camp has made that devotion grow from a seed, to a towering redwood tree. This came has elevated my chemistry research dreams to a high possibility by meeting professors, seeing the curriculum, and opening my eyes to the wonders I will soon control.

When I got here, I knew I would go into chemistry, but I wasn’t sure quite where to go from there. On the first day here I met a wonderful professor. When I met her I already knew there was at least one great professor here. Then I heard about the other research that all of the other professors are doing here, and I had gotten more and more exited after every lecture. Then the professor working on renewable energy projects, and I was completely hooked. She had so much information, and I wanted to do nothing, but sit there for hours and learn. These great professors here are making me forgot all the fears of college, and now I want to do nothing but learn from them.

I was also amazed by the curriculum. One of the first papers I saw was the classes I would take here. I felt like I died and went to chemistry heaven. I saw all of the chemistry classes I would take, and now all I want to do is take them. The fact that I had an idea of doing anything else, but taking chemistry here is mind blowing. I know that when I get here, I’ll feel like I just won a gold medal at the Olympics all the time.

While the professors and curriculum can never be understated, the equipment here is awe inspiring. I thought that my equipment at my High School was fantastic. However, using the equipment here was like thinking a coin operated horse was the best experience of all time, and then going to Disney World with the same idea in mind. Knowing the equipment I am going to use here makes me feel like I will be inheriting a 20 billion dollar fortune next year.

I didn’t know what I was going to find here, but what I did was more than I ever could have imagined. I was split between a few colleges in Colorado, possibly a community college, or here at the South Dakota School of Mines. Now I know here is where I am going to start my journey in the world of college. I was worried about being away from home, but with these great professors I know I have nothing to worry about. The chemistry program here will be challenging, but the experience here would be worth more than gold. While deciding where to go after high school was challenging, this camp has cemented my decision to go here.

Thank you so much for giving me the opportunity to go here. Without the scholarship I wouldn’t know what the South Dakota School of Mines and Technology has so much to offer. You have changed the course of my life, and now I will be able to research what I love because of you.

Sincerely,

Casey Boyd