Prairie Outreach and Education

Deerfield elementary students participating in activities taught by Free State High School Students with the help of KU students the week of February 27th.

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Abstract

The goal of the educational outreach program was to teach students about the complexity and importance of the Prairie ecosystem. Additionally, the project was intended to involve KU students with an outreach initiative, give feedback, and expand the lesson plans to include prairie activities. Four lessons were taught to high school students about the ecology of tall grass prairies. Lessons one through three were modifications of previous lessons, while lesson four was created exclusively by the KU outreach group students. This information was specific to KU’s very own Prairie Acre, a project undertaken by the Environmental students taking their Capstone course at KU.
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Introduction and Background

One of the common questions the students of EVRN 615 course are asked to write reflections on is “how can we get the public more involved in environmental protection?” With the Educational Outreach Program, the question has been studied in depth. People can care for the environment, restore prairies, and work to bring back pollinators all their lives, but if they do not pass down a love for nature to other generations, it will all be for nothing. More specifically the KU outreach group wanted to focus on the ecosystem near and dear to many Midwesterners: the prairie. The whole Environmental Capstone course was centered around the Prairie Acre on campus, so the KU outreach group thought it would be best to focus their lesson plans on the complexities of this precious environment. The goal for this project was for KU students to be involved with an outreach initiative, give feedback, and expand the lesson plans to include prairie activities. Having KU students teach high school students who then interact with elementary school students is a way to not only connect the community of Lawrence to the Environmental Studies Program at KU, but is also a way to foster interest in the natural environment, which is likely to have the biggest effect when it is started at a young age.

The KU outreach group taught four lessons to high school students at Lawrence Free-State High School. The high school students then reviewed the lesson and prepared to teach the lesson to elementary schoolers at Deerfield Elementary School. With the help and direction from KU professors Peggy Schultz and Helen Alexander, and Lawrence Free-State High School’s environmental science teacher Julie Schwarting, the were able to gain a better understanding of the lessons and expand on them prior to teaching. The lesson plans were created to align with the Next Generation Science Standards, which are outlined by the state of Kansas. The lesson plans
had to cover the science standards for the students at the high school level and at the 5th grade level. These goals were clearly outlined for each age group within each lesson plan. The lessons themselves covered subjects ranging from trophic levels, to physical properties of soil, to tallgrass prairies. Through this process, KU outreach group made sure that students were not only learning about the complex systems in the natural world, but fundamentally understood what they were teaching the high schoolers because they had to teach the lessons as well. Hopefully, this outreach program will be continued by KU environmental students and evolve long after this experiment and the mistakes made by the KU students during this trial will not be made again.

The goal of the experiment is to understand the outreach development obstacles the KU students had while working with high schoolers, and how other students may avoid these issues when replicating the outreach program at a later date.

Methods and Structure

The project utilized three lesson plans, which were modifications of lessons used in the Biology Outreach program and Indiana University, and the KU students created supplemental powerpoints and added materials when necessary. While a fourth lesson plan was created by the KU outreach group, which incorporated aspects that would link the lesson plans to the Prairie Acre at the University of Kansas (KU). The KU outreach group consisted of six Environmental Studies major students who were as follows: Lamisa Chowdhury, Elizabeth Williams, Hazara Leon, David Stine, David McClannahan, and Lanie McMullin. Delanie Bates was independently researching under the mentorship of Helen Alexander and helped with the project when she was
available. The group was mentored by KU professor’s Peggy Schultz and Helen Alexander who initially designed the program.

KU students signed up to teach the lessons via Google Sheets. The structure of the program was as follows: as stated before, on Sunday, the KU group would meet at Free State High School with Julie Schwartzing, Helen Alexander, and Peggy Schultz to run through the lesson plans for the week, add useful information, and restructured the lesson plans to fit the KU group’s teaching style and high school group’s size, on Monday, the lessons was taught to three different environmental science class led by the education and outreach group, on Tuesday, the high school students taught the lessons back the KU students and were able to ask question and prepare for friday, and on Friday, both high school and college students went to Deerfield Elementary School and taught the lesson to Ms. Bailey’s 5th grade class. The high schoolers would teach the Deerfield students while the KU outreach group would supervise and assist with the lessons. Because there were three class periods and three lesson plans each class period was assigned a different lesson on a different week to teach at the elementary school. The two other classes taught the lessons to freshmen high school students. Students were asked to take notes on each lesson in order to appropriately teach the lesson back to the KU outreach group the following day. After reviewing the lesson plan with the KU outreach group, the Free State High School students volunteered to teach the Deerfield Elementary school students. Only some of the students from each of Ms Schwartings classes went to Deerfield – only the ones who attended class on the days we taught the lesson and who were prepared to work with the students were allowed to go. Additionally, only a certain amount could be taken to Deerfield via Free State transportation. This meant that not all the Free State High School students were teaching the Deerfield students and worksheets were made for the students who did not participate.
Following the implementation of the first three plans, interviews were conducted with the high school student and Julie Schwarting. The fourth and final lesson plan was created in the weeks following, and initially tested on April 20th, it was then revised and presented to the 3 high school classes on May 1st.

Materials and Individual Lesson Plans

“The Interconnectedness of Life to the Environment”

The first lesson titled, “The Interconnectedness of Life to the Environment” covered food webs and trophic levels and was taught to Ms. Schwarting’s three environmental science classes the week of February 6th. The Free State High School students then taught the Deerfield Elementary school students on the Friday of that week. The purpose of the lesson plan was to Introduce how all life depends on plants which require air (CO2, O2), water, nutrient rich soil and energy from the sun. This introductory lesson is 1 hour and 15 minutes, however for some classes due to time constraints we will have less time clearly a copy and paste error (Lesson Plan 1, 1). This lesson plan started with a to the trophic levels and vocabulary, followed by rotating through four groups representing primary producers (plants), primary consumers (a rabbit), secondary consumers (a chicken), tertiary consumers (snake), and finally decomposers (isopods). For this lesson, we used live examples of each trophic level (provided by Julie Schwarting). This meant that during teaching the students were responsible for keeping track of a bunny, snake, chicken and isopods. While all of the students greatly enjoyed interacting with the animals, the animals required various materials including: a rabbit cage, a snake terrarium, containers for the roly polys, one carrying cage for the chicken, two tubs for food and water, and potted plants; timing and preparation should be considered when gathering animals and supplies. [See
The second lesson plan titled, “What is Soil?” was about soil systems and was taught the week of February 20th. This lesson plan incorporated three activities, which all had their own materials and methods that were reconstructed by the KU students to appropriately facilitate the amount of high school and elementary school students being taught. Similarly to the previous lesson, this lesson also outlined requirements from the NGSS. The “…purpose of these instructional activities is to demonstrate to students that soil consists of various inorganic and organic particles” (Lesson Plan 2, 1). This lesson illustrated how soil is formed, and taught the basics of soil. The goals of this lesson included: students developing an understanding of the basic vocabulary of soil composition and students demonstrating their knowledge of the composition of soil. The first activity had the students illustrate the process of weathering by hitting rocks and breaking them down into smaller pieces.

The second activity placed the broken pieces from the first into a soil sieve showing grain sizes and allowing the students to classify them into sand, silt, or clay. Materials needed for this activity were as follows: two or three graduated sieves, pan to hold fragments, sand, soil, clay, magnifying glasses, small watch glass, and beaker of water. The third activity explored these concepts further, using water in a graduated cylinder to illustrate density of different parts of soil: sand, silt, clay, peat, and riverbed soil. These were dropped into the cylinder and the students were asked to observe whether they sank, floated, or became suspended. The materials needed
for this activity were as follows: one 1000 ml graduated cylinder, sand, clay, silt, soil, peat in labeled bags or in pans. The next activity illustrated the air present in soil by having whoever was giving the lesson pour water quickly into a beaker of soil, and a beaker of sand. Materials needed were as follows: Small beakers with sand or soil with room for water, Water in small beakers—the amount doesn’t matter but about 25 mls (they used 10 ml -2016), Bubble maker. The bubble maker was not used in the end.

The final activity was called the Water Races. The materials needed included: Several small tubes with either sand or soil held in the tubes by Cheesecloth and Rubber bands, Small graduated cylinders, Water bottle, Pans to catch water, Small chalk board, One tube with clay in it as a demonstration, and Large beaker for wastewater. KU students handmade the cylinders needed for this activity on the Sunday before the lesson was taught. The cylinder was filled with either sand or soil, and the sand and soil columns had to be the same height. The Water Races Protocol were as follows: 40 ml KS river floodplain soil, 80 ml greenhouse soil, tap the tube 10 times on the table, tubes should be half full, add 10 ml water, and start timer when water leaves graduated cylinder. This activity had to be reworked until the timing was absolutely foolproof, meaning the water racing protocol described above was not used for this lesson. This activity was meant to have the students think about which is better for plants to grow in. Each pair of students had one sand and one soil, and a demonstration test tube was set up with clay and organic matter. The students timed how long it took for the water to disappear from the top, and the information allowed them to hypothesize which would hold water better to allow plants to grow. [See Appendix for pictures of this lesson plan with accompanying captions.]
“What lives in Soil?”

The third lesson plan titled, “What lives in Soil?” was the final plan that was provided for the capstone group brought the concepts from the first two together and was taught the week of February 27th. The purpose of this lesson was, “Students will discover organisms that live in soil and their roles in the ecosystem” (Lesson Plan 3, 1). The lesson started with a PowerPoint introducing biomes, and some vocabulary associated with that, and then split into four groups in a fashion similar to the first lesson plan. The first group was a prairie germination experiment, where they planted prairie seeds in flats to put into the prairie site during the fourth lesson. Materials needed for this experiment included: Seed cells (large 6-pack, 3 per class), Soil, Prairie seeds (all classes will plant seeds of 10 species of prairie plants, but each class will only plant seeds from 4 species), Water bottles, Small containers to put seeds in while students are planting, Plastic tags, Tarp or newspaper for table surface, Pencils (for writing plant name), Hand wipes (for students after planting), Small pictures of each species of prairie plant for students to glue into their notebooks, Small paper “facts” for students to match the picture of the species their class will be planting, Spiral notebook with large prairie plant pictures and drawings of prairie plant roots, Glue sticks, and Coleus plant. The second group dissected bean seeds at various stages of germination to show what will happen to the prairie seeds as they grow. Materials needed for this activity included: Beans, 2 petri dishes, soil trays. The third group simulated erosion by pouring water on loose soil, and sod to show how plants can reduce erosion. Materials needed for this activity included: soil, sod, white poster paper, pipets, fan. The fourth group learned about larger organisms in the soil, by testing whether isopods would prefer a light or dark environment, and by looking at 3-D models of animal burrows. Materials needed for this activity were as follows: Roly polies, petri dishes lined with moist paper towel, black
construction paper and scissors and tape (cut out squares of paper so that the paper overhangs the dish and thus shades the sides as well), markers so students can write their names or initials or letters A, B, C, etc. on their dishes. [See Appendix for pictures of this lesson plan with accompanying captions.]

“Prairie Biome”

The fourth lesson plan is intended to apply the knowledge from the first three into the prairie sites at Free State and KU. The final version was taught by the high schoolers on May 5th. In its earliest stage, there are three stations, covering prairie animals and where they fit in a food web, ending with the students creating their own prairie animal. The second station covers soil, with a root system demonstration, and a brief description of symbiotic organisms. The third station is about plants, having the students plant whatever seedlings sprouted after they planted them and other plants that Julie Schwarting ordered. This station will also give examples of other prairie plants. The materials needed for the fourth lesson plan are as follows: Poster board, 20 or more colored markers, 20 or more pieces of printer paper, animal specimens courtesy of the Natural History Museum, bee specimens courtesy of Daphne Mayes, one fold out table, a laptop, one printed copy of the PowerPoint, three yarn pieces cut to length of root systems of three prairie plants, and animal print-outs with Velcro on them. This lesson was also a way to learn how much of the information the students retained. A worksheet was created to go along with the lesson plan for the free state students. This allowed them to follow along and take notes which could then be used when teaching the elementary school students. The first section of the lesson was mainly an summary of previous lessons and the main questions focused on the prairie itself. Students were asked prairie characteristics and how the prairies in Kansas were formed and maintained.
May 5th was the final day of the teaching program. The KU outreach group supervised a field trip to Free State. Deerfield elementary students arrived at Free State at 8:45 in the morning and met the KU outreach group at the Free State prairie. The KU outreach group ran the introduction to the lesson while waiting for Free State students to arrive. The Free State students were in charge of teaching the lesson while the KU students help facilitate when necessary. The lesson included 4 stations: animals, plants, pollinators and roots. Each station included hands on activities designed by the KU students to get the Deerfield students interested in the prairie ecosystem. [See Appendix for pictures of this lesson plan with accompanying captions.]

Results

Results were gathered with the help of student responses and an interview with Julie Schwarting, allowing for the KU outreach group to gather information on how each lesson plan did and how well the experience worked for the students. In the student responses, students chose what lesson plan they enjoyed, what plan they did not enjoy, as well as performance reviews for themselves and for the KU outreach group. Additional results were also obtained from the KU outreach group to learn what we believed went well and what could use improvement.

The first lesson plan, which taught about trophic systems, was the most popular lesson among the high schoolers. A major contributing factor for this seemed to be the use of live animals and the relative ease of the material in comparison to the other lesson plans. The information from the first lesson plan seemed to be the easiest for students to remember, as all of the lessons that followed it built upon the knowledge from the first lesson. Ways to improve the lesson in the future would be to make sure that students get assigned to a group with an animal
that they are not uncomfortable with, which was the biggest complaint amongst negative feedback on the lesson.

The second lesson plan, which involved the texture triangle and properties of soil, was also well received. Factors for it being enjoyed seemed to base around the fact that this lab included an experiment, unlike the first lab, and all parts of the experiment were linked with the lesson plan. Students enjoyed simulating physical weathering by smashing limestone and shale together. One of the issues associated with doing experiments during class is that they can be time consuming during both setup and cleanup and short class periods can hinder students ability to thoroughly set up, perform and clean up each experiment. This lesson plan does generate a lot of cleanup, which could be remedied by having the physical weathering done in a contained environment to avoid creating too much of a mess.

The third lesson plan, which involved germination and plant growth, was the favorite plan of four of the students. However, students felt that it was in the most need of improvement, saying that the lab was “un-interesting” or left the students with a “very rushed feeling”. The students may have felt rushed because they were expected to be able to present the information back to the KU students the next day. For some students this was a somewhat overwhelming task. It was also noted by the Free State high students that the KU students seemed the least prepared for this lab, which was accurate. Unfortunately, the KU students did not have the ability to meet that Sunday before teaching the lab so it is understandable that the Free State students noticed that the KU outreach group was less prepared.

In general, students stated that they had a lot of fun, and one of the largest factors to how well they taught or learned the material was whether their class was teaching the students at Deerfield Elementary. In an interview with Mrs. Schwarting she stated that, “the students were a
lot more engaged in the learning process than they were usually, and that it was fun to see the
effort they put into making sure the fifth graders had a positive learning experience. A major
central voiced amongst the students was that they didn’t feel very good about teaching the
information given to them, even though they felt confident that they knew the information. There
was also a general consensus of the need to improve on what they did. One way to improve upon
this would be to spend some time teaching the KU and Freestate students how to effectively
deliver the information to their students. The KU students were rated as being well prepared and
having very good teaching skills, but can improve by making the material being taught easier to
remember by handing out worksheets and organizing themselves a bit better.

Overall the lesson plans were met with a lot of interest from both the Free State and
Deerfield Elementary school students, and both groups seemed to grasp a better understanding of
the material than they otherwise would have through normal schooling.

Discussion

The goal for this project was to familiarize KU students with an outreach initiative and to
also gain insight and give feedback in order to expand and build upon the lesson plans. The
Educational Outreach Program will help future generations of people to understand more about
how the environment around them works, and therefore encourage them to care for these
environments. The more people you can teach the better because caring for the environment is
not a one-person job, it must be a societal initiative. This meant that we would develop outreach
activities that could be used at prairie acre and work towards educating young students about the
importance of their local ecosystem through nested mentorship. This sort of teaching pedagogy
where the student learns to comprehend and assimilate geology, ecology and the cultural history
of an area in the community is referred to as a ‘sense of place’ and it can become very difficult to carry out this type of teaching method (Dewitt and Storksdieck, 2008). There is much research that indicated that field trips are only optimized when teachers actively integrate the content of the field trip with the curriculum. Although an environmental outreach program does not classify as a field trip, due to the numerous interactions we had with the students, it still contains many of the similar characteristics. For example, it requires a similar amount of preparation and commitment, interaction with the teachers and the materials before it is presented, adaptability of the material for the age group, adaptability of the presenters, etc. Therefore, it is best discussed in relation to research carried out for a field trip.

After completing the lessons, it was evident that many of the concerns were related to the lack of stimulating information on the subjects being taught as well as a lack of information on what and how to teach the elementary school students. Therefore, it would be beneficial to have more time to coordinate the lessons and gather information that is relevant, yet engaging for the students. As all the participants are students and have classes during the day and frequently at the same times it was somewhat difficult to plan around everyone’s schedules. This led to sometimes not having enough KU students available to teach the Free State Students. Throughout this entire process, KU students had a difficult time handling material they had learned a few days prior and coordinating activities that gave favorable results as well as ones that were engaging, yet fitted for the time frame of each class. Studies show site educators’ perceive their role as motivators rather than as teachers (Noel, 2007). Likewise, KU students believe they are able to motivate and involve students, but that they must first learn to prepare lessons and activities that can be informative and engaging to help reinforce the material rather than simply reiterating it.
There have been a lot of studies showing the crucial role of a teacher (permanent teacher of the class) in the preparation process as well as in the reinforcement of the materials after a field trip (Pasquier and Narguizian 2006). On the other hand, there is little information on how a site leader/instructor should carry out their tasks during the field trip and serve the need of the students. As part of this outreach program, KU students were sent out with a very clear understanding of the type of material they were to teach. Prior to our introduction to the classroom, both the Free State High School teacher and the Deerfield Elementary School teacher had prepared their students with the information needed to fully participate in our lessons. By doing that, the kids were able to reintroduce the terms they had learned in previous lessons and apply it to our interactive PowerPoint and activities. Although KU students understood why they were participating in the outreach program, preparation still lacked greatly, which ultimately damaged the effectiveness of the lesson plans. Meeting every Sunday is highly recommended for future students who plan to participate in the outreach program. By meeting once weekly, this allows for KU students to perfect the lesson plan, make the necessary changes, and practice with each other prior to teaching other students. Timing can also be practiced, so high school students can learn all the information before the next day where they must teach it back.

During the lessons they were highly suggested to take notes, not only for their own benefit, but also for the benefit of teaching the elementary school students. Thus, the reinforcement process was not only to have KU students as teaching assistants, but also to take it one step further and have the high school students teach elementary school students. By teaching another person, they were made responsible for the amount of information they received from the lessons and the manner in which they wanted to present it. However, the students had a hard time paying attention and did not take notes very often. Students who work on this outreach
program next time should create worksheets for every lesson in order to help the high school students understand how to take effective notes. Additionally, it would be helpful to give worksheets at the beginning of each lesson to try to gage how much of the information the students knew before the lesson. After the lesson, students could be given the same questions which could then be compared to their previous answers. Thus, the high school students will do the activities, take notes, and then test their knowledge and their notes with the worksheets and the KU students will be able to know how much of the information the high school students maintained. This method will also help the high school students prepare to teach the elementary school students because the worksheets will solidify the information needed to teach the elementary schools students. The act of taking notes and answering questions more than once helps both maintain and reinforce the new information.

Something else that could be improved in the future is giving the outreach program students more time to go over the lesson plans before they are presented to the high school students. The lesson plan that went the best was the first, where there were two weeks’ worth of preparation. Giving the high school students more time with the information they are expected to teach could avoid the issue of the students feeling rushed as they reported with our lessons. Another aspect that needs improvement would be creating a simplified or more streamlined lesson plan for the college students to give to the high school students. Having those materials will make it easier for the high school students to comprehend, and therefore easier to teach. The lesson plans that went the best were the ones the high school students we were most prepared for, and therefore more excited to teach.

Julie Schwarting gave concrete feedback about the project and her hopes for the future. While she did clearly state that she thought her students learned better because of the project, she
also did talk about the organization and implementation of the project. Schwarting strongly stressed the importance of a project such as this one. She believes that having her students taught by other students who are closer in age is a great way to encourage participation from her students. Additionally, she discussed how giving her students the opportunity to go to the elementary school was helpful in encouraging learning for her own students. The high school students were excited at the thought of getting to teach younger students and this encouraged the students to prepare and master the material. Julie also discussed some of the issues she observed in the implementation of the project. One of her largest points was the fact that this was a short 4 lesson project. In the future she hopes to incorporate more lessons and extend the length of this project because she believes it is beneficial for the learning of her students.

Regarding the fourth lesson plan, a test run for the final lesson plan was set to take part on April 20th, Prairie Planting Day. However, engagement on Prairie planting day lacked greatly. Communications between KU, Free State High School and Lawrence High School, whom we invited, as well as other KU departments, such as UKanTeach were made. Nevertheless, verifications on whether the departments and high schools would be attending the fourth lesson plan event were not made. Therefore, attendance on the initial run through of the fourth lesson plan was severely lacking. Students who plan to partake in the outreach program in the future should plan on creating an RSVP via Google Docs in order to verify whether other departments or high school students will be attending. Thus, the KU outreach program students will have a headcount of who will be attending and take the appropriate measures. Despite the miscommunication between various groups taking part in this event, the general public that attended this local event served as a great tool for preparation of this final lesson. By teaching our fourth lesson to the local community at Prairie Acre, we were able to discover the flexibility
of our fourth lesson. It was also evident that teaching the public about Prairie ecosystems is possible and can be done in a way that is easy to comprehend and engaging to a diverse audience.

**Conclusion**

In the end, there is still a lot of room for improvement, but knowing the strengths and weaknesses of a program like this makes it possible to reinvent the manner in which science is being taught and to fix it for years to come. The hope is that this project and others like it will continue. Teaching in this manner is a great way to get the community involved with projects such as prairie acre. Both the high school and elementary students now know significantly more about the prairies around them. One of the major goals of the fourth lesson plan was to stress the importance of prairies and community involvement. This program connected multiple schools through teaching.

Strengths of the outreach project include allowing high school students to engage with younger students, which promotes learning. It is known that one of the best ways to learn new information is to have to teach it to others. When one is able to teach new information to others that is when they truly understand the information. This project was an extension of that. The KU students learned the information from their professors and began a chain of teaching with the free state high school students. By the time the KU students went to Deer Field elementary, they all had a firm grasp on all of the information in the lessons.

However, as stated before, the Free State high school students did not have the same amount of time the KU students had to learn the lessons, and did not feel as comfortable teaching the lessons. In the future, KU students could inform high school students how to effectively
communicate with younger students to help them feel more comfortable teaching in general. Furthermore, the lessons could be done in weekly installments, meaning on week one, KU students teach the lesson; on week two, high school students teach it back to KU students; and on week three, high school students teach the lesson to elementary school students. This installment plan will give students more time to understand the lessons and prepare accordingly, such as making note cards, editing powerpoints, and adapting the lesson to facilitate the elementary school class sizes with the help of the KU students. This is important because the KU students were given the opportunity to shape the lesson plans in the ways that they felt most comfortable. Allowing the Free State students to have the same ability to shape the lesson plan would allow the to feel more comfortable with the material they are expected to teach.

Additional weaknesses of the project included the lack of time and preparation KU students had. For future outreach projects, KU students should create a timeline to follow with all the lesson plans provided in the beginning. This allows the outreach group to look over all of the information being taught and plan accordingly. For instance, the outreach students can create the worksheets for each lesson plan soon after the timeline is created.

Overall, it is clearly that this project was beneficially for not only the KU outreach group, but also all the other students involved. While the project did have some issues the main goals were achieved. The KU students integrated their knowledge with what was taught by the KU professors and were ultimately able to come up with their own lesson plan incorporating multiple aspects of the previous lesson plans. This project is an example of learning through doing. There were many issues within the project including scheduling and organization. In the future students who participate in this project need to be made more aware of the time commitment that such a
project requires. Furthermore, outreach project students should be aware of the mistakes made by this outreach project group in order to build a stronger outreach program.
Appendix

Lesson One Pictures:

David M. teaching students about secondary consumers with a snake as an example.

Rabbit was used as an example of a primary consumer.
Chicken was used as an example of a primary consumer along with the rabbit.
Lesson Two Pictures:

High school students learning the activities for lesson two.

High school students weathering rocks for lesson two.
Dr. Peggy Schultz facilitating the water races with Deer Field students.

Hazara setting up activity one at Deer Field Elementary.
Lesson Three Pictures:

Lamisa teaching high school students about erosion and monolith soil history for lesson three with the help of Helen Alexander.

Hazara teaching bean dissection to high school students.
Lamisa and Helen teaching students about monolith soil history.
Lesson Four Pictures:

Student volunteers learning about prairie root systems for lesson four.

David M. presenting information on prairie animals.
Free State High School students teaching Deerfield students the lesson with David McClannahan close by to help facilitate if need be.

Free State High School student teaching Deerfield students about prairie root systems.
David M helping plant prairie plants at Free State High School with Deerfield students.
References


