

Regenerative Medicine Minnesota
Innovators of the Future Community Based Science Programs: Bois Forte
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Project Summary

The Innovators of the Future Community-Based Science Program: Bois Forte was a program designed and carried out by the Bois Forte Band of Chippewa. The activities took place at Nett Lake Elementary School (<http://nettlakeschool.org/index.cfm?pID=5964>), a public school located on the Bois Forte Reservation, located 125 miles north of Duluth. The goal of the project was to improve the science and math readiness and increase awareness of science and research careers for 3rd-6th grade Native American children. In 2016, 57 were served by this Innovators of the Future project. This exceeded the 2016 target number of 35 students.

The community-based approach to learning allows access to quality education experiences for a larger number of students. This method empowered Bois Forte to identify needs of their own children and determine the program structure and design best suited to these needs. Because it was carried out in their own community, the program was further able to utilize local resources, knowledge, and talent. In applying for funding, Bois Forte developed a proposed curriculum for 3rd-6th grade youth that included requisite science, math, health and wellness, Native American culture, research, and regenerative medicine.

In 2016, Innovators of the Future made a marked impact on Nett Lake's science curriculum. The school had lost its science teacher due to budget cuts with that, appropriate science activities were deficient. While not a replacement for a full school science program, this project provided very needed support and resources to implement valuable and meaningful learning activities where otherwise there would be few.

The project began with an enhanced summer school curriculum. Prior to Regenerative Medicine of Minnesota funds, the summer school included activities to improve math and reading proficiency; with the additional dollars, a new science component was added. The school also had the ability to substantially increase the numbers of students. Approximately half of the school's student population participated; the school's principal reported that these were "record numbers for Nett Lake Elementary Summer School!" Summer School science activities included a trip to the Science Museum of Minnesota, the Paulucci Space Theatre in Hibbing, MN; and an animal farm, the Cook Country Connection in Cook, MN.

Science activities continued through the academic year. With Regenerative Medicine of Minnesota support, students were provided engaging hands-on activities and presentations. In its northerly, somewhat remote setting, science lessons that use and address nature and natural resources is meaningful to students. As such, activities included a visit from University of Minnesota for a presentation on the solar system; safe capture of butterflies and bugs with accompanying science discussions; and presentations by representatives of a nearby bear sanctuary. Each of these included a description of related careers. The school was also able to purchase kits for teaching biology, physics, electricity, and chemistry.

In reflection, the school principal thought an area that will be covered better in the upcoming project year is a heavier emphasis on regeneration, medicine, and research. During the 2016, teachers did not have adequate guidance and age-appropriate resources; for the upcoming year, Dr. Wirta Kosobuski has been working with UM Medical School faculty to create activities and provide experiences for the students.

A post survey was completed by twenty-six Nett Lake Elementary School students regarding the Regenerative Medicine Minnesota science activities they experienced. Their responses to selected questions follow:

Percent student responses to select questions (n=26)

	Yes	No	Maybe	No response
Do you think you know more about science after taking part in these activities?	100.0	0.0	0.0	0.0
Are you more interested in science after taking part in these activities?	84.6	3.8	11.5	0.0
Did you learn about possible careers in science and research?	88.5	7.7	8.8	0.0
Do you think you might like to have a science or research career in the future?	34.6	38.5	23.1	0.0
Would you like more chances to learn about science?	92.3	0.0	3.8	3.8

Some students offered comments:

Q: What did you like about the activities?

- the science because I very much want to be a scientist myself
- They were fun
- that it was awesome

Q: Are you more interested in science after taking part in these activities?

- Yes, because I want to learn more about life cycles

Q: Do you think you might like to have a science or research career in the future?

- Yes, because I want to learn about the world
- No, I want to be a writer
- No, I want to be an artist

Q: Would you like more chances to learn about science?

- Yes [written in bolded balloon letters]
- Yes because it is interesting
- Yes, it is fun to learn about
- yes, because at a young age like me there is a lot I [and] even everybody don't know

The student feedback is very promising. The exposure provided by Regenerative Medicine Minnesota activities clearly sparked interest in and inspired a desire to learn about science.

Innovators of the Future Community Science Programs are built on the assumption that the most valuable resources are present in each community's people, history, and culture. Investing in the children ensures the strength of the community in the future. Bois Forte has a critical need for the types of education activities that projects like Innovators of the Future can provide. The Minnesota Report Card (MN Dept of Education) reported that in 2015, standardized tests indicated that Nett Lake Elementary's Native American students lagged substantially behind their white peers statewide (see Table 1).

Table 1: 2015 Minnesota Academic Standards 5th Grade Student Achievement; Percent

	Native American, Nett Lake Elementary				White, Statewide			
	Exceed	Meet	Partially meet	Do not meet	Exceed	Meet	Partially meet	Do not meet
Science	5.9	24.9	5.9	58.8	15.3	54.6	18.0	12.1
Math	0.0	35.3	11.8	52.9	25.3	42.8	20.5	11.4
Reading	5.9	35.3	23.5	35.3	24.9	50.2	16.1	8.7

Without adequate instruction, resources, and investment, the gap experienced by the Bois Forte’s children will only continue to widen.

The Innovators of the Future Community Based Science Program: Bois Forte was a definite success. This project does require increased emphasis on regenerative medicine and research in the upcoming year. However, it is important to remember that prior to the project implementation, there was very little science instruction present at the Nett Lake Elementary School. With Regenerative Medicine Minnesota support, the school was able to put science activities in place to benefit the entire 3rd-6th grade student population. This 2016 year has created the foundation needed to take an essentially nonexistent school science program to an enriching experience that in 2017 will expand with greater emphasis on regenerative medicine and biomedical research. In his final report, the school’s principal noted that without this project the school’s science instruction would have been ‘sparse’. He goes on, “It is a fair statement for me to say that our Science instruction has been revitalized with the funding that came from this grant. It is very much appreciated”.

Additional information

The support provided by Regenerative Medicine Minnesota Innovators of the Future Community-Based Science Program: Bois Forte was mentioned in the Bois Forte tribal newspaper, a copy of the article is included with this report. Or, visit the Bois Forte News webpage at:

(http://www.boisforte.com/pdf/FINAL_BoisForteOct16Newsletter_000.pdf.)

Program pictures submitted by the Nett Lake Elementary School are also included. Notably, the UM Medical School Duluth campus has seen the value of this project and donated six outdated, unused microscopes as well as old or unused lab supplies and glassware to the Nett Lake Elementary School for use in science classroom instruction.

Responsible Spending:

A financial report will be submitted by the University of Minnesota.