

APRIL 2022 **ENCOURAGING EXCELLENCE** ISSUE 27



Featured Role Model

To learn more about our programs, visit our website:
www.unmc.edu/sepa

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SEPA PROGRAM FALL 2021 & SPRING 2022
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SEPA Program Co-Directors

It is with great anticipation and excitement that we welcome the restart of many in person programs through our SEPA partnerships. The Wagner Community School will be making its first visit to our campus in a few years and the longstanding cornerstone of our SEPA program, the Middle School Health and Science Fun Camp will be making a return after a two-year hiatus. This summer we will be in Omaha at UNMC, but we hope to take the program on the road in the coming years. Your suggestions for possible venues and themes are always welcome.

The summer of 2021 saw the inaugural program to introduce students in the practice and research opportunities of working with people with disabilities. This program was limited to those in the Omaha area as a day program. We are very pleased to announce that in partnership with Nebraska EPSCoR we are able to host up to six high school students in the UNO dorms for this week-long program June 20-24, 2022. We are still planning a similar program without overnight stays for Omaha area students the week of June 13-17, 2022. (Dates and week assignments are tentative.)

In conjunction with our sister YES and I-SPARK programs, we are planning in-person exploration of research and biomedical careers. Details are found in this Newsletter and on our website.

The SEPA Teacher Workshop is back as well. This time for MATH teachers. This summer's workshop will be a focused curriculum review group of the SEPA Math Cards. Attendees will help review existing cards and provide critical feedback for changes and additions for these materials. In addition, attendees will be asked for ideas and input toward creation of new needed material.

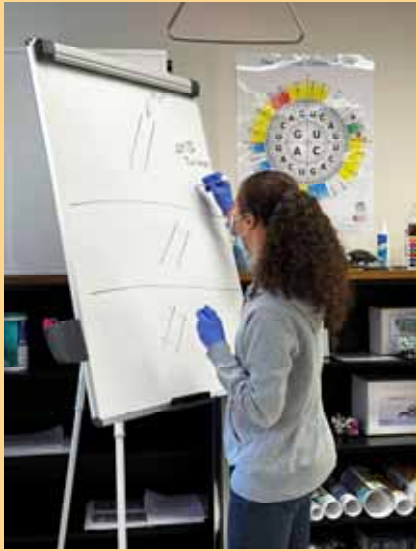
**Indigenous Student Program
for Advancing Research Knowledge (I-SPARK)**

SEPA provided a great platform to learn science in the Fall and Spring.

The I-SPARK program provides an opportunity for underserved students to have a understanding of basic laboratory procedures, techniques, and science research experience to prepare them to be competitive with their peers to attend summer research internship programs when they become undergraduate students. The program helps encourage, guide, and inspire high school students from populations traditionally underrepresented in science.

Last summer, due to the pandemic, the program was conducted Virtually (via Zoom) over five weeks (details in SEPA newsletter issue 26, 2021). The different presentations provided an unique opportunity to experience health, science and career topics.

We are continuing this program in 2022 (June 27 - July 29) and students are thrilled to know that this year they can attend this exciting program in person.



((Story continued on next page ...))

I-SPARK: Indigenous Student Program for Advancing Research Knowledge

The Fall and Spring programs took place at the UNMC campus in Omaha from 10 am - 3 pm. These programs were scheduled on dates when most schools in the Omaha metro were not in session.



October 8, 2021 Modeling the Molecular World

The fall program focused on connecting the macroscopic world with which students live to the invisible (microscopic) world of molecules using 3-Dimensional models like water, proteins, enzymes, antibodies, and nucleic acids. This session was held in a laboratory classroom. The lab activities were performed in the morning hours. The afternoon was dedicated to giving the students a campus tour and scheduling a visit with a microbiologist, **Dr. Scot Ouellette**, to explore how the concepts they learned in the classroom translated to real-life use and scientific research.

February 18, 2022 The Art of Laboratory Techniques

At the spring program, we had 10 participants. We also had a first-year / early-career AP chemistry teacher help out with the lab sessions and coach students. Students took part in a wide array of laboratory research experiences. The spring program focused on developing high school students' laboratory skills, familiarity with laboratory equipment, and use of scientific vocabulary.

The first part of the program focused on learning and practicing the proper technique for measuring small volumes of liquid using a micropipette (see photos below). The students followed a micro-pipetting protocol to create an image by pipetting the appropriate color and volume of water into their well plates.

The day proceeded with students practicing their pipetting skills, measurement techniques, and conversion calculations by working through three different hands-on science labs.

The flower forensics lab focused on performing simulations of chromatography of plant pigments, enzyme assays, restriction enzyme digestion, and gel electrophoresis. The DNA fingerprinting lab had students simulating blood-typing, ink chromatography, and DNA gel electrophoresis. The amino acids lab explored a lesson on protein structure and function.



Find Your Future Career Shadowing Exploration for High School Students

**Monday, June 13 - Friday, June 17, 2022 &
Monday, June 20 - Friday, June 24, 2022**

This upcoming opportunity will help students **explore careers** that provide services for children and adults with developmental disabilities or movement dysfunctions.

Students will get shadowing experience and learn about a “day in the life” of some of the following professions:

Speech Language Therapy – Speech pathologists help children and adults communicate independently. They offer services that include assessment and treatment of individuals with disorders affecting speech, language, voice, cognition, and swallowing.

Physical Therapy – Physical therapists promote independence, increase participation, facilitate motor development and function, improve strength and endurance, enhance learning opportunities and ease challenges with daily caregiving for people with developmental disabilities or movement dysfunction

Recreation Therapy – Recreational therapists uses play, recreation and leisure activities to improve physical, cognitive, social and emotional functioning

Genetics – Geneticists help individuals and families understand the diagnosis, treatment and management of a genetic or metabolic disorder. They offer advice on recurrence risks and future family implications, in addition to helping parents gain an understanding of what may have caused the anomaly

Psychology – Psychology behavioral health specialists provide clinical services for a wide variety of behavioral, social-emotional, developmental and physical, and cognitive disabilities in infants, children, and teens. They provide intensive training experiences in psychological evaluation, treatment, and research with children, adolescents, and their families.

Pediatric Feeding Disorders – Feeding disorder professionals focus on understanding the cause of a child's feeding problems, while considering medical history, oral and motor skills, nutrition, and behavior. Their goal is to teach a child to eat like other children and promote appropriate weight gain and growth.

Neurodevelopmental & Related Disorders – Neurodevelopmental specialists are professionals dedicated to improving the health of children who have, or are at risk for, neurodevelopmental and other related developmental disabilities (DD), including autism spectrum disorder (ASD). They work closely with others from a wide variety of professional disciplines to ensure high levels of interdisciplinary clinical competence.

Developmental Disabilities – The developmental medicine team serves infants, youth, and adults for a variety of developmental, behavioral, mood and emotional disorders, including Autism Spectrum Disorders, ADHD, developmental delay, learning problems and anxiety. They promote independence, self-determination, productivity, integration, and inclusion of individuals with developmental disabilities and provide supports for families.

Motion Analysis & Virtual Reality Lab - This program provides diagnostics and treatments – who have disorders of walking. Advanced blend of engineering, biomechanics and brain imaging to quantify movement disorders and inform treatment strategies for individuals with cerebral palsy and other movement disorders.

Where

Munroe Meyer Building
located west 6902 Pine St. in
Omaha, Nebraska

When

This program will offered for two weeks. Participants can choose one of the following two weeks to attend:

June 13-17 or June 20-24.

Each day will run for 6.5 hours at
9:00 am – 3:30 pm (M-F).

Participation Perks

- No cost to attend
- Get fun health career shadowing experience
- Lunch meal provided
- Receive a stipend of \$250 for attending all exploration sessions

To Confirm Your Participation:

Return registration forms and parent permission by **May 28th**

Registration forms available at:
<https://bit.ly/fyfreg2022>

Mail registration forms to:

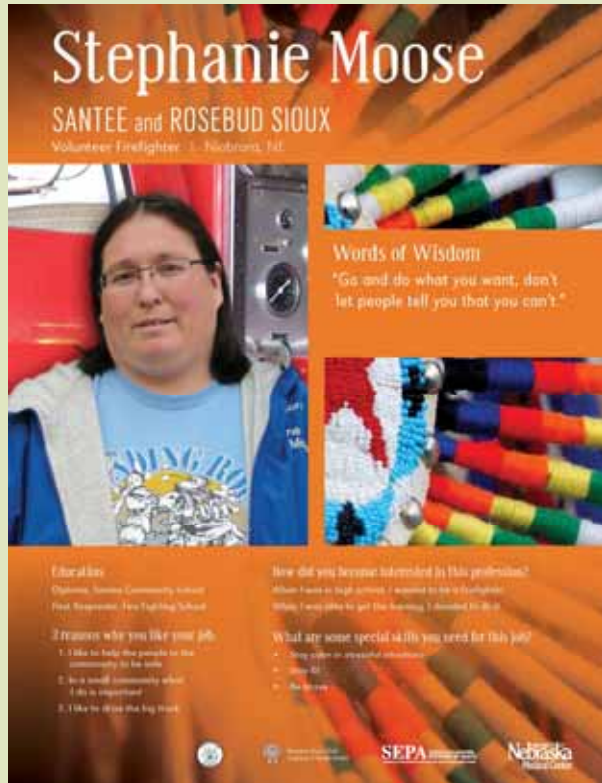
FYF Shadowing
983075 Nebraska Med Center
Omaha, NE 68198-3075

Questions?

Email: sepa@unmc.edu
Phone: (402) 559-6689



Role Model Poster Project



The Role Model Poster Project features Native Americans in many health and science professions. Each poster includes the name, photograph, and tribal affiliation of the person featured. Additional information for teachers include: education, benefits, motivation, special job skills, and words of wisdom. These posters proved to be a great source of inspiration and motivation to the students and teachers. There are currently ten sets of posters and each set features five tribal members.

ANNOUNCEMENTS / UPCOMING EVENTS / NEWS

- Lake Andes Family Night**
Date: Tuesday, May 10, 2022
Time: 3 PM - 5PM
- Wagner School Visit at UNMC**
Date: Friday, May 13, 2022
Time: 10 AM - 3 PM
- SEPA Summer Camp
Biotechnology & Health Science Career**
UNMC, UNO, Creighton, Omaha, NE
Date: June 5 - 8, 2022
- Career Exploration & Shadowing
For High School Students**
Munroe Meyer Institute, Omaha, NE
Date: June 13-17 and June 20-24, 2022
- SEPA (MATH) Teacher Workshop**
Marriott Riverfront Hotel, South Sioux City
Date: June 27-29, 2022
- Indigenous Summer Program for advancing
Research Knowledge (I-SPARK)**
UNMC, UNO, Creighton, Omaha, NE
Date: June 27- July 29, 2022

Email us with your questions at sepa@unmc.edu

Upcoming Summer Program Explores Research & Careers in the Health Sciences for High School Students

June 27 - July 29, 2022

I-SPARK is a new program offered by SEPA. It stands for Indigenous Summer Program Advancing Research Knowledge. Up to 12 high school students can take part in this four-week summer program that provides an understanding of basic laboratory procedures and techniques. The program aims to make participating students competitive applicants for college and other summer research internship programs offered by NIH and other institutions. In addition, one day per week will be devoted in personal, career, and academic development. This year, the program will be held in person and the faculty members from UNMC, UNO and Creighton University are going to take part. The following topics will be covered:

- Lab Safety 101
- Intro to Chemistry & Chemistry Lab
- Engineering for Healthy Communities
- Computational Biology
- Ethics in Genetics Research
- Neuroscience Clinical and Lab Research
- & Professional and Personal Development Topics

Registration forms will be available at <https://bit.ly/isparkreg22>

Registration deadline is May 28th.

Questions about the program: sepa@unmc.edu

