Project Overview

Our original plan was to design a multi-day S.T.E.M and Ojibwe camp for the Boys and Girls Club. The goal was to involve the students, giving technical STEM training with community members providing cultural knowledge. Students will create a STEM project that demonstrates cultural learning.

Students from the Nett Lake and Vermilion reservations attend high school at Northeast Range and North Woods schools. Our intent is to reach out to local elementary schools that may not have exposure to robotics and STEM activities. The students will be familiar with the robotics teams in the high schools and will be likely to join.

As the students started planning the camp, they identified 4 cultural areas of focus: Pow wow regalia, beading, drumming and archery. The schedule did not work out for a winter holiday camp and the Boys and Girls Clubs also thought summer was a time when more students were available and more programming was needed. Dates have been secured for July 8-11 for the Nett Lake and Vermilion reservation clubs. Students also recognized the need for additional equipment and funds to execute the planned camp.For these reasons, our timeline changed. However, there has been much enhanced planning and preparation for the camp which should lead to better outcomes.

Executive Summary

- Designed and programmed a circuit express kit that responds to loud noises, such as a drum.
- CAD and 3D print forms for student designed outfits.
- Designed decorative materials for model regalia to include 7 grandfather teachings.
- Student designed floral pattern decorative materials that were made to represent our region.
- Students use laser engravers to create patterns for the camp
- Jingle dress form is operational and jingles on activation
- Involved Bois Forte nutrition specialist in meal preparation and cultural teaching at camp.
- Earned grant for archery equipment for camps with additional use for school team and physical education department.
- Applied for grant to be able to include drum group and dancers for camps
- Secured 1854 professional commitment for archery instruction
- Jingle dancer, Adrienne Whiteman, has been working with students to sew, add jingles and plan camp activities.

Use of Grant Funds

Allotted funds

- 1,538.80 dollars used on circuit express kits. We were planning to use 1,000.

- 552 dollars used on decorative supplies. 300 planned.
- We planned to use 200 on transportation. We secured district funding to cover transportation and spent funds on the supplies and kits.

Additional funds

- 4000 dollars from the DNR No Child Left Inside grant for archery equipment and training
- Team funds covered additional supply materials
- St. Louis County Family Collaborative grant which is pending for 6500.

Camp Plan Description

Day 1 Rotations

1. Archery
2. Wiring Circuits
3. Beading
4. Outfits
5. Food prep
6. Robot driving/demo/(t-shirt cannon)

Day 1 Schedule

9:00 - Intros, jingle dresses and woodland dancers
9:45 - 10:15 - Rotation 1
10:20 - 10:50 - Rotation 2
10:55 - 11:25 - Rotation 3
11:30 - 12 - Outdoor games (switch with lunch optional)
12-12:30 Lunch
12:30 - 1:00 Rotation 4
1:00 - 1:30 - Rotation 5
1:30 - 2:00 - Rotation 6

Day 2 Rotations

1. Coding and testing
2. Outfit completion
3. Whole Group Drumming
4. Whole Group - Food and celebration

Day 2

9:00 - 9:15 - Welcome activity(Buttons)
9:15 - 9:45 - Rotation 1
9:50 - 10:20 - Rotation 2
10:25 - 10:55 - Big group final prep of projects, t-shirt handouts,
11 - 11:30 - Lunch
11:30 - 12:00 Big group session with Drum

12:00-12:30 Public Sharing of student projects (Drumming)
12:30 to 1 Drumming
1:00 on - pictures, wrap up projects, games

Project Analysis

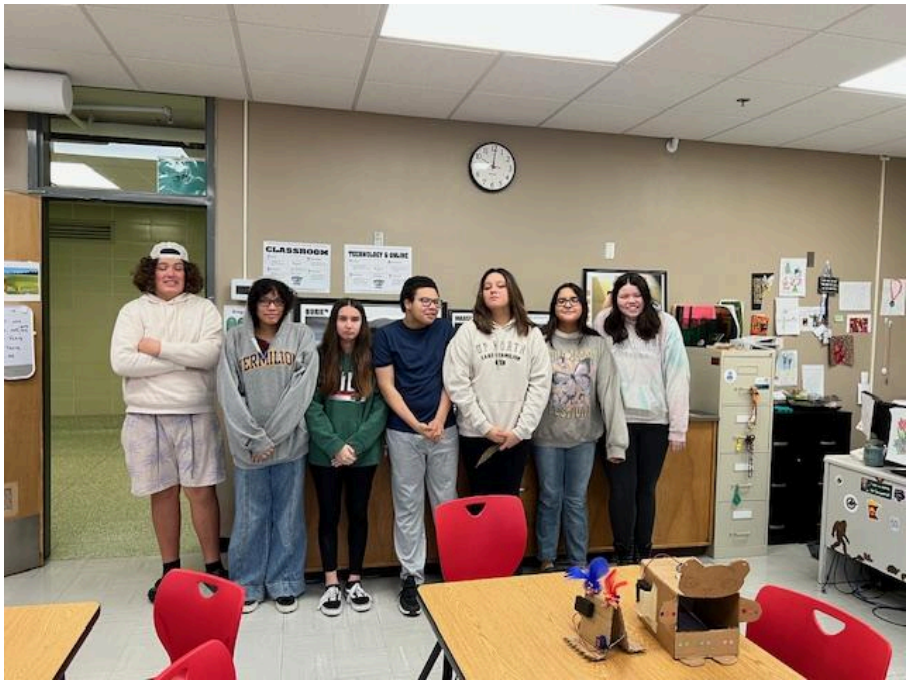
Goals to be achieved at camps July 8-11

- 30 kids at Nett Lake and 30 at Vermilion
- 20 community members to show up for lunch showcases.
- 5 descendents or band members students lead activities at camp.

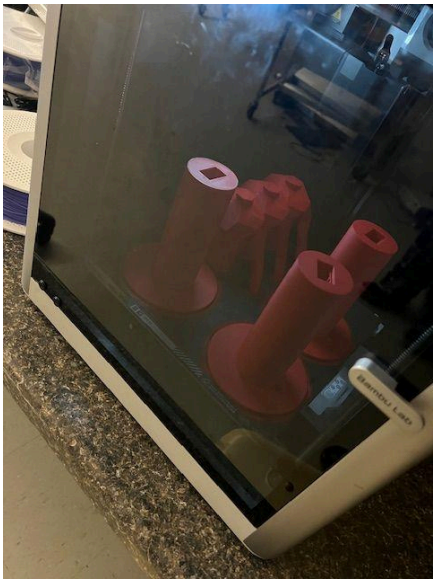
Goals met for student leaders

- Multiple students can independently use a 3D printer.
- Multiple students can use the laser engraver starting with hand drawn images to laser cut patterns
- Students can make jingles for jingle dress.
- Students program a servo to respond to sound input.
- Students helped with additional grant writing.
- 3 descendents and 1 band member new robotics team students are leading key team outreach event planning and work efforts.

Coach Comments - As a teacher, we are encouraged to involve Indigenous teachings into our instruction. That has been a struggle for me in my CTE subject areas and general lack of background knowledge. This project has allowed me to facilitate rather than try to act as an expert. The students have driven the focus of the camps, requiring help identifying and writing grants for more funds, locating appropriate adults to support cultural goals and organizing camp activities. I also have learned a ton from this process. On May 22, a community meeting for several area school teachers and administrators connected band member leaders and other representatives from the Bois Forte community. I believe this was the first such meeting, at least since I started teaching 20 years ago. The core message was a plea to help our children, share/encourage cultural practices and provide an overview of the traumatic experiences of the community with government and schools historically. I hope this timely camp can help in a positive future. A longer term goal is to showcase the student work at the 2026 AISES conference which I believe is being planned for Minneapolis. Of course, we also hope some future robotics students are inspired to join the team when they get to 8th grade.

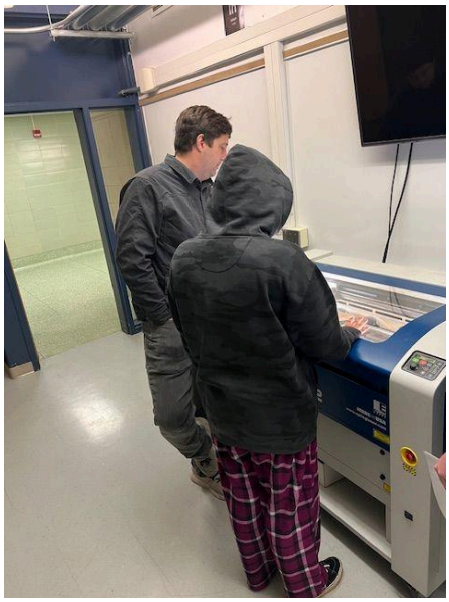


Students involved

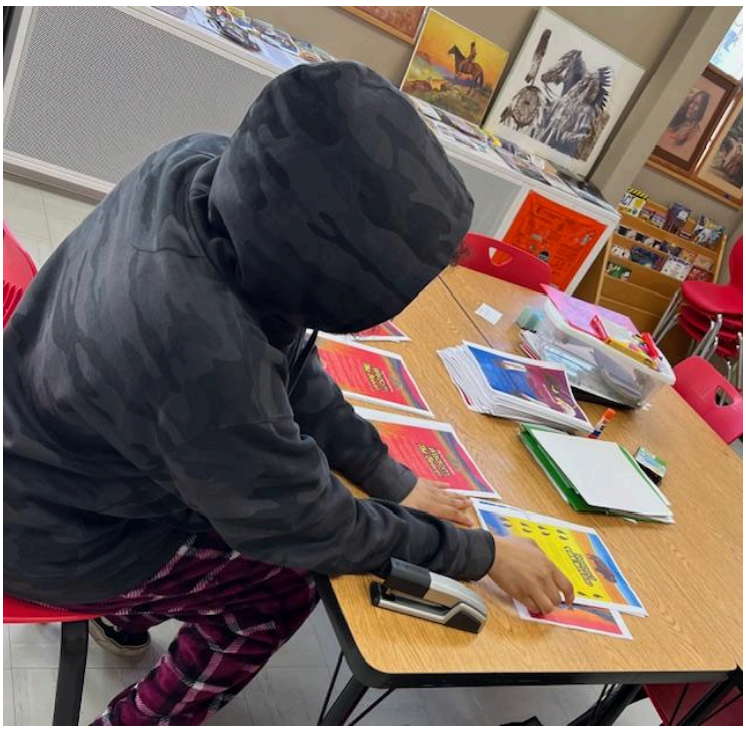


Three 3d printed male forms printed

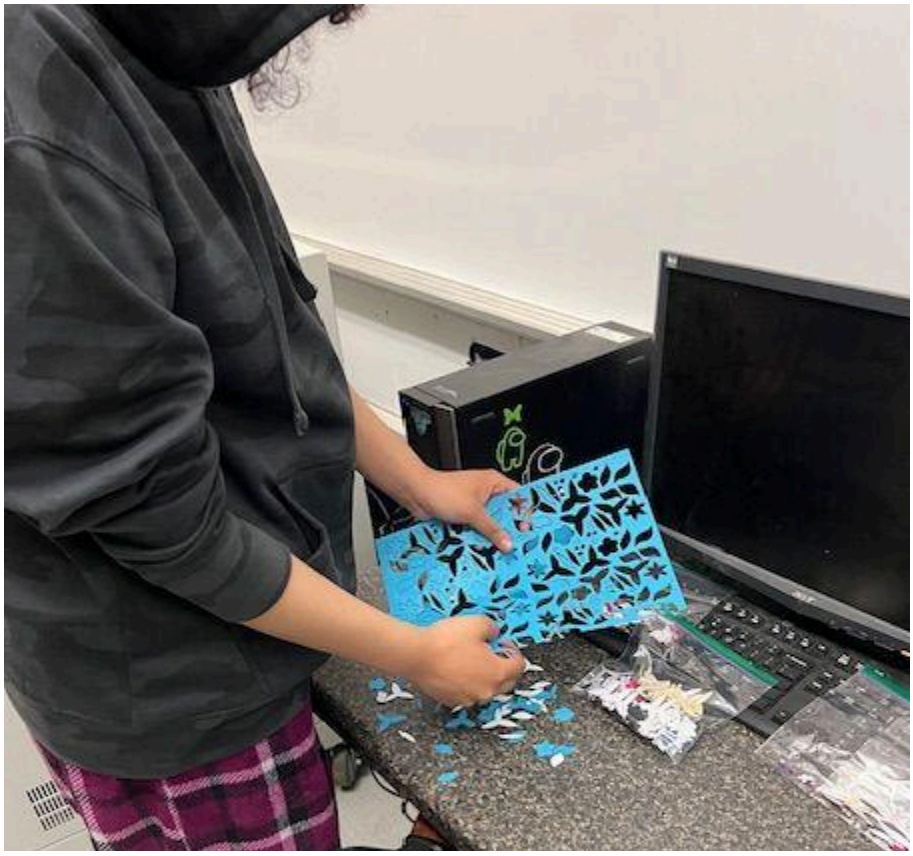
Laser printing

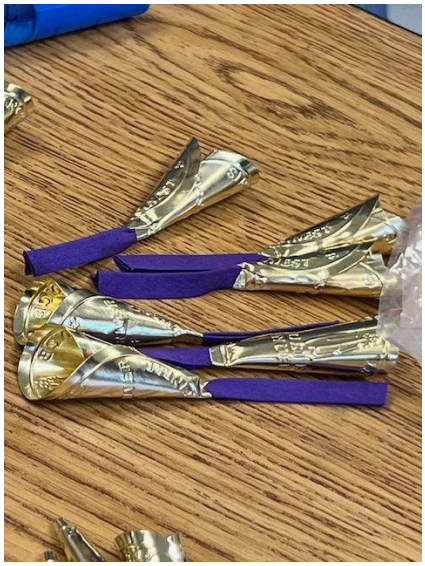


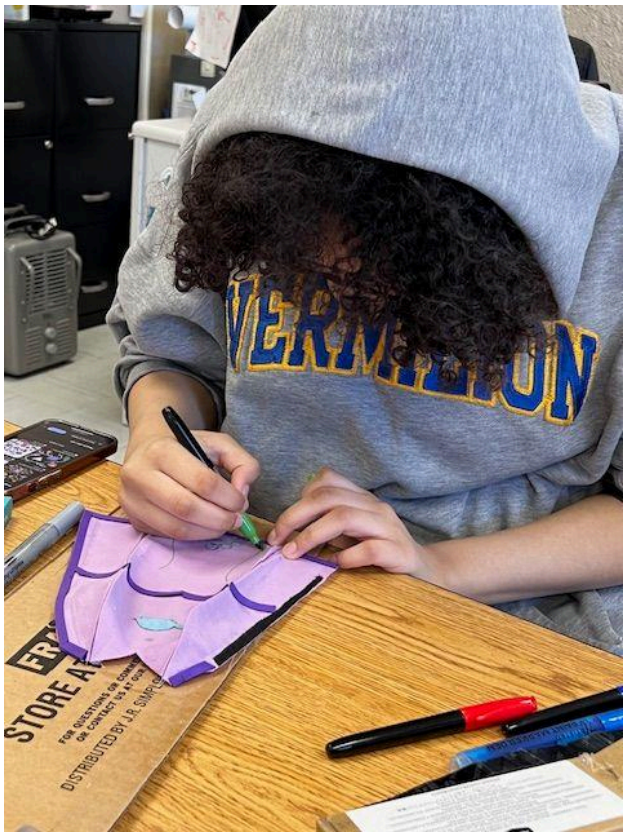
Organizing packets of 7 Grandfather Teachings below

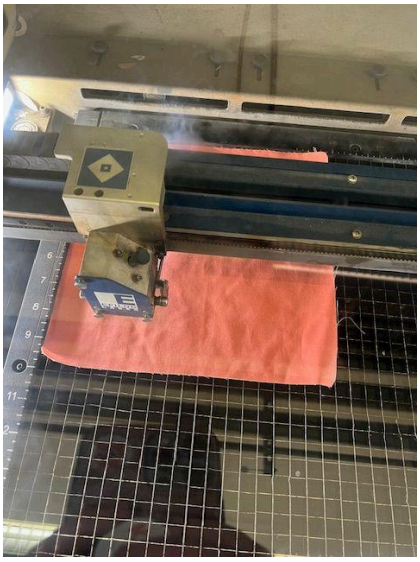


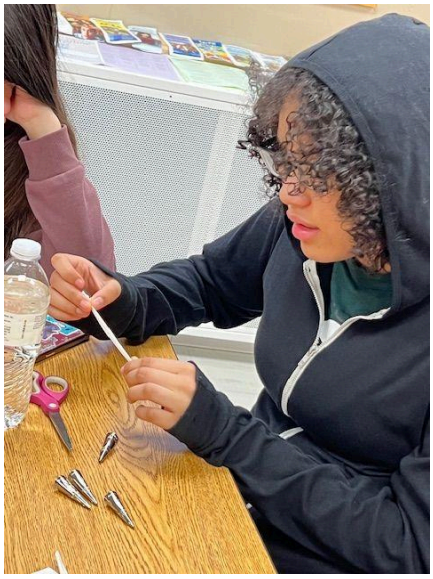
Organizing lasered decorating materials below

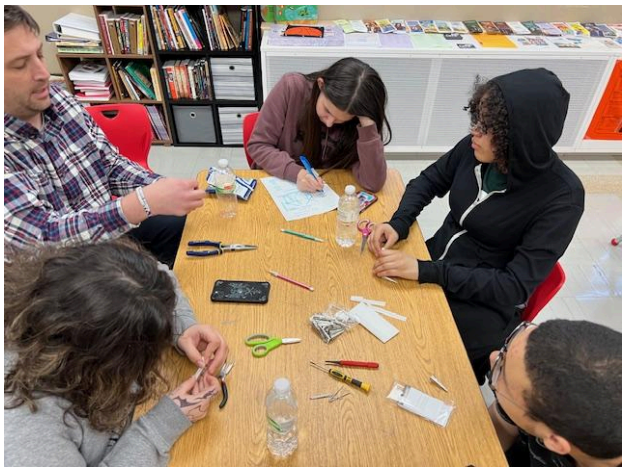


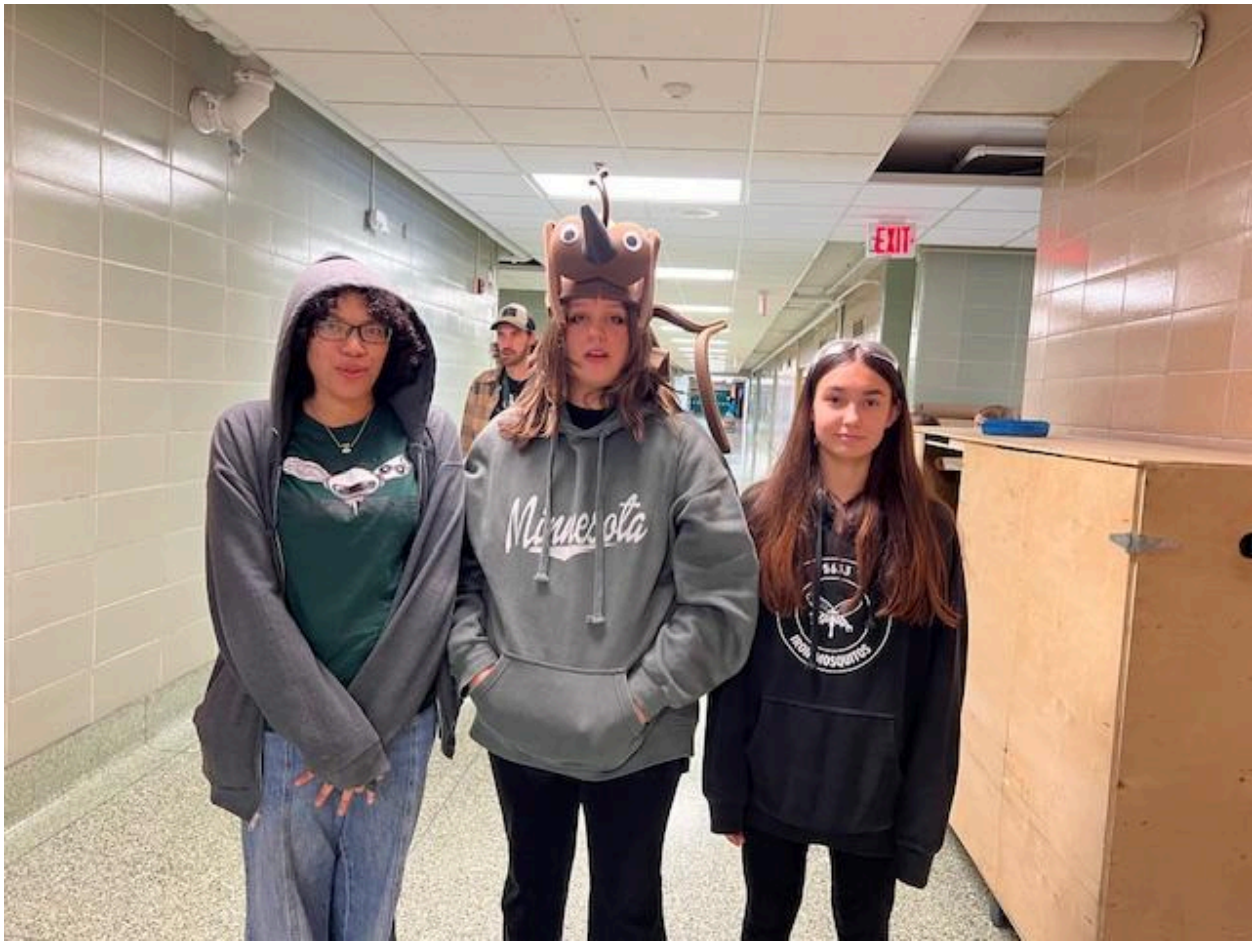

Jingle dress prep

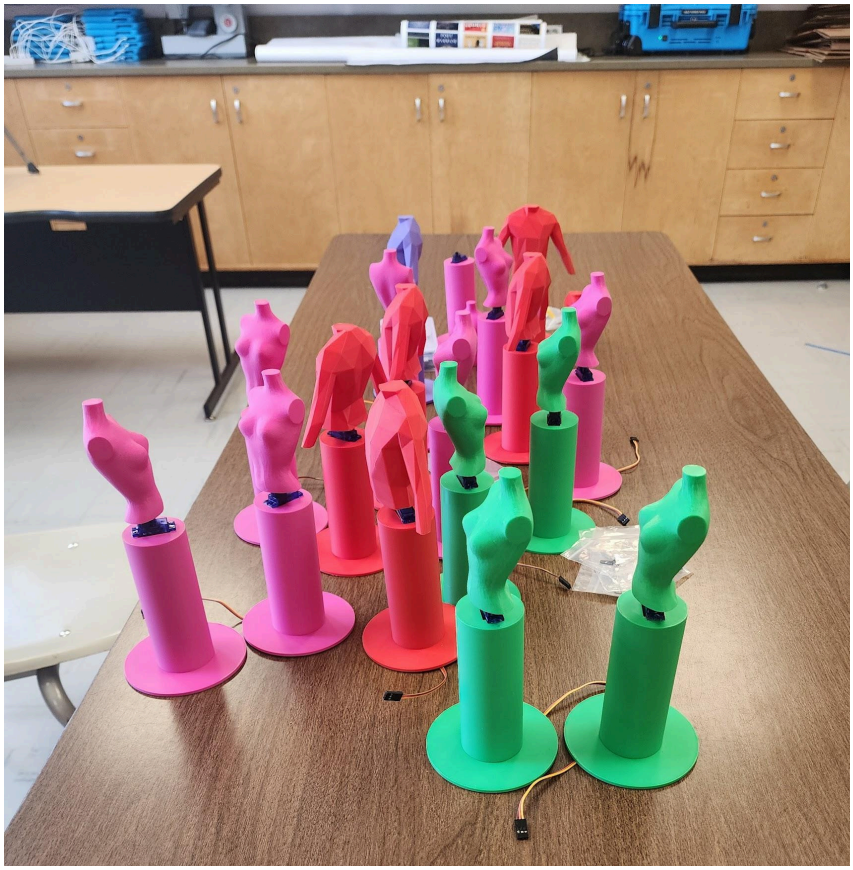









EXIT
Minnesota



3d printed forms being assembled with servos

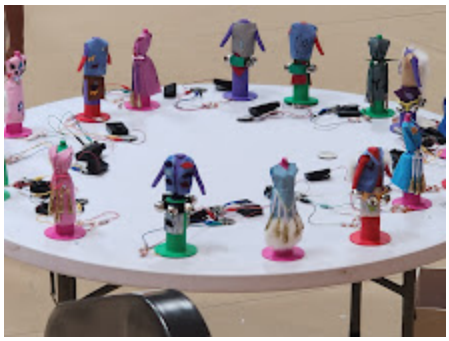
Yoji Shimizu <shimi002@umn.edu>

Camp finished update pics.

Ryan Lindsay <rlindsay@isd2142.k12.mn.us> Thu, Jul 11, 2024 at 4:48 PM
To: Yoji Shimizu <yoji.shimizu@firstuppermidwest.org>

We had a successful week of Biiwabik Zagime STEM camp. I wanted to send a couple photos for the FUM team now that we finished. At the last drum session, we had all the mini robot dancers on a table and it was really cool when they all spun on a loud beat. The drum keeper figured out how to work with our little circuit sensors.

8 attachments



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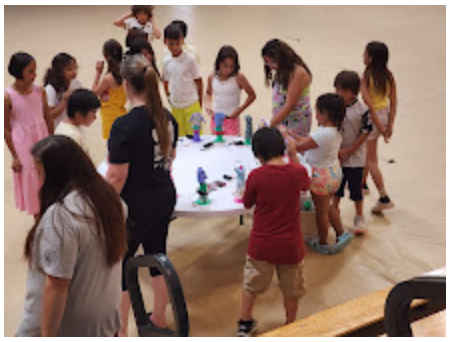

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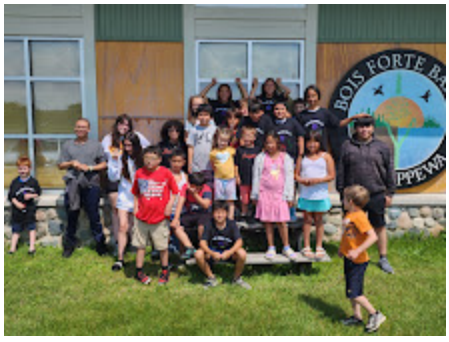

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