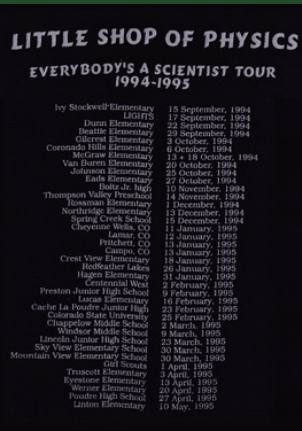


# Little Shop of Physics Newsletter

JANUARY  
2025

## New T-Shirt and Theme



LSOP is known for our tie dye shirts. This is a great way for not only the students at a school to identify us, but also for us to find each other in a crowd. Each year, since our first shirts in 1994-1995, we have also included a theme and schedule of where were visited (some years more

straight forward than others). The theme helps us frame how we introduce ourselves to groups we visit, giveaways we hand out, or hands-on experiments we create. This year's theme was inspired by a shirt I saw this summer in Lead, SD at Neutrino Day. The shirt had three symbols on it: = > ÷

To me, these symbols represented the importance of inclusivity, collaboration, and equal access. These are also the core values of the Little Shop of Physics. We are passionate about breaking down barriers and making science accessible for all. It seemed fitting to embrace our roots and have the theme Science For All.



## Native American STEM Institute

On a warm summer day in June, we hosted the Native American STEM Institute (NASTEMI) for an afternoon of activities. NASTEMI is a week long summer institute for Native American and Indigenous students from the Metro Denver area hosted by the CSU Native American Cultural Center. We were dazzled by the light beyond the rainbow, elevated our excitement with static electricity, were shocked by the mysteries of

coherers, and our fun was lifted by learning about force and motion. Best of all we found our energy when we were joined by Cam the Ram! Check out our video of the afternoon of science exploration with links to the activities for you to try:

Our amazing videographer, Patrick, put this together from the event: <https://col.st/99Y2X>



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## Finding My Path With Little Shop of Physics by Mr. Joe



Growing up, I never imagined I would become a teacher. My professional career began on job sites, building houses and working in finishing carpentry. When the recession hit, I lost my job and decided it was time to return to higher education. I had always been interested in science, and I soon found a connection to teaching that sparked something new in me. I enrolled in the Natural Science Education program at Colorado State University (CSU), where I was introduced to Brian Jones and the Little Shop of Physics (LSOP) family.

Volunteering with LSOP opened doors I never knew existed. It was incredible to witness the important work they were doing—not just for students but for the entire community. It became the perfect opportunity to combine my hands-on experience in construction with my passion for science, and more specifically, to share that passion with others.

I started as an intern, joining school visits and working in the LSOP workshop to repair and revamp projects. This experience gave me a chance to step in front of students of all ages and backgrounds—different socioeconomic situations, niche cultures—you name it. LSOP provided me with a safe and welcoming space to develop my “teacher voice” and build confidence in sharing

science concepts with others. I learned so much about what I value in education, and what I wanted my future classroom to look like.

Through my dedication and involvement, I was offered an official position as an intern with the LSOP team. It was a dream come true—a salary for doing work I loved, with a flexible schedule that allowed me to balance my classes at CSU.

I spent five amazing years working with LSOP. I cannot overstate what a transformative experience this was for me. LSOP gave me the foundation to build my teaching career and ignited a deep appreciation for hands-on, collaborative learning. Even now that I’ve graduated and advanced in my teaching career, I still consider myself part of the LSOP family and try to attend every Open House.

After graduating, I taught physics and chemistry for a few years, earned my Master’s in Secondary Science Education, and ultimately found my true calling: teaching woodworking. Though I may no longer teach science, the skills, knowledge, and experiences I gained with LSOP continue to shape me as an educator every day. For that, I am forever grateful.

If you haven’t yet participated in an LSOP event or met the incredible people behind this program—who I truly consider family—then I encourage you to jump in. Get your hands dirty, share science with kids, and connect with the community in ways you never thought possible.

Thank you, LSOP, for giving me the opportunity to grow, to teach, and to find my path. You are a big part of who I am as an educator today—and for that, my students and I thank you.

— Mr. C





# Amplify / MURALS First Year Scholars Academies

## Engaging Freshmen In Hands-On Science

This fall, we partnered with Amplify and the Multicultural Undergraduate Research Art and Leadership Symposium (MURALS) to host two First Year Scholars (FYS) Academies. Eleven freshman students from the Amplify Learning Community worked with LSOP staff and interns to design, develop, and present engaging science projects for diverse audiences.

## Hands-On Activities for PreK-12 Learners

Four students created interactive activities—Catapult Launchers, Kaleidoscopes, Lava Lamps, and Mousetrap Carts—which were presented to children from Ram Kidz Village and the Boys and Girls Club. Feedback helped students refine and enhance their designs, fostering creativity and an iterative learning process.



## Show Me Some Science (SMSS)

Seven FYS students developed activities for CSU students, showcased at two events on campus. *Pride and Pumpkins* was a queer Halloween event with plush pumpkin launches, levitating witches, and liquid nitrogen ice cream. *Physics of Perception* was a psychology-themed event exploring how the brain processes visual input; it featured optical illusions, reaction time tests, and vision-altering glasses. LSOP staff and interns provided mentorship throughout, guiding FYS in developing, refining, and presenting their projects.

## Looking Ahead

This spring, FYS participants will continue to develop their projects and will share them at the LSOP Annual Open House, conduct research using their activities, and present their findings at the MURALS Symposium on March 28, 2025:

<https://murals.colostate.edu/>

The First Year Scholars Academies empower students to explore, create, and communicate science, building skills that will serve them as both learners and researchers.



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# CSU Spur Tessellations

Our student partners are creating new projects for display at CSU Spur for the National Western Stock Show next January! This edition, we want to include our readers in the fun! Please follow along and co-create with students in the Native American Culture and Education (NACE) program at Skinner Middle School.



**Challenge:** Create your own shape that fits together on all sides without making a gap. This is a tessellation! How many times can you repeat the pattern?

**Materials:** paper, tape, scissors, ruler, pen or pencil

**STEP 1:** Use the ruler to measure a square on your piece of paper and cut it out.

**STEP 2:** Locate the top of your square. Use the scissors to cut out a piece of the top. Keep that piece!

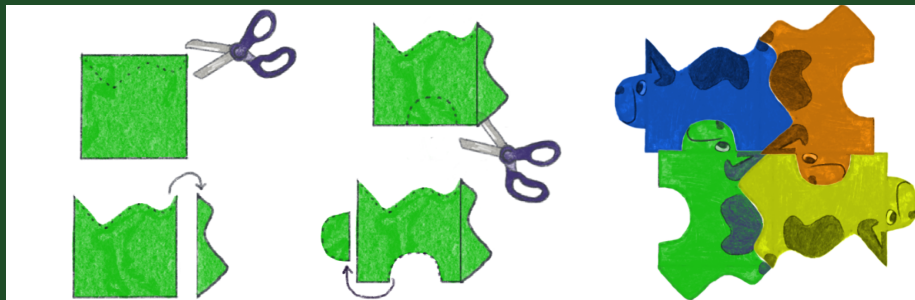
**STEP 3:** Tape the piece from the top onto the right side.

**STEP 4:** Locate the bottom of your square. Use the scissors to cut out a piece of the bottom. Keep that piece!

**STEP 5:** Tape the piece from the bottom onto the left side.

**STEP 6:** Now your shape is complete! What does it look like? Be creative! (ex: a dog, a shoe, a face).  
Reminder: It's okay if it's not perfect!

**STEP 7:** Try tracing your shape on a larger piece of paper! If you can get it to work, congratulations, you've created your very own tessellation!



Little Shop is honored to continue our partnerships with NACE and the Birdseed Collective. This semester, middle school students from Skinner Middle School and Lake Middle School are working on developing hands-on experiments to showcase at the National Western Stock Show at CSU Spur. Come check it out from January 11-26! Try building your own version of a tessellation with the guide here!



*We built small light-up houses using simple circuitry with the Birdseed Collective for their Fall Festival! It was an awesome experience working with families and the kids were so innovative!*



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## Little Shop of Physics Visits Wind River Reservation

In October, a team of five Little Shop crew members packed up our van full of science experiments and embarked on a five-hour drive to the Wind River Reservation in Wyoming. Along the way, we made a fun stop at Bar Ten in Riverton for supper, where we proudly took 2nd place in trivia—traveling with a diverse group of undergraduates and their collective knowledge always comes in handy!

The next day, we got an early start to set up our hands-on science activities at Fort Washakie K-12 School. We spent the day engaging with students of all ages, sparking curiosity and their excitement

about science. The students were fantastic—enthusiastic, inquisitive, and so appreciative of us coming to their school!

At the end of the day, we packed up and made the drive back home, just managing to stay ahead of an approaching snowstorm. All in all, it was a great trip, full of adventure, laughter, and science!

Patrick put together this video highlight some special moments: <https://col.st/NMoiP>



## Neutrino Day

We were thrilled to be invited as featured presenters at the 16th Annual Neutrino Day, held on July 13, 2024, in Lead, South Dakota, home of the Sanford Underground Research Facility. This exciting, free, citywide science festival brought together people of all ages for a day of exploration and discovery. Highlights included hoist room tours, hands-on science activities, exhibits, and captivating talks and performances.

At the event, we brought our van packed with nearly 100 interactive science experiments, including a paper rocket building station, a giant fog ring generator, and our awe-inspiring gravity well experiment. We were met by crowds of enthusiastic visitors eager to engage with science and explore the wonders we had to offer!

As featured presenters, we were also given the unique opportunity to go on the underground tour of the Sanford Underground Research Facility. It was an incredible experience to visit the LUX-ZEPLIN experiment, which is working to unlock

the mysteries of dark matter, and to see the future home of the DUNE detector, which will study neutrinos.

We were also joined by our longtime friend and collaborator, Misty Brave from Oglala Lakota College. Misty participated in the Neutrino Day festivities and joined us on the underground tour. While a mile below the surface, Heather and Misty were even interviewed live on SD Public Broadcasting—an unforgettable moment!

Neutrino Day was a fantastic celebration of science, and we are so grateful to have been part of it. We can't wait for next year!

Be sure to check out the awesome video Patrick created of the event: <https://col.st/PVoOf>





## Oglala Lakota College Teacher Workshop

After the Annual Neutrino Day Festival, the LSOP crew stayed in South Dakota to present a teacher workshop at Oglala Lakota College on the Pine Ridge Reservation. En route from Lead, SD to Kyle, SD, we made a quick detour to visit the Geographic Center of the U.S. in Belle Fourche!

At OLC, we hosted a full-day workshop for approximately 15 teachers, focusing on hands-on activities related to electricity. Our long-time friend and colleague, Misty Brave, a faculty member at OLC, graciously hosted the event. Be sure to check out the awesome video Patrick created recapping the workshop!

LSOP has been providing educational programming for Oglala Lakota Nation students and teachers since 2008. This workshop, along with our broader Indigenous Connections initiative, is made possible by the generous support of the Halliburton Foundation.

After the workshop, we drove home through rainstorms, but as we passed just south of Cheyenne, WY, the clouds parted and Patrick captured a stunning shot of the LSOP van framed by a rainbow. From start to finish, it was truly a magical trip!

Check out this video: <https://col.st/4rztj>



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## Pine Ridge Road Trip

In November, the LSOP team traveled to South Dakota to share hands-on science experiences with students on the Pine Ridge Reservation, marking another meaningful chapter in our long-standing partnership with the Oglala Lakota Nation.

We began our visit at Bennett County Schools in Martin, SD, where we worked with 300 students. From the moment we set up our experiments, the enthusiasm and curiosity of the students was palpable. The space buzzed with energy as students explored and discovered science through interactive, hands-on activities.

Our next stop was Pine Ridge School, where we engaged with all of the students there, as well as a group of children who came from Porcupine Elementary. What made this visit particularly special was the involvement of high school students from Pine Ridge and Lakota Tech High Schools, who stepped up to help facilitate the program. Their leadership and eagerness to guide younger students made a powerful impression on both our team and the participants.

A highlight of our time at Pine Ridge School was a visit from Alicia Mousseau, Vice President of the Oglala Lakota Nation. Mousseau joined in the hands-on activities, immersing herself in the experiments and demonstrating the value of curiosity and exploration. Her presence

underscored the importance of education and community connection within the Oglala Lakota Nation.

This visit was a continuation of a relationship built on trust, collaboration, and mutual respect over the past 13 years. Since our first visit in 2008, LSOP has had the privilege of working with every school on the Pine Ridge Reservation—over 20 schools in total. These connections are central to the success of our programs. They are not just about numbers, miles traveled, or experiments shared; they are about relationships—between students, teachers, schools, and communities. This success is made possible through partnerships with organizations on the Pine Ridge Reservation, including teachers and students from Oglala Lakota College and members of Generations Indigenous Ways, who helped facilitate and enhance the program. Their involvement ensures that the experience is collaborative, culturally grounded, and impactful for everyone involved.

We are grateful for the warm welcome we continue to receive on the Pine Ridge Reservation and for the incredible students, educators, and community leaders who make these visits so impactful. We leave inspired by the connections made, the curiosity sparked, and the knowledge that our partnership with the Oglala Lakota Nation continues to grow stronger with each visit.



# Seeing Science Through a New Lens by Luis Aceves Plascenia



Little Shop of Physics has been one of the most rewarding experiences of my life. I expected to improve my skills in building experiments, but I didn't anticipate

the thrill of creating and fixing experiments knowing they would inspire wonder in others. LSOP has taught me to see science everywhere and to appreciate how amazing the world is when you view it through a lens of exploration.

The reactions I've witnessed to science are so pure, and knowing that these experiments encourage

students to learn is a beautiful feeling. That feeling is second only to the awe on their faces when they realize they can create these experiments themselves—with a little adult supervision.

The laughs I've shared with other Little Shoppers will stay with me for a long time, as will the memory of seeing so many capable people working together toward the shared goal of bringing science to those eager to explore. LSOP's non-traditional approach is something truly special, offering value to both the community and the interns involved. It represents something good and meaningful—helping people see science in a way that inspires curiosity and self-exploration.

Check out this Show Me Some Science—Pumpkin Drop video featuring Luiz: <https://col.st/43kGo>

## School Visits

Last year, we launched an exciting initiative to visit every elementary school in Poudre School District over the next three years—reaching more than 11,000 students with our hands-on science experience! This semester, we had the pleasure of visiting Bauder, Lopez, McGraw, Olander, Bethke, and Estes Park Elementary. Although we had planned to visit Red Feather Lakes Elementary, a forest fire forced us to reschedule, and we're eager

to reconnect with those students next year. We're also thrilled to announce that we've received a grant from the OtterCares Foundation, which will allow us to visit more schools in the future. A heartfelt thank you to OtterCares for supporting our mission and helping make this possible!

Check out this video of our visit to PSD School Tavelli from back in May! <https://col.st/n8i2Q>



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## Celebrating Misty Brave



In July, our dear friend and long-time colleague, Misty Brave, was inducted into the Hall of Honor at her alma mater, Pueblo Central High School in Pueblo, Colorado. Misty made history as the first Native American to receive this prestigious recognition—a testament to her remarkable career and contributions to education!

Sheila Ferguson and Cherie Bornhorst traveled to Pueblo to attend the ceremony—a surprise for Misty, who had no idea we would be there to celebrate her achievement. The event was a heartwarming celebration of the accomplishments of five outstanding alumni.

Misty's journey in education began at Morey Junior High School in the Denver Public Schools system. It was there that she first connected with Native American communities, eventually becoming an integral part of the Denver Metro Indian Club. In this role, she took on a leadership position, working with students and sponsors to create an intertribal dress and dance revue that highlighted the core Oglala Lakota values of wisdom, respect, courage, and generosity.

In 1979, Misty moved to the Pine Ridge Reservation in South Dakota to teach at Little Wound School. And in 1998, she was honored with the Chief Little Wound Award—the highest recognition from the school.

Misty also became deeply involved with the American Indian Science and Engineering Society (AISES), where she played a key role in securing a grant to help develop and coordinate local science fairs. This effort has had a lasting impact, as Misty continues to organize and coordinate the Oglala Lakota College Reservation-wide science fairs to this day.

In 1989, Misty's dedication to teaching was recognized with the AISES Teacher of the Year Award. Just a year later, she was selected by the U.S. Department of Education to be a Christa McAuliffe Fellow, a prestigious honor named in memory of the teacher who tragically perished in the Challenger disaster. In 1992, Misty was named a Christie McAuliffe Educator by the National Foundation for the Improvement of Education.

Misty became fully affiliated with Oglala Lakota College in 1998, where she continues to inspire students and educators alike.

In 2008, Misty attended the Little Shop of Physics Open House, marking the beginning of a long and fruitful partnership between OLC and LSOP. Over the years, we've worked together to bring science education to students across the Pine Ridge Reservation, and have co-presented numerous teacher workshops. Today, Misty continues to teach, mentor, and support students and educators in her role at OLC, leaving an indelible mark on the community.

We are truly honored to know and work alongside Misty. Her unwavering dedication to education, science, and Native American communities has shaped countless lives, and this recognition is so well-deserved. A heartfelt congratulations to Misty Brave on her induction into the Pueblo Central High School Hall of Honor!



# The Jærmuseet Science Circus: A Partnership That Inspires

At the Little Shop of Physics, we deeply value our partnerships with informal science engagement programs worldwide. One of our most cherished collaborations is with the Jærmuseet Science Circus in Norway. Jærmuseet, a network of museums across the Jæren region, embraces the philosophy of *opplev, delta, utforsk*—which translates to experience, participate, explore. This approach mirrors LSOP's commitment to hands-on, curiosity-driven science learning.

The Science Circus brings science to life through engaging school programs, dynamic teacher workshops, and collaborations with the University of Stavanger. Their emphasis on playful exploration resonates strongly with LSOP's mission, and over the years, our relationship with them has grown into a lasting partnership built on mutual inspiration and shared ideas.

This September, LSOP Assistant Director Adam Pearlstein traveled to Norway to further strengthen this bond. Adam presented at two teacher workshops at Jærmuseet: Magnetism and Playful Physics. These workshops featured dozens of interactive exploration stations, hands-on make & takes, and ready-to-use activities that teachers could bring back to their classrooms. The response was incredible, with around 50 Norwegian educators participating and actively sharing ideas and experiences.

The visit wasn't just about teaching—it was about learning, too. Adam toured Jærmuseet's incredible museum sites, connected with educators at the University of Stavanger, and returned to LSOP energized and full of new ideas. The experience underscored the power of global collaboration: innovation happens when educators come together to learn from each other.

The partnership goes both ways. Later in September, Magne Hognestad, Director and Head Potato of Jærmuseet Science Circus, visited Colorado and spent time with LSOP. Magne joined a school visit to Bethke Elementary, sharing his insights and lending a helping hand. His energy, expertise, and mentorship left a lasting impression on the entire LSOP team, reminding us how inspiring it is to collaborate with passionate educators.

Our relationship with the Jærmuseet Science Circus is a highlight of LSOP's work. The exchange of ideas, resources, and enthusiasm is tangible—and the friendship we've built along the way is priceless. Together, we've proven that science is truly universal, transcending borders to bring people together in discovery and wonder.

For more information about the Jærmuseet Science Circus, please visit [jaermuseet.no/sciencecircus/en/about-science-circus](http://jaermuseet.no/sciencecircus/en/about-science-circus)





# LSOP Word Search

N	R	E	N	E	D	S	S	W	W	A	L	H	C
O	T	N	V	E	N	C	C	V	I	S	E	O	O
I	E	G	N	S	A	I	H	L	H	H	O	G	M
T	A	A	C	U	L	S	O	I	A	A	G	K	M
A	C	G	B	O	S	Y	O	C	U	R	L	N	U
R	H	E	U	H	U	H	L	S	P	I	A	E	N
O	E	M	I	N	A	P	V	U	I	N	L	U	I
L	R	E	L	E	C	O	I	S	N	G	A	T	T
P	S	N	D	P	C	U	S	P	E	H	L	R	Y
X	N	T	I	O	M	D	I	U	R	H	A	I	L
E	T	S	T	N	C	R	T	R	I	E	K	N	L
S	C	I	E	N	C	E	R	A	D	U	O	O	O
A	E	N	F	A	M	I	L	Y	G	C	T	I	E
W	N	O	T	G	N	I	L	L	E	W	A	I	D

SCIENCE  
 OGLALA LAKOTA  
 POUFRE  
 COMMUNITY  
 OPEN HOUSE  
 MCCAUSLAND  
 PINE RIDGE  
 EXPLORATION  
 FAMILY  
 TEACHERS  
 CSU SPUR  
 NEUTRINO  
 SCHOOL VISIT  
 BUILD IT  
 SHARING  
 ENGAGEMENT  
 WELLINGTON  
 PHYSICS

## Stay In Touch!

If you're able, please consider making a donation to help us continue creating hands-on science experiences for learners of all ages: <https://col.st/yLg3X>.

Stay up-to-date with all the latest news and exciting projects by visiting our website and following us on social media!

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