



Leading Hispanics in STEM

THE SOCIETY OF HISPANIC PROFESSIONAL ENGINEERS
(SHPE) REGION 6 &



Eastern Iowa Professional

Present

SHPE NOCHE de CIENCIAS

ENGAGING COMMUNITIES IN STEM

ENGINEERS' WEEK

WHEN: February 24th and 25th, 2021

WHERE: Zoom Virtual Platform

Join 3rd–12th grade students' from across the region for a **virtual** science night filled with STEM! Engage with college students, university professors, and industry professionals. Students will be provided a FREE activity kit.

TikTok/YouTube Guest Appearance
by **Jay Flores** (*invited*)
"It's Not Magic, It's Science"



Register using the link below
<https://forms.gle/Ew9No9VknxVEx2if7>



Registration Deadline
Friday, January 29th, 2021



Noche de Ciencias events showcase science, technology, engineering, and math (STEM). We create awareness and interest in STEM among underrepresented communities, while encouraging participants to see their own STEM future.

- Fun hands-on STEM activities
- Useful college information about college, scholarships, and financial aid.
- Bilingual parent workshops
- Student Panel
- Keynote speakers & Career Panelists
- Gift Card Raffles and More!



Check out the hands-on STEM activities offered:

Group A: 3rd – 5th Grade

Hands-on STEM Workshop	Description
<p>Make Your Own Circuit Workshop</p> 	<p>Circuit? What is it? What does it need (components)? What is it used for?</p> <p>Students create their own paper circuit lantern. Showcase your lantern and what its name is.</p>
<p>Create a Basketball Catapult Workshop</p> 	<p>Talk about Potential and Kinetic energy. Potential vs Kinetic energy. Relate Potential vs Kinetic energy with Parabolic Motion and how this affects sports.</p> <p>Students construct the catapult along with group competitions. How many times can you make that basketball go through the hoop in 5 minutes, and who is the next Stephen Curry!</p>
<p>Construct a Cannon Launcher Workshop</p> 	<p>Relate Potential vs Kinetic energy with Projectile Motion and how this affects the cannon.</p> <p>Students construct their own cannonball launcher and discuss the manufacturing process from the 12th and 13th century when cannons were popular.</p>

Group B: 6th – 8th Grade

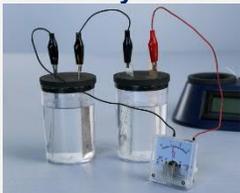
Hands-on STEM Workshop	Description
<p>Build Your Own Headphones Workshop</p> 	<p>Examine the basic theory of sound waves, mass scale manufacturing (i.e., laser cutters, plastic molding), basic principles of how the ear processes sound. Explore how a speaker produces sound and how the ear process sound waves.</p> <p>Students engineer their own headphones and explore applications such as process engineering today (i.e., COVID-19) and biomedical engineering (i.e., hearing aids, cochlear implants).</p>
<p>Engineer a Drift Motorcycle Workshop</p> 	<p>Introduce friction and its formula. Talk about the variables in the friction formula. Explore physics of friction and types of applications.</p> <p>Students build an electric car, that they will be able to modify to increase performance and experiment with making changes.</p>
<p>Build a Glowing Pendulum Workshop</p> 	<p>Explore topics such as chaotic systems, LED Circuits, and Fluorescence. Introduce friction formula and discuss the variables in the formula. Applications of pendulum.</p> <p>Students will assemble their own glowing pendulum to with glow board and UV light.</p>

Group B: 9th – 12th Grade

Hands-on STEM Workshop

Description

Electrochemistry Lab Workshop



Explore hands-on science producing oxidation reaction that "eats" up aluminum foil. Discuss what makes up a battery and where are they used. Students build a simple battery to light the LED. Increase the voltage by adding more plates in series. Experiment with different fluids for increased voltage.

Construct a Hydraulic Claw Workshop



Present and explain Pascal's principle and how hydraulics are used in day-to-day applications. Topics explored include hydraulic systems, gases, and liquids, as well as robotics.

Students build their own lifting claw with hydraulics and explore engineering design challenges.

Build a Hand-Crank Flashlight Workshop



Talk about renewable energy how it works why we need it. Learn about a circuit along with capacitors, stepper motors, and diodes. Discuss LED circuits.

Students assemble their own amazing crank flashlight.

Each registered student will be shipped one kit with quality materials and step-by-step instructions with engineering challenges from KiwiCo. This kit will be used day of event. Each student participant will need their own laptop/Chromebook/PC/phone to connect to the event.

