



National Girls
Collaborative
Project



A MILLION MILES AWAY
Educational Viewing Guide

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NGCP

National Girls Collaborative Project

This educational viewing guide was developed by the National Girls Collaborative Project (NGCP). NGCP brings together organizations committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM). NGCP connects, creates, and collaborates with advocates for transformative change to advance the agenda in gender equity and expand girls' participation in STEM. For 20 years, we have been transforming STEM.

Our Vision

STEM experiences are as diverse as the world we live in.

Our Mission

Connect, create, and collaborate to transform STEM for all youth.

[LEARN MORE](#)

José Hernández



THE FILM *A MILLION MILES AWAY* (rated PG) follows the story of José Hernández, the first migrant farmworker to travel to space. It tells a tale of perseverance, community, and sacrifice to accomplish a seemingly impossible dream. Appropriate for ages 8+, this is a film that is sure to spark conversations around themes of equality, exploration, and reaching for our wildest dreams. Use the questions below to spark conversations at home, school, in a community setting, or in an informal learning setting to dive into a powerful conversation around the themes explored in the film.

DISCUSSION QUESTIONS *for* ELEMENTARY SCHOOL AUDIENCE

Reacting to the Film

- What was your favorite part of the movie *A Million Miles Away*? What questions do you have after watching it?
- Who was your favorite character? What made them stand out to you?
- **Go Further:**
 - José had a dream to be an astronaut since he was a kid around your age! Do you have a dream job? What would you like to be when you grow up? Discuss, draw, or write about your dream job!

Persevering to Overcome Obstacles

- José applied to the NASA astronaut program many times before he got accepted into the program. Does anyone remember how many applications he submitted before getting accepted? (*12 total applications, he was turned down 11 times*).
- Have you ever faced a failure or setback? How (or did) did you motivate yourself to keep going?
 - **Simplify this question for younger participants:** Have you ever experienced something really hard that you weren't sure you would be able to do?

Celebrating our Differences

- José struggled with being different throughout his childhood and even at certain points in his professional career. What were some of the struggles José faced? (*coming from another country, learning to speak English, moving frequently to help his family with farmwork, facing biases in the workplace, etc.*)
- Have you ever felt like you were different? How (or did) you overcome this?
- What are some things that make you uniquely you? This could be about your personality, cultural background, languages you speak, skills you have, and more. Discuss, draw, or write about the things that make you special and unlike anyone else!

DISCUSSION QUESTIONS *for* MIDDLE SCHOOL & HIGH SCHOOL AUDIENCE

Reacting to the Film

- What was your overall reaction to *A Million Miles Away*?
- What was your favorite part of the film? What questions do you have after watching it?
- Did you identify with or relate to any specific characters? Which ones?
- José had a longtime dream of becoming an astronaut and going to space. At times, he felt embarrassed to share his dream with others
 - Do you have a dream that feels too far-fetched to say out loud to others? What makes this dream seem out of reach?
- **Go Further:**
 - **Middle School Audience:** Take some time to write and reflect on your dream, why it is important to you, and what steps you can take to get closer to it.
 - **High School Audience:** José's dream of becoming an astronaut became more realistic when he thought about the specific skills and training that he needed (e.g., pilot training, undersea diving certification, etc.). What skills, training, or education do you need to reach your dream? Take time to research training programs, internships, apprenticeships, and college programs that may help you get closer to your dream. Does it still seem out of reach?

Persevering to Overcome Obstacles

- José applied to the NASA astronaut program many times before he got accepted into the program. Does anyone remember how many applications he submitted before getting accepted? (*12 total applications, he was turned down 11 times*).
- Can you think of a specific instance where you faced multiple rejections or setbacks? How (or did) you motivate yourself to continue persevering toward your goal?
- What do you think made José's 12th application a success? What did he do differently?
- José had a great deal of personal support from his teacher, his wife, cousin, and other family members. Do you think he would have reached his goal of becoming an astronaut without their support? Why or why not?

Overcoming Stereotypes and Biases

- In one of José's jobs, the receptionist assumes José is the janitor and not an engineer. Why do you think she makes that assumption?
 - José does not correct the receptionist immediately. Why do you think he went along with her assumption?
 - How would you handle that situation if you were José?

- A **stereotype** is a belief that many people have about all people or things with a particular characteristic (for example, beliefs about people based on their gender, race, or religion). Stereotypes are often untrue and unfair.
 - Has anyone ever made an assumption about you or your abilities based on a stereotype?
 - Have you ever made an assumption about someone else based on a stereotype?

Celebrating our Differences

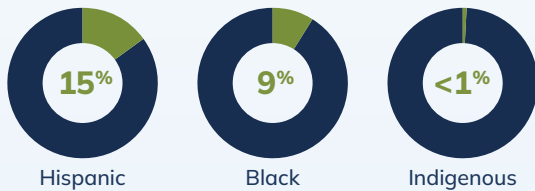
- José struggled with being different throughout his childhood and even at certain points in his professional career. What were some of the struggles José faced? (*coming from another country, learning to speak English, moving frequently to help his family with farmwork, facing biases in the workplace, etc.*)
- Have you ever felt like you were different? How (or did) you overcome this?
- In one scene, José tells his mom he does not want to pack an enchilada for lunch to work and instead packs a sandwich. Why do you think he does this?
 - Have you ever done something to fit in? How did you feel afterward?
- In the film, an astronaut leading José's training tells him, "Do you know how important it is for someone who looks like you or I to be on these flights?" What do you think she meant by that?

CALL to ACTION

FROM AN EARLY AGE, José Hernandez looked up at the stars and dreamed of becoming an astronaut and going to space. Despite the odds stacked against him as a migrant farmworker, he achieved that dream. For many of us, much like José, looking up to the stars in the night sky inspires our curiosity, our sense of adventure, and our quest for answers about the unknown. Space also ignites our imaginations, and provides a powerful lens to explore science, technology, engineering, and mathematics (STEM) concepts and ideas.

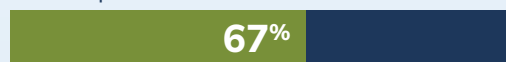
Space education and workforce development in the public and private sectors are also core components of the U.S. national interest, with the potential to drive exploration and scientific discovery, find new solutions for pressing challenges, and provide lucrative jobs for Americans. However, looking at the space industry, and STEM industries more broadly, a lack of diverse representation continues to persist:

- Hispanic people make up 15% of the total STEM workforce, Black people make up 9% of the STEM workforce, and Indigenous populations make up less than 1% of the STEM workforce.¹



- At NASA, approximately 12,000 civilian employees (or 67% of the Agency's workforce) work in STEM occupations, of which only 25% are women and 26% are from historically excluded racial and ethnic groups.²

NASA CIVILIAN WORKFORCE
STEM Occupations



Women in STEM Occupations



Historically excluded racial and ethnic groups



- Women remain underrepresented in the science and engineering workforce more broadly, with the greatest disparities occurring in engineering and computer sciences. Women make up 26% of computer and mathematical scientists and 16% of engineers.³

COMPUTER AND MATHEMATICAL SCIENTISTS



ENGINEERS



- Hispanic, Black, and Indigenous women represent less than 10% of the STEM workforce.⁴



The workforce demand in the space industry, and STEM industries more broadly, is rapidly increasing, making it vitally important that people from all backgrounds and communities have access to all occupations that are an integral part of the space workforce. These statistics demonstrate that a large segment of our population's talents and perspectives are underutilized in space STEM careers.

The issues leading to a lack of diversity in STEM start long before workers enter their careers. Research has shown that adults, in particular parents and teachers, can have a significant influence on students' interest in and understanding of STEM pathways and careers.⁵ Encouragement from caregivers, formal and informal educators, and role models are key to bridging the gender and racial divide in STEM. Thus, encouraging youth of all backgrounds to explore, gain confidence, build interest, and learn foundational skills related to STEM from an early age, is critical in order to see diversity in these careers.

We hope that the inspirational true story of José Hernandez, the first migrant farmworker to travel to space, retold in the film *A Million Miles Away* will inspire youth and their families from all backgrounds to persevere and reach for their dreams within and beyond STEM. We hope that the resources and activities in this Educational Viewing Guide will support families, educators, and youth themselves to joyfully explore a range of STEM concepts and ideas related to space while also taking time to reflect on their own dreams and future aspirations.

¹ National Center for Science and Engineering Statistics (2023). Diversity and STEM: Women, Minorities, and Persons with Disabilities 2023. Special Report NSF 23-315. Alexandria, VA: National Science Foundation.

² NASA Office of Inspector General (2023). NASA's Efforts to Increase Diversity in Its Workforce. Retrieved from: <https://www.oversight.gov/report/NASA/NASA%E2%80%99s-Efforts-Increase-Diversity-Its-Workforce>

³ National Girls Collaborative Project (2023). The State of Girls and Women in STEM. Retrieved from: <https://ngcproject.org/resources/state-girls-and-women-stem>

⁴ National Girls Collaborative Project (2023). The State of Girls and Women in STEM. Retrieved from: <https://ngcproject.org/resources/state-girls-and-women-stem>

⁵ Sjaastad, J. (2012). Sources of Inspiration: The role of significant persons in young people's choice of science in higher education. *International Journal of Science Education*, 34(10), 1615-1636.

ACTIVITIES

ON THE FOLLOWING PAGES, you will find three ready-to-implement hands-on activities that are age-appropriate for elementary, middle, and high school youth respectively. Parents, caregivers, and educators should feel free to adapt any of these activities to simplify them, add complexity, or otherwise meet the needs of the youth you serve!

Elementary School Activity

- **Galaxy Rocks** - In this activity, you will make imaginary space rocks that are inspired by the beauty of our endless galaxy.

Middle School Activities

- **DIY Model Satellite** - In this activity, you will learn about satellites and make your own model satellite using a template and simple materials.
- **Moon Observation Journal** - Complete this activity over the course of a month. Set aside some time each day to look at the Moon. Record your observations in the log provided. Then, answer a series of questions as you learn about the phases of the moon!

High School Activity

- **Letters to Space** - José proved the sky is the limit, with his inspiring life story. In this activity, students will write a letter to space, explaining their journey thus far and what they believe their ultimate mission is in the future.

Take it Further

- Want to find more activities? Find dozens of activities categorized by grade level here: https://science.nasa.gov/get-involved/nasaathome/activities?field_activity_tid=10817



CAMP Goldie Blox

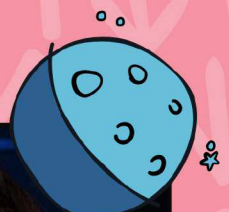
GALAXY ROCKS

When you look up at night, what do you see? Stars? The moon? Another planet? Telescopes can only see so far, but scientists believe that every star in the night sky has at least one planet nearby. Our own Sun has eight planets surrounding it including Earth. That means there could be billions of planets out there for humans to explore.

Dana Bolles is working on a rover that will be sent to Mars to collect rock and soil samples. This has never been done before! When the samples are returned to Earth, scientists will be able to learn more about what life is like on Mars. In this activity, we'll make imaginary space rocks that are inspired by the beauty of our endless galaxy.



Dana Bolles manages payloads for the International Space Station at NASA HQ.



YOU WILL NEED :

- Rock
- Parchment paper
- Sponge brush
- Acrylic outdoor paint
- Paintbrush
- (black, blue, purple, magenta, silver)



ALWAYS ASK AN ADULT FOR PERMISSION AND HELP!



1 Protect surface with parchment paper. Then paint the rock black with a sponge brush.



2 While it's still wet, sponge on a small amount of blue, purple, and magenta paint in a random pattern.



3 Dip paintbrush in silver paint, then use your finger to fan the brush, creating splatter patterns on the rock.

CAMP GoldieBlox

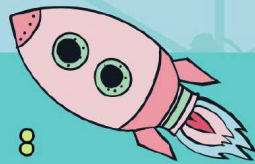
DIY MODEL SATELLITE

A **satellite** is a small object that orbits, or goes around, a planet. Technically, the Earth's moon is a natural satellite! Artificial satellites are objects that are sent into orbit by humans. Even though you can't see them, artificial satellites are constantly rotating around Earth. Without them, we wouldn't have TV, internet, long-distance phone calls, or Global Positioning System (GPS) directions. Scientists also use them to take photos of space, Earth, and weather patterns.

Satellites come in many shapes and sizes depending on what they are used for. But most satellites have an antennae and a power source. The antennae sends and receives information to and from Earth using radio waves. The power source is often wing-like solar panels that collect energy from the sun. In this activity, we'll construct a model of a basic satellite.

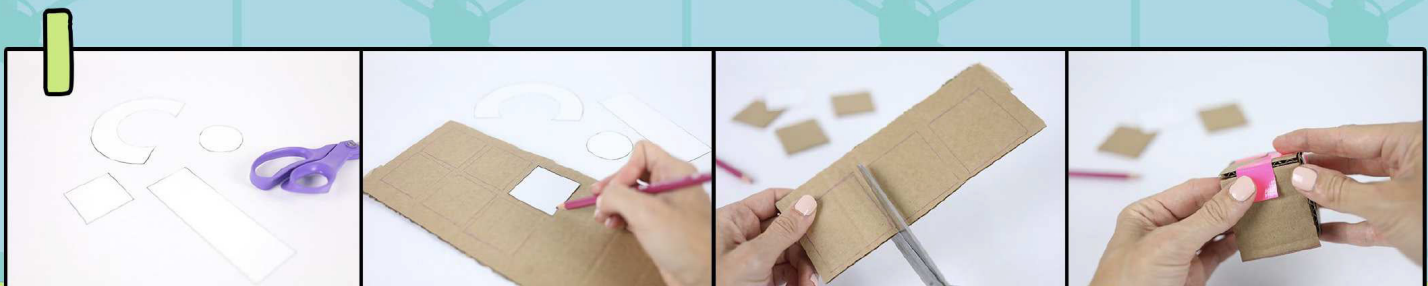


Sydney Hamilton builds communication satellites for Boeing that allow our phones to work.



YOU WILL NEED :

- Scissors
- Cardboard
- (2) Brads
- Tape
- Pencil
- Paper
- Glue
- Printed Template (Page 3)



Print out template. Cut out shapes. Trace 6 squares onto cardboard. Trace 6 more onto paper. Cut out shapes. To make the body, assemble the 6 cardboard squares into the shape of a cube. Secure each seam with tape.

MIDDLE SCHOOL

Moon Observation Journal Activity



Spend the next month getting to know the Moon.

Set aside some time each day to look at the Moon. Record your observations in the log provided. Once you have completed your observations for the whole month using the journal provided, answer the questions below.

Questions:

1. Did the Moon look the same each day? If not, describe how it changed throughout the month.
2. Did you see the Moon at the same time each day? Was there a pattern to the time you were able to observe it? If so, describe the pattern.
3. Did anything prevent you from being able to see the Moon this month? If so, what? Could you figure out what the Moon would have looked like if you could have seen it? If so, how?
4. Look up information on the [phases of the Moon](#) and indicate in your Moon Observation Journal where you think the Moon most closely matched each of the following phases: Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Third Quarter, Waning Crescent, and *New Moon*.
5. How do you think the Moon's appearance will change during the next week?
6. What questions do you have about the Moon or eclipses? See if you can find answers and then share what you learn with your friends and family.

Some places you can find information about the Moon and its connection to planetary science and exploration are:

- [NASA's Moon Site](#)
- [Lunar eclipses](#)
- [Solar eclipses](#)

Source: The questions in this activity are taken from:

<https://moon.nasa.gov/resources/12/moon-observation-journal/>

Moon Observation Journal



DIRECTIONS: Observe the Moon each day for a month. Write down the date and time you make each observation, and draw what you see. If you cannot see the Moon at all on a day, no matter when you look, indicate this in your journal and also write down why you could not see the Moon.

Name: _____

Date:	Date:	Date:	Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:	Time:	Time:	Time:

Date:	Date:	Date:	Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:	Time:	Time:	Time:

Date:	Date:	Date:	Date:	Date:	Date:	Date:
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Date:	Date:	Date:	Date:	Date:	Date:	Date:
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HIGH SCHOOL

Letters to Space Activity

Writing Prompt

José proved the sky is the limit, with his inspiring life story. Take some time to reflect on your own life and dreams for the future. Write a letter to space, explaining your journey so far and what you believe your ultimate mission is in the future.

A large white rectangular area with horizontal blue lines for writing. A vertical red line is on the left side, and a vertical grey line is on the right side.

RESOURCES *for* FAMILIES

THE RESOURCES LISTED below are perfect for families who want to explore space-related science, technology, engineering, and mathematics (STEM) content before or after viewing *A Million Miles Away*.

Science Near Me

Science Near Me is a free resource to help you quickly find opportunities to engage in all types of science, technology, engineering, math, (STEM) events, projects, and programs near you, in person and online. Enter your search preferences and Science Near Me will scan our partners' opportunities and present a list of options for you in seconds. Search by location, topic, audience, and more to find the experience that is right for you. By better understanding the landscape of opportunities to engage, Science Near Me aims to surface and address gaps and barriers to participate in STEM. The primary goal is to help anyone, anywhere in the U.S. participate in science that matters across recreational, research, leisure, hobbyist, educational, professional, or policy interests.

NASA Science at Home

The goal for the Science page for NASA at Home is to ensure that every student, educator and lifelong learner has access to the resources and inspiration of NASA to continue their studies or enrich their ongoing journey. On this website, you will find access to everything from formal lesson plans to amazing imagery and stories about how science and exploration are lifting our world. There will also be ongoing opportunities to chat and interact with scientists directly. This page provides a place for the community of space science enthusiasts worldwide to connect and to share the discoveries that continue to unfold.

NASA's Curious Universe Podcast

Our universe is a wild and wonderful place. Join NASA astronauts, scientists and engineers on a new adventure each week—all you need is your curiosity. First-time space explorers welcome.

NASA's Coloring Books

Parents and caregivers can find activities and coloring pages on a wide variety of NASA topics to print and share with kids.

NASA Space Place

Launched in 1998, NASA Space Place's mission is to inspire and enrich upper-elementary-aged kids' learning of space and Earth science online through fun games, hands-on activities, informative articles and engaging short videos. With material in both English and Spanish and resources for parents and teachers, NASA Space Place has something for everyone. ([View Space Place en Español](#))

RESOURCES *for* YOUTH

CALLING ALL FUTURE astronauts and scientists! The resources below include videos, tools, apps, and games that can be shared directly with youth to have fun exploring space-related topics.

For preschool through elementary school youth:

[Astronauts Zoom! Storytime from Space](#)

(ages 3+): This video shows an astronaut-in-orbit reading aloud the national STEM award-winning book *Astronauts Zoom!* The reader, Japanese astronaut Koichi Wakata, reads the book aloud from the International Space Station.

[Space Chase! Explore & Learn App](#)

(ages 4+) *Space Chase!* is a free mobile learning experience for youth to use before, during, and/or after visiting the Kennedy Space Center Visitor Complex. Students can use their smartphones to investigate and solve space-related challenges. If a student has not yet been to the visitor complex, they are still able to participate in pre-visit challenges. Available in the Apple Store and Google Play.

[NASA Kids Club](#) (ages 4-10) NASA provides a safe place for children to play as they learn about NASA and its missions. NASA encourages you to visit NASA Kids' Club and use its games and activities to inspire the next generation.

On this site, you will find games of various skill levels for children pre-K through grade 4. These games support national education standards in STEM—science, technology, engineering and mathematics.

[NASA Kids' Club Picture Show](#) (ages 4+)

Part of the NASA Kids Club website, the Picture Show is an image gallery of some of NASA's coolest and most interesting pictures. They may be used as conversation starters or writing prompts to lead children in discussions about STEM-related topics and current events. The **Now in Space** slideshow introduces young explorers to the crew currently orbiting Earth on the International Space Station.

[ExoQuest](#) (ages 8+) Travel into deep space in search of strange and unusual planets that lurk beyond our solar system called exoplanets. Amaze your family and friends with the knowledge you will gain and the discoveries that you will uncover. Using the [Eyes on Exoplanets](#) real-time, 3D interactive application, scour the known universe in search of answers for all of the quests. Once you finish, print out a certificate of completion.

For elementary, middle, high school, and older:

[Life and Death of a Planetary System](#)

How did we get here? How do stars and planets come into being? What happens during a star's life, and what fate will its planets meet when it dies? Come along on this interstellar journey through time and scientific detective work.

[What Did Hubble See on Your Birthday](#)

The Hubble Space Telescope explores the universe 24 hours a day, 7 days a week. That means it has observed some fascinating cosmic wonder every day of the year, including on your birthday. What did Hubble look at on your birthday? Enter the month and date to find out!

[Life at the Lab](#) Check out behind-the-scenes videos of concepts and technologies being developed at NASA's Langley Research Center in Hampton, Virginia, that will contribute to space exploration, aeronautics, and Earth science.

RESOURCES *for* EDUCATORS

BELOW IS A LIST OF SPACE-STEM resources that educators can implement in both formal and informal learning settings. On these websites, educators can find curricular resources, educational videos, career exploration information to share with students, and more.

[NASA Science](#) NASA Science has a new team to help learners of all ages “do” science! For the next four years, a cooperative network of thirty-three competitively selected teams from across the Nation will work with NASA infrastructure teams to connect NASA science experts, real content, and experiences with community leaders to do science in ways that activate minds and promote deeper understanding of our world and beyond. The program is informed by a 2019 assessment from the National Academies of Sciences, Engineering and Medicine.

[NASA Modern Figures Toolkit](#) In the 1960s, the U.S. was on an ambitious journey to the moon, and Katherine Johnson and her fellow human computers helped get NASA there. Bring the excitement of their story to your classroom with the NASA Modern Figures Toolkit. The NASA Modern Figures Toolkit is a collection of resources and educational activities for students in grades K-12. Each educational activity and resource includes a brief description, as well as information about how the activities and lessons align to education standards. Resources highlighted include videos, historical references and STEM materials.

[Your Place in Space](#) Your Place in Space is a collection of space-inspired STEM educator resources. It’s your one-stop shop to find K-12 space STEM materials from the Smithsonian and the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), the US Geological Survey (USGS), and the Department of Defense (DoD), who also have space-focused missions. The goal of the Your Place in Space site is to make it easier for you to find space STEM materials that will inspire your K-12 students to pursue their interests in STEM!

[Artemis I STEM Learning Pathway](#) NASA’s Space Launch System lifted off for the first time on Nov. 16, 2022, sending an uncrewed Orion spacecraft on a cruise around the Moon. Share the excitement of the Artemis I mission with learners of all ages with the [Artemis I STEM Learning Pathway](#). Each set of resources can be used individually or in combination to create a lesson plan tied to the weekly theme.

[Girls STEAM Ahead with NASA \(GSAWN\)](#)

The National Girls Collaborative Project (NGCP) partners with NASA’s Universe of Learning on GSAWN, a nationwide project to engage girls and their families in authentic STEM experiences and current NASA science. The project provides implementation stipends to informal education organizations to plan and implement events in their communities using the Girls STEAM Ahead with NASA free resources. Together, girls and their families explore the wonders of the universe, learn about space science, and celebrate groundbreaking contributions women have made to NASA astronomy. Learn more [here](#).

[IF/THEN® Collection](#) The [IF/THEN® Collection](#) from [Lyda Hill Philanthropies](#) and managed by NGCP is a free digital library with photos, videos, posters, activities, and other assets featuring diverse women STEM innovators, all available for educational and other non-commercial use. This collection is a useful resource for showcasing diverse pathways into space STEM careers (and STEM careers more broadly) including women in jobs related to aviation, astronomy, aerospace related careers, and more. Learn more here: The [IF/THEN® Initiative](#).

[SciGirls Earth & Space Resources](#) Find activities, videos, and more related to earth and space STEM topics. Many SciGirls activities and resources are also available [en Español](#).

LEARN MORE

Supporting Space STEM Education in K-12 and Beyond

- [FACT SHEET: Vice President Harris Announces Commitments to Inspire, Prepare, and Employ the Space Workforce | The White House](#)
- [The Interagency Roadmap to Support Space-Related STEM Education and Workforce.](#)
- NGCP Resource: [Supporting Space STEM Education: Resources to Spark Curiosity and Inspire STEM Learning](#)

Supporting the Latinx and Chicanx Community in STEM

- [Latino STEM Alliance](#): The Latino STEM Alliance partners with schools, private industry, community groups and academia to bring STEM experiences to underserved youth that otherwise would not have such an opportunity.
- [MAES- Society of Mexican American Engineers and Scientists](#): MAES is the foremost Latino organization for the development of STEM leaders in the academic, executive and technical communities
- [National Society of Hispanic Physicists](#): The purpose of this society is to promote the professional well-being and recognize the accomplishments of Hispanic physicists within the scientific community of the United States and within society at large. The Society seeks to develop and support efforts to increase opportunities for Hispanics in physics and to increase the number of practicing Hispanic physicists, particularly by encouraging Hispanic students to enter a career in physics.
- [SACNAS](#): SACNAS is a society of scientists dedicated to fostering the success of Hispanic/Chicano and Native American scientists—from college students to professionals—to attain advanced degrees, careers, and positions of leadership in science
- [Society of Hispanic Professional Engineers](#): Since 1974, over 40 years ago, SHPE has been changing lives by empowering the Hispanic community to realize its fullest potential and impact the world through STEM awareness, access, support, and professional development.

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CREATE + CONNECT = COLLABORATE

Visit Our Website to Learn
How to Get Involved ngcproject.org

