NSPACE
NASA STEM Pathway Activities – Consortium for Education

OSU

NASA Partner

ANNUAL PERFORMANCE REPORT

JUNE 1, 2019 – MAY 31, 2020

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Oklahoma State University
OSU NASA Education Projects
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Cooperative Agreements
(80NSSC17M0021, 80NSSC17M0022,
80NSSC17M0023, and 80NSSC17M0024)

A note from the PI

Growth, Change and Innovation

2019-2020 has been an exciting year of engagement with NASA events. Through the Artemis program, two of our activities (Micro-g NExT and NASA SUITS) have been designated as Artemis Challenges, and our staff have contributed to the Astronaut Candidate graduation and SpaceX Demo-2 of the Commercial Crew Program to launch American astronauts from American soil in an American spacecraft for the first time in nine years.

This third year of NSPACE also offered our team the opportunity to embrace innovation and creativity in the design and development of unique learning experiences that serve to inspire, engage, educate and employ the next generation of explorers. Nationwide closures forced cancellation of some face-to-face activities (MITTIC, MIRO, NCAS: NASA on Campus) and postponement of other activities until Fall 2020 (WEAR, NASA/Texas Instruments Code Challenge, Space Grant Consortium training opportunities, NCAS Legacy, faculty training for NCAS: NASA on Campus). The adjustment of submissions facilitated continuation of activities (SPOCS and In-flight Education Downlinks), and an investment in enhanced digital resources and experiences served to strengthen existing activities (CCP digital Launch Kit, SUITS, HUNCH, NCAS). In essence, this year has been marked with the challenge of not being able to provide STEM engagement experiences exactly how we have in the past but also with the exciting adventure of creating new ways to engage learners.

NSPACE has reached more than 155,000 students this year, a feat that could only be accomplished with the amazing team of professionals who work tirelessly to implement excellence throughout our activities. We are pleased to have added 14 new NSPACE employees across the nation and enjoyed having the team on the Oklahoma State University campus for a week in November 2019 for a Professional Development Leadership Summit featuring expert researchers in STEM education, engineering, online teaching and learning, team building and reaching and serving underrepresented populations. NSPACE staff are taking advantage of tuition waivers for their own graduate education as well as for their dependent undergraduate students. Our NASA STEM Engagement Community of Practice in Canvas, our learning management system, facilitates continual professional development and collaboration for NSPACE employees.

Along with our partners – the 13-campus Texas A&M University system, 4-H, the Center for Sovereign Nations, Langston University and Northern Oklahoma College – we are proud to leverage emerging technologies and innovative pedagogies to transform the challenges of the COVID-19 pandemic into opportunities that strengthen our activities. The highlights of each activity on the following pages will give you a glimpse of the impact of this important work.

– Dr. Stansberry

Professor, Educational Technology

PI, NASA STEM Pathway Activities – Consortium for Education (NSPACE)

Founder, Emerging Technologies and Creativity Research Lab

NASA'S OFFICE OF STEM ENGAGEMENT
Focus Areas

Create unique opportunities for students to contribute to NASA's work.

Build a diverse future STEM workforce by engaging students in authentic learning experiences.

Strengthen public understanding by enabling powerful connections to NASA's mission and work.

Table of Contents

NSPACE Activities fall under one of two categories — **STEM Collaborations**: Activities in collaboration with partners, including school districts, State of Texas, Houston Livestock & Rodeo and the International Space Station Office; or **STEM Operations**: Activities funded by the Minority University Research and Education Projects (MUREP), NextGen STEM (NGS) and the National Space Grant College and Fellowship Project (Space Grant).

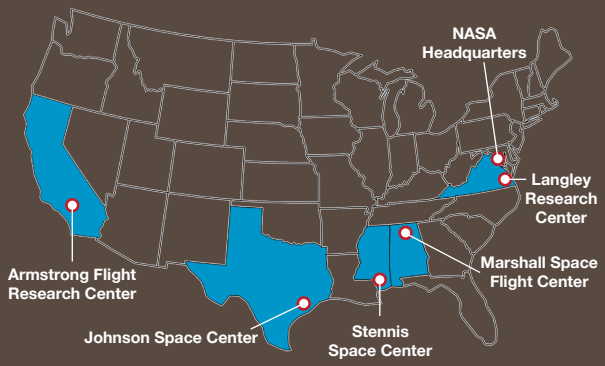
education.okstate.edu/nasa

STEM COLLABORATIONS

STEM OPERATIONS

NSPACE 2019-2020
AT *a* GLANCE

Added **14** new full-time team members to NSPACE



Working on **13** activities for NASA's Office of STEM Engagement

***NSPACE employees at* 6 NASA CENTERS**

98% ***of the NSPACE team attended the Professional Development Summit held at Oklahoma State University***

Above and beyond supporting **6** ***Apollo 50th Events***

Enhanced organization structure providing team members greater access with **7 leads**

Coordinated onsite experiences at **10** NASA centers and three offsite locations; reaching **155K** participants from **49** states and territories

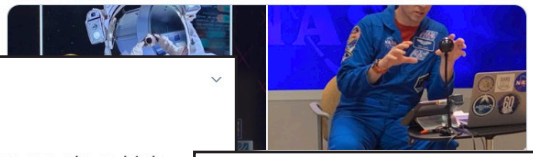
9 employees seeking or recently completed an advanced degree

***All working together to engage, educate and inspire the* ARTEMIS GENERATION**

Social Feed

Nick Hague @AstroHague

Enjoyed my time with #NASASUITS teams yesterday talking about the challenges of space walking. Smart questions lead to innovative breakthroughs! Your efforts are going to fuel #Artemis exploration of the moon.



NASA STEM Engagement @NASASTEM · Feb 6

Mars is red,
Planet Earth is blue,
Welcome home, @Astro_Christina,
We're so proud of you!

We give you an A+ for your amazing 328 day mission. We're so proud of your accomplishments & all you've done to inspire students to follow their STEM dreams! #CongratsChristina

805 4.2K

Johnson Space Center @NASA_Johnson

What's for dinner?
As part of the @NASAHUNCH program, these high school students are using their culinary skills competitively as they aim to create the best new dish f astronauts aboard the @Space_Station, opening their minds to new careers and possibilities along the way.

Localish @localish · Feb 10

Watch these teens present 'zero-gravity' dishes for astronauts in space!

NASA STEM Engagement @NASASTEM · Jan 30

As @NASA pauses for a day of remembrance, we reflect on the legacy of Christa McAuliffe & the ways she inspired the STEM community. Honor her memory in your classroom by joining @astro_ricky & @AstroAcaba in conducting her lesson plans. #NASARemembers

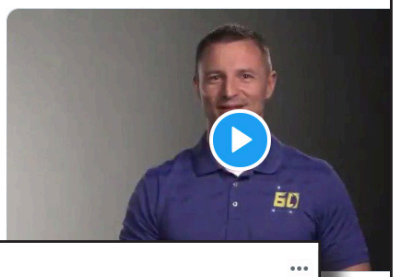
: go.nasa.gov/2GxigN5

Intl. Space Station @Space_Station · Jun 25, 2019

Astronauts face many challenges while living & working in space. Thanks to a partnership between @NASASTEM and @MicrosoftEDU, the #Artemis generation of explorers can study these challenges through hands-on lesson plans & activities! aka.ms/20yrsinspace #STEMonStation

NASA STEM Engagement @NASASTEM · May 10, 2019

As an 11-year-old on a field trip to @NASAArmstrong, @AstroDrewMorgan never imagined the journey he's about to take. Drew will soon launch to the @space_station & he'd like to thank inspiring teachers like Mr.Steenerson—his 5th grade teacher—for shaping his future. #ThankATeacher



Minecraft: Education Edition @PlayCraftLearn · Mar 2

Inspired by @MicrosoftEdu's chat with @Astro_Jessica? Explore the @Space_Station in #MinecraftEdu, and ignite your students' passion for space science and exploration. Get started here: msft.it/6011TbS4W #MicrosoftEdu

NASA STEM
May 25 at 6:00 PM

When Crew Dragon launches on 5/27, stowage lockers built by high school students will be onboard!

These lockers store payloads, tools & supplies NASA Astronauts need to conduct science and research on the International Space Station.

Learn more about NASA HUNCH → www.nasahunch.com

73 1 Comment 19 Shares

RODEOHOUSTON was live.
May 6 at 11:00 AM

WATCH LIVE: Want to learn about bizarre, fa of the Moon? Take a trip outside our solar sy your own home!

Tune in right here on Facebook at 11 a.m. on do all of these things and more during our liv Davis and Becky Kamas!

Microsoft Education @MicrosoftEDU · Mar 2

How incredible was it to connect with a real astronaut during today's #MicrosoftEDU @NASASTEM downlink event? Thanks to everyone who tuned in to watch @astro_jessica answer students' questions! msft.it/6010Tb2pQ #STEM

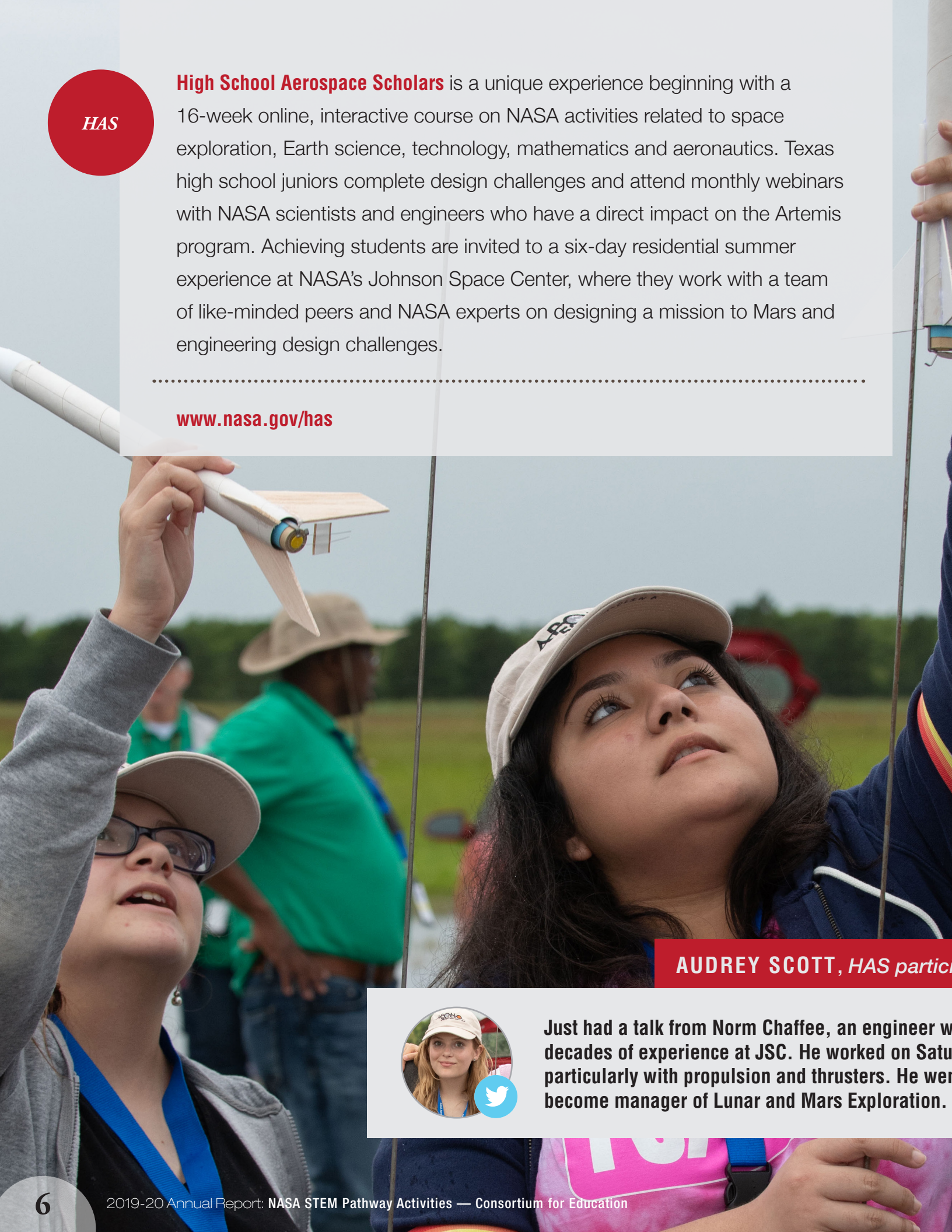
32 123

Anonymous quotes found in this report are from a third-party evaluation report. Any names withheld are to protect participant privacy.

HAS

High School Aerospace Scholars is a unique experience beginning with a 16-week online, interactive course on NASA activities related to space exploration, Earth science, technology, mathematics and aeronautics. Texas high school juniors complete design challenges and attend monthly webinars with NASA scientists and engineers who have a direct impact on the Artemis program. Achieving students are invited to a six-day residential summer experience at NASA's Johnson Space Center, where they work with a team of like-minded peers and NASA experts on designing a mission to Mars and engineering design challenges.

www.nasa.gov/has



AUDREY SCOTT, *HAS partici*

Just had a talk from Norm Chaffee, an engineer w decades of experience at JSC. He worked on Satu particularly with propulsion and thrusters. He wer become manager of Lunar and Mars Exploration.

HAS
BY *the* NUMBERS

Students represented* 248 *cities and* 432 *institutions throughout the state of Texas

41% of online students were female

1,148 Students enrolled in the online course, **an increase of 370 students** from last year

30% of online course participants were from Title 1 schools

264 students participated in 6 onsite visits in June and July 2019

33% of online course participants were of Hispanic ethnicity

FORWARD *to the* MOON

- **Increase student participation in HAS onsite experience by creating an innovative, Artemis-themed, gamified, virtual summer experience for all students who finished the HAS online course**
- **Develop partnership with Texas A&M University in support of STEM initiatives**
- **Support more diversified student pools, exposing more demographics to NASA STEM activities**

HISD

Houston Independent School District Aerospace Academies supports five schools in HISD receiving a grant from the U.S. Department of Education to become STEM magnet schools involving programs focusing on aerospace engineering. The HISD Aerospace Academies activity provides content, resources and instructional coaching to aid educators in training the Artemis generation of space explorers.

WESLEY ELEMENTARY SCHOOL

Congrats to the #NewAstronauts of the graduating XXII. Wesley was glad to play a part in this celeb of those that will be the #Artemis Generation pion space exploration to come, to the Moon & Mars w

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HISD
BY *the* NUMBERS

4,000+ students served over **5 campuses** in the 7th largest school district in the nation

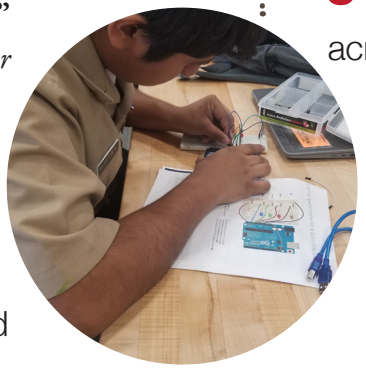
98% of students from populations historically underrepresented in STEM

***Two Aerospace Academy high schools participate in* HUNCH**

"Having a partnership with NASA has given me a sense of pride and brought a new light to my profession. It allows me to get away from teaching to the test and more on real world applications."

– educator

376 NASA science lessons shared across 7 grade levels **(K, 1, 3, 6, 7, Biology, Chemistry)** in the first two years



94% economically disadvantaged students

40+ teachers supported by NASA Instructional Coaches with lesson planning, in-class modeling and unique access to NASA subject matter experts

Monthly lunchtime STEM Challenges

FORWARD *to the* MOON

In-flight Education Downlink connecting Wesley Elementary School and Washington High School students with astronauts on the International Space Station

Washington and Milby High School students launch rockets traveling faster than the speed of sound with SystemsGo

HUNCH

High schools United with NASA to Create Hardware partners students, NASA and industry to create real products meeting NASA needs and standards. Students across the nation participate in precision machining, industrial sewing, design-and-prototyping, culinary science and video challenges under the guidance of NASA and industry mentors.

www.nasahunch.com

DENBIGH HIGH SCHOOL, ***HUNCH pa***

Students work in the maintenance lab instal engines, refurbishing a #NASAHUNCH mode and putting together storage lockers for the #InternationalSpaceStation

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el,

HUNCH
BY *the* NUMBERS

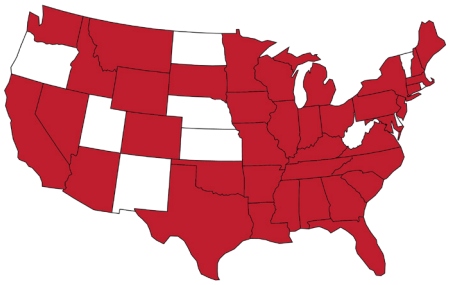
HUNCH ***has delivered hundreds of projects to NASA this year,*** including: **600** spacewalk wire ties, **177** design developments for flight, **131** softgoods, **25** lockers, **2** prototypes for flight, **1** culinary item

Nearly **300** student teams developing **new prototypes** for space exploration

21 industry partners

74 videos submitted from 27 schools about living and working on the moon and beyond

DELIVERED
800+ *flight products with* **20,000+** *individual parts and components to NASA since 2003*



Partnered with **277** schools in **38** states and **2 US Dept. of Defense** schools in Belgium and Puerto Rico: working with **2,500+** students and **230** educators

FORWARD *to the* MOON

More Gateway and Orion projects to support the Artemis mission. Students are also producing trainer parts for Artemis mission mockups

Growing software program and finding industry partners for mentorship

Mentoring and facilitating more student hardware and softgoods assembly for flight and training items

Micro-g NExT

Micro-g Neutral Buoyancy Experiment Design Teams is a mission-driven, authentic NASA STEM experience. This Human Exploration and Operations Mission Directorate collaboration with the Office of STEM Engagement (OSTEM) integrates undergraduate students into the technology and hardware development paths of NASA missions in support of human space exploration.

https://go.nasa.gov/mgnext

COLUMBIA UNIVERSITY, *Micro-g NE*

After a year of hard work designing a sharp-edge & removal device for @NASA_Astronauts to use missions, the @Columbia #MicrogNExT team ha time successfully testing their #spacewalk tool v @NASA_Johnson at the Neutral Buoyancy Lab la

xT Team

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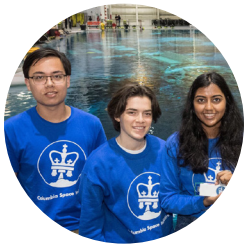
Micro-g NExT
BY *the* NUMBERS

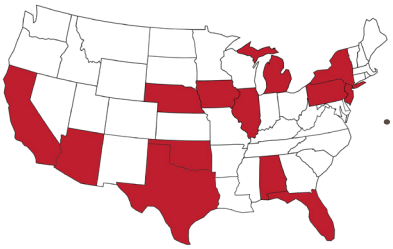
SIX team leads and **24%** of online participants are female

1 of 6 *OSTEM Artemis Challenges*



33% INCREASE in teams from Minority Serving Institutions compared to 2018

Zip tie cutter from **Lone Star College-Cy Fair** used in **TWO spacewalks!**



28 teams from **14 states** participated online and **7** successful teams tested tools at **NASA's Neutral Buoyancy Lab (NBL)**

FORWARD *to the* MOON

- New collaboration with the Search and Rescue Office at NASA's Goddard Space Flight Center
- 5 new challenges in support of Artemis II and Artemis III
- Will utilize the Lunar Operations Training portion of the NBL, increasing the use of a NASA-unique facility

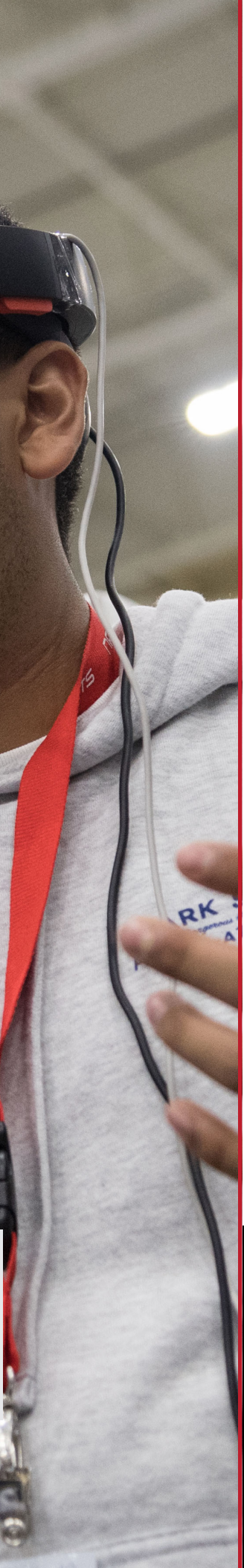
NASA SUITS

NASA Spacesuit User Interface Technologies for Students challenges students to design and create spacesuit information displays within augmented reality environments. As NASA pursues Artemis, the agency accelerates investing in surface architecture and technology development. For exploration, it is essential crewmembers on spacewalks are equipped with the appropriate human-autonomy enabling technologies necessary for the elevated demands of lunar surface exploration and extreme terrestrial access.

http://go.nasa.gov/nasasuits

NICK HAGUE, *NASA astronaut*

Enjoyed my time with #NASASUITS teams yesterday talking about the challenges of space walking. Smart questions lead to innovative breakthroughs! Your efforts are going to fuel #Artemis exploration of the moon.



NASA SUITS
BY *the* NUMBERS

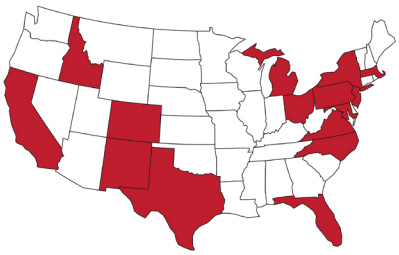
450+ students and faculty engaged

33% of institutions were minority serving, with the first ever Tribal College and University Team

18+ *NASA subject matter experts*

48% new institutional engagement

1 of 6 *OSTEM Artemis Challenges*



150+ **students** from **21 institutions** in **15 states** participated in NASA SUITS online community

FORWARD *to the* MOON

NASA's Joint Augmented Reality Visual Informatics System project is incorporating ideas from student interfaces into the design for the new Artemis spacesuit

Navigation features included in student designs in preparation for Artemis missions

CCP

As NASA makes strides to return human spaceflight on American spacecraft from American soil, **Commercial Crew Program** Next Gen STEM focuses on releasing resources amplifying STEM engagement. Virtual reality tours, workshops and resource kits engage students and educators in this profound moment in American history as Boeing completed their Orbital Flight Test and SpaceX launched with NASA astronauts from the United States for the first time since 2011.

https://www.nasa.gov/stem/ccp

CHARITY CLOUGH, *educator*

It feels great to be supported as an educator! Less than 4 hours to launch! #Starliner #NASASocial @SSESFalcons #iteachphysics

CCP
BY *the* NUMBERS

6 360° virtual reality field trips released with **41,000+** views

8,000+
students reached at Naval Air Station Oceana Air Show

Interacted with **4,000** *participants attending the* **International Society for Technology in Education** *conference*

23,000+ *students engaged in* **CODing Simulation** *at* **Microsoft** *stores across the nation*

128 **preservice teachers** participated in SOS workshops with CCP content

"So enthusiastic and engaging! Very excited to see all of the amazing new resources for educators to use in their classrooms."
– educator

FORWARD *to the* MOON

- **Provide professional development opportunities and experiences for the Space Grant Consortium**
- **Create STEMonstrations with Boeing astronaut Chris Ferguson and Boeing Education**

MITTIC

MUREP Innovation and Tech Transfer Idea Competition is a spinoff challenge established to develop new ideas for commercialization and Artemis deep space exploration missions by seeking concept papers from multi-disciplinary student teams enrolled at a Minority Serving Institution (MSI).

go.nasa.gov/nasamittic

STUDENT PARTICIPANT

> **MITTIC is an opportunity to develop leadership skills, work with NASA technologies, and create an innovation to help society.**

MITTIC
BY *the* NUMBERS

43% of participating institutions are **Historically Black Colleges and Universities** (HBCU) and **54% are Hispanic-Serving Institutions**

55% *of teams partnered with a* ***NASA Small Business to develop concept***

9 MITTIC interns at NASA's Ames Research Center in summer 2019

2 teams from MITTIC 1.0 received seed funding to **continue development of a prototype**

Ames Research Center,
Silicon Valley, CA

First ever HBCU White House Initiative Scholar Mini-MITTIC sessions with ***44 Scholars***

"MITTIC gives you a way to critically think, in a fun way, while learning and getting first-hand knowledge about NASA technologies."
– student participant

FORWARD *to the* MOON

- **Increase Artemis-related intellectual property options for creating student concepts**
- **Incorporating business coaching 101 mentorship for all teams**
- **Add curriculum development of Concept to Commercialization**

MIRO

MUREP Institutional Research Opportunity awards strengthen and develop the research capacity and infrastructure of Minority Serving Institutions (MSIs) directly supporting NASA's four mission directorates—Aeronautics Research; Science; Space Technology; and Human Exploration and Operations. MIRO university research allows NASA to tap into the Artemis Generation for new expertise and innovative new ideas, expanding research and development talent base for missions to the Moon and Mars.

https://www.nasa.gov/stem/murep/projects/miro.html

JIM BRIDENSTINE, *NASA Adminis*

Just signed an agreement with @LangstonU an @Nanoracks on a payload to the @Space_Stati that will mitigate the effects of microgravity on immune system. This research will benefit our astronauts on extended missions to the Moon a

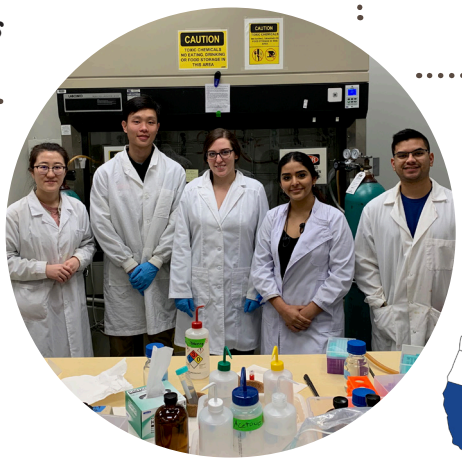
MIRO
BY *the* NUMBERS

42% of student awardees are female

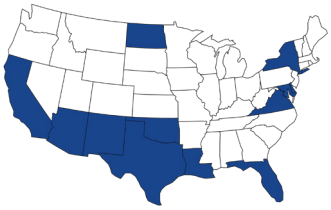
10 *new MIRO awardee institutions,* ***doubling the number of active awardees***

73% of student awardees were underrepresented based on race and/or ethnicity

$19 million committed to institutions this year



19,000+ participants reached



20 institutions from **12 states** + **Washington D.C., Puerto Rico** & **U.S. Virgin Islands**

2 Tribal Colleges were awarded, ***a first for MIRO***

> **"I have never really enjoyed school, never really wanted to be bothered with it, but since working with this program I am actually excited about the prospect of graduate school, and thinking I could handle it. I would be great there and flourish."**
>
> *– student participant*

FORWARD *to the* MOON

The University of Texas at San Antonio will research data measurement techniques for use during atmospheric entry of extraterrestrial surfaces to help NASA's Artemis mission

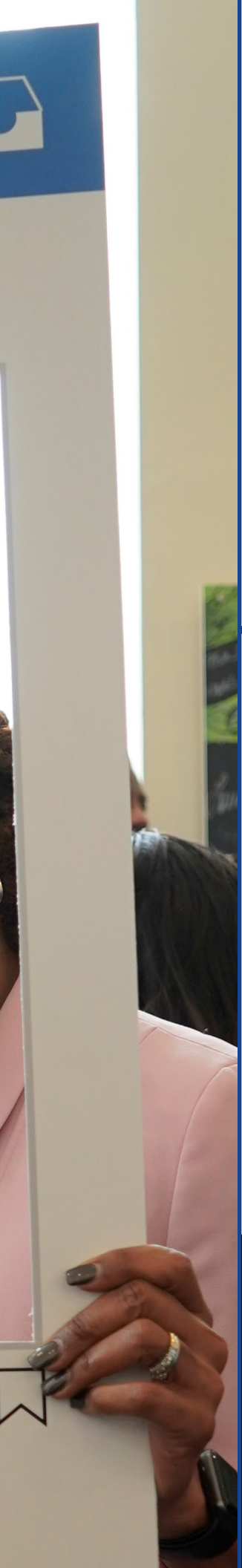
Research at the University of Puerto Rico, Rio Piedras, will enable long-duration missions to the Moon and Mars

MOO and MSI

MUREP Other Opportunities engages and inspires the Artemis generation through strengthening curriculum and curricular pathways in STEM. MOO attracts, retains and supports the success of underrepresented students in STEM degree programs.

The **MUREP Sustainability Initiative** supports capacity building increasing long-term sustainability at Minority Serving Institutions (MSIs) by creating awareness of opportunities including grants and cooperative agreements but significantly increasing contracting opportunities in partnership with NASA's Offices of Procurement, Small Business Programs, Technology Transfer, Small Business Innovative Research, Small Business Technology Transfer and Space Act Agreements. NASA has a 1% contracting goal for MSIs which builds research enterprises developing a more diverse STEM workforce.

https://www.nasa.gov/stem/murep



MOO BY *the* NUMBERS

100% *Minority Serving Institutions*

20+ college **STEM courses** revised or created

NASA's Goddard Space Flight Center and **Ames Research Center** worked directly with students for **four years** to conduct research

3,000+ students reached with summer camps and after-school programs

17 NASA paid internships in *summer 2019*

MSI BY *the* NUMBERS

7,000+ students, educators and staff reached

114 Historically Black Colleges and Universities (HBCUs) reached

23 Asian American and Pacific Islander Serving Institutions reached

12 institutional engagement activities involving **204 Minority Serving Institutions**

48 Hispanic-Serving Institutions reached

13 Tribal Colleges and Universities (TCUs) reached

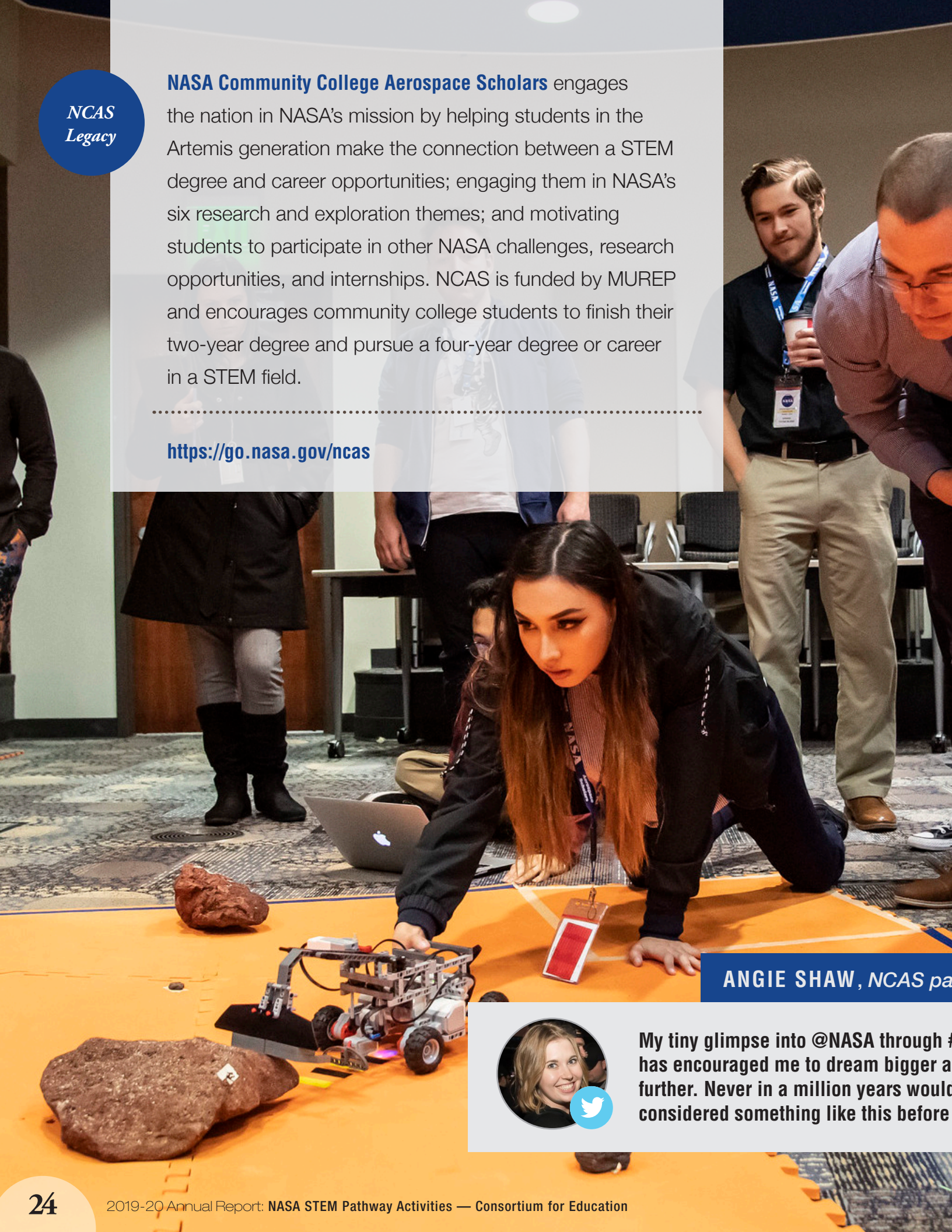
FORWARD *to the* MOON

- **Increasing engagement with NASA mission directorates at all centers**
- **Preparing for White House Initiative Conference for HBCUs, NASA Technology Infusion Road Tour and Case Summit**
- **Deeper dive with HBCUs and TCUs increasing participation in more MUREP platforms**

NCAS Legacy

NASA Community College Aerospace Scholars engages the nation in NASA's mission by helping students in the Artemis generation make the connection between a STEM degree and career opportunities; engaging them in NASA's six research and exploration themes; and motivating students to participate in other NASA challenges, research opportunities, and internships. NCAS is funded by MUREP and encourages community college students to finish their two-year degree and pursue a four-year degree or career in a STEM field.

https://go.nasa.gov/ncas



ANGIE SHAW, *NCAS pa*

My tiny glimpse into @NASA through #
has encouraged me to dream bigger a
further. Never in a million years would
considered something like this before

rticipant

#NCAS2019
nd reach
l I have
now.

NCAS Legacy
BY *the* NUMBERS

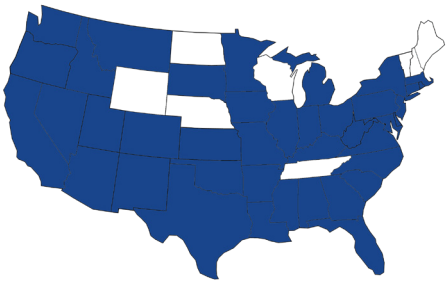
"I couldn't have asked for a better team, nor a better mentor. My week at NASA Wallops was the best week of my life and the most life changing!"

– student

57% of students identified as a member of a minority group

72% of students came from MSIs

1,371 students participated in the online course



"After these 4 days of work and little sleep, I left JPL with a brighter view of my future and loads of amazing advice in my toolbox! Truly thankful for this opportunity!"

– student

1,243 students from **274** community colleges in **42** states invited to **20** onsite events at **all 10 NASA centers**

FORWARD *to the* MOON

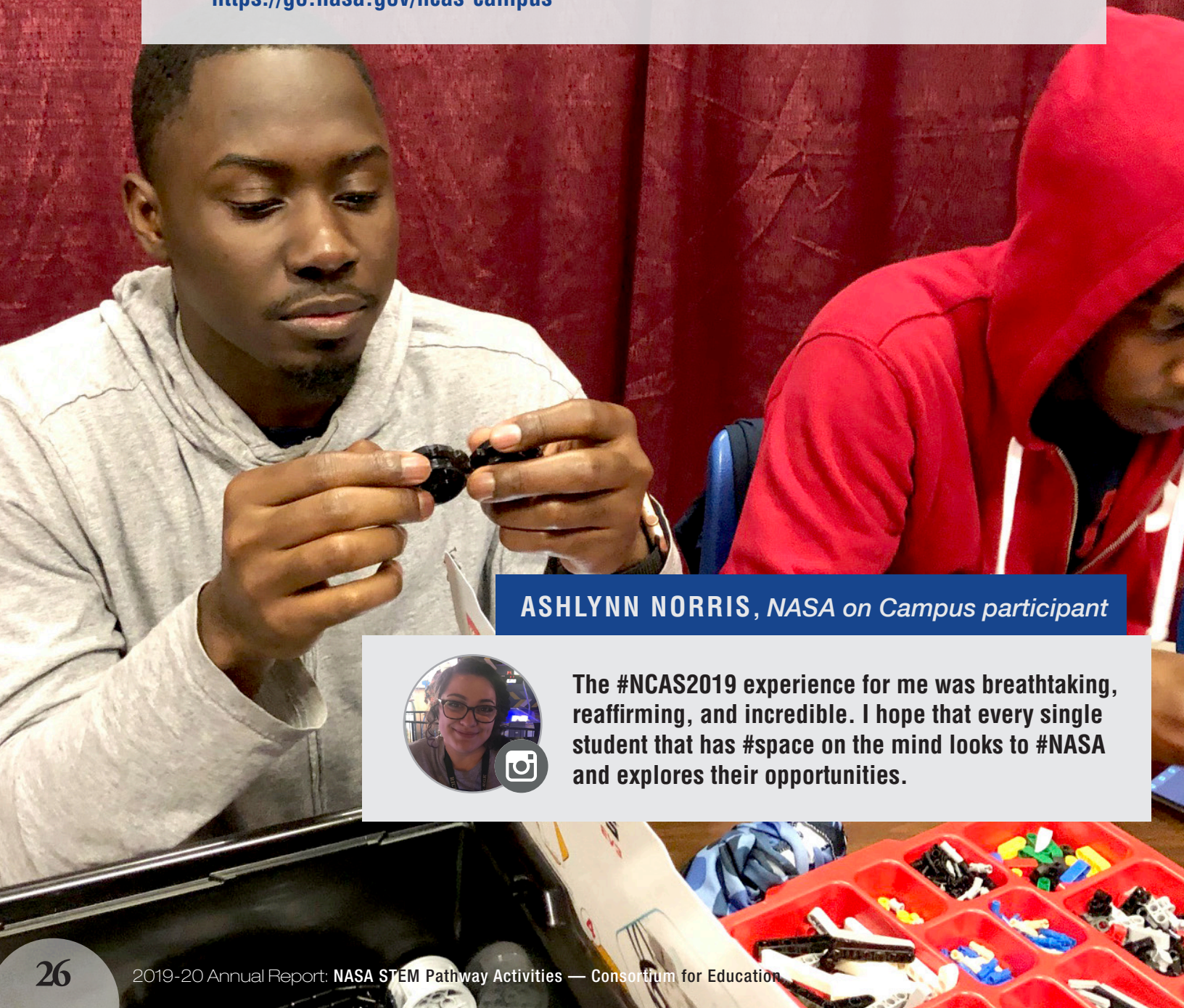
Created with community college students in mind, the redesigned website is easier to navigate and has the look and feel of a modern NASA activity website

To bring awareness of all 10 NASA centers, the online course will integrate how each center contributes to the current and future missions

NCAS: NASA on Campus

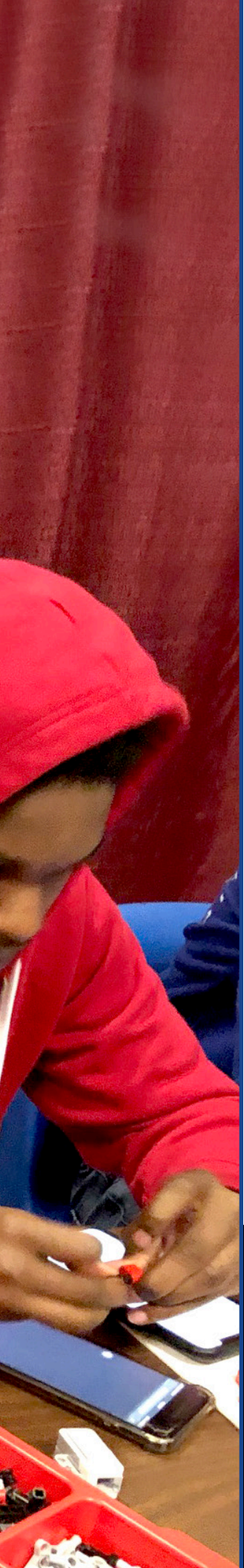
NASA Community College Aerospace Scholars: NASA on Campus takes the successful NCAS Legacy model implemented at NASA centers and trains community college faculty to achieve the same positive student outcomes on their local campus. NCAS: NASA on Campus opens doors for two-year community college students seeking a STEM degree. Students get a closer look at NASA's unique missions and research and learn how to develop their talents, interests and passion to become future STEM professionals. NCAS is a blended-learning experience comprised of a five-week online course and a four-day, on-campus engineering design and robotics competition.

https://go.nasa.gov/ncas-campus



ASHLYNN NORRIS, *NASA on Campus participant*

The #NCAS2019 experience for me was breathtaking, reaffirming, and incredible. I hope that every single student that has #space on the mind looks to #NASA and explores their opportunities.



NCAS: NASA on Campus
BY *the* NUMBERS

24 mentors including industry volunteers from **Boeing, Disney** and the **Federal Drug Administration**

Hired **3** ***instructional coaches*** to support campus faculty

300
hours of training
for faculty, including ***onsite preview, online facilitation*** and ***NCAS co-facilitation and implementation***

Funded **6** NASA internships for NCAS: NASA on Campus alumni

6 events at community college campuses

Comparable impact data to the NCAS Legacy model, **indicating success** in the franchise model

FORWARD *to the* MOON

Opening a solicitation through Space Grants to offer 11 minority-serving community colleges across the nation the opportunity to receive funding to implement NCAS

Tier II activities to offer campus participants a chance to visit a NASA center and participate in new technical engineering design challenges

SOS

With nearly 20 years of continuous human presence, the International Space Station remains the sole space-based proving ground for reaching the Moon in 2024 with the Artemis program. **STEM on Station** uses the International Space Station, its crew and the onboard research to inspire, engage and educate students and educators. SOS advances the nation's STEM education and workforce pipeline through a comprehensive website of resources, conversations with astronauts in space, lessons taught from the space station and hands-on STEM activities developed through high-profile partnerships leveraging NASA's mission and unique assets.

www.nasa.gov/stemonstation

ALLISON KAPITANOFF, *educator*

#Teachers! Friends! Countrymen! THIS IS NOT A DRILL! @NASASTEM #STEMonstration videos are one of the coolest ways to support #STEM and #Science instruction I have come across…and I work in #edtech! @NASA #STEMonStation @Space_Station @NASA_Johnson

SOS
BY *the* NUMBERS

20 In-flight Education Downlinks, reaching **78,000+** participants

300,000+ views of STEMonstrations

*On a scale of 10, student participants ranked **before** and **after** the downlink:*

	Before	After
Awareness of NASA's work	4.2	8.2
Interest in STEM	5.5	9.2
Confidence in STEM ability	5.3	8.4

22 teams submitted letters of intent for the **Student Payload Opportunity with Citizen Science** (SPOCS)

6,000+ virtual reality tours of the space station at **Apollo 50th Festival in Washington D.C.**

59% of downlinks served schools and organizations with majority participants ***representing underserved populations***

Astro Socks Design Challenge Showcase and Microsoft Education Downlink livestreamed to **3,657** classrooms

FORWARD *to the* MOON

In the NASA/TI Codes Challenge, students will use Texas Instruments technology and SOS resources to develop solutions improving life for astronauts on the space station

SPOCS will continue accepting student proposals for five student payloads to fly to and return from the space station through Nanoracks and DreamUp

WEAR

The **WEAR STEM Challenge** is an engineering design challenge where NASA presents problems about wearable technologies to middle and high school students, seeking contributions to deep-space exploration missions. WEAR focuses on wearable technologies aiding crewmembers and others in tasks such as monitoring conditions, protecting organs and collecting data. This year WEAR challenged the Artemis Generation to design wearable radiation countermeasures for deep space exploration.

https://go.nasa.gov/NASA_WEAR

RED MOUNTAIN HIGH SCHOOL, *WEAR Team*

Our #NASA_Wear team shared their passion about #NASARadworks at our Freshman Preview Night with about 1000 8th graders and their parents.

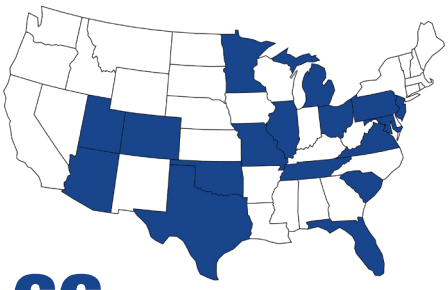
WEAR
BY *the* NUMBERS

Team outreach to **16,000+ K-12 students** and **26,000+ community members**

2 million+
peopele reached through social media using **#NASA_WEAR**

"It is a real challenge - meaning it is messy, somewhat 'fuzzy' and open to student creativity. Amazing experience for students to do real science.

– educator



66 teams completed design submissions representing **37** educational organizations in **17** states

288% INCREASE
in design proposal submissions compared to last year

265 middle school students *and* **176** high school students *directly participated in WEAR*

FORWARD *to the* MOON

- **Evaluating potential for new technical partner expanding opportunities for students**
- **Exploring new challenge ideas to best serve the Artemis Generation**
- **Planning a new location for the culminating onsite event**

NASA STEM Pathway Activities – Consortium for Education

Oklahoma State University

OSU NASA Education Projects
228 Scott Hall
Stillwater, OK 74075

https://education.okstate.edu/