

NASA
STEM



STEM Engagement at NASA

PREPARING THE FUTURE WORKFORCE

The aerospace industry must continually cultivate highly skilled science, technology, engineering, and mathematics (STEM) workers to maintain America's position as a global leader in innovation and technology. NASA's Office of STEM Engagement (OSTEM) is focused on addressing the growing talent gap in STEM by bolstering America's STEM workforce development strategy and accelerating students towards obtaining STEM jobs.



ACCELERATING STUDENT'S ENTRY INTO THE AEROSPACE WORKFORCE



Competitive Grants and Awards: Through the strategic administration of grants and awards, OSTEM implements targeted initiatives that enable grantees to prepare students for aerospace careers. These investments also strengthen institutional research capacity, creating sustainable pathways into the future aerospace workforce.



Internships and Student Work Experiences: NASA connects students directly with industry partners offering targeted internship and employment opportunities. OSTEM's internship program aligns with the evolving technical workforce requirements of both NASA and the broader aerospace industry.



Student Challenges and Competitions: NASA's challenges and competitions provide students with industry-relevant experiences that develop critical aerospace workforce competencies. Through formalized pathways participants connect directly with aerospace industry employers, creating opportunities to enter the aerospace workforce.



High School and Community College Engagement: OSTEM is implementing a deliberate workforce acceleration strategy for high school and community college students that enables faster entry into aerospace careers. Students rapidly acquire industry-recognized certificates and credentials that address critical aerospace sector talent needs.

STEM Engagement at NASA

CREATING LEADERS IN TECHNOLOGY AND INNOVATION

OSTEM's four integrated projects create pathways for students to enter the aerospace industry:



Space Grant: A national network located in all 50 states that fosters science and engineering training, research, and industry partnerships with the goal of cultivating a skilled, innovative talent pool to advance space exploration and innovations.

EPSCoR: Promotes the development of a highly skilled workforce by funding hands-on research opportunities that not only prepare students for STEM jobs, but also lead to technological and innovative breakthroughs.



MUREP: Funds cutting-edge research that enables students at Minority Serving Institutions to gain the expertise America needs to remain a leader in aerospace and technology.

Next Gen STEM: Prepares high school and community college students to enter the aerospace workforce through strategic partnerships and competitive awards that build their STEM skills and capabilities so they can effectively fill the jobs needed in the growing aerospace economy.



Minority University Research Education Project (MUREP)

The Minority University Research and Education Project (MUREP) is a federally mandated program that supports MSIs, HBCUs & TCUs by strengthening their research, academic, and tech capabilities.

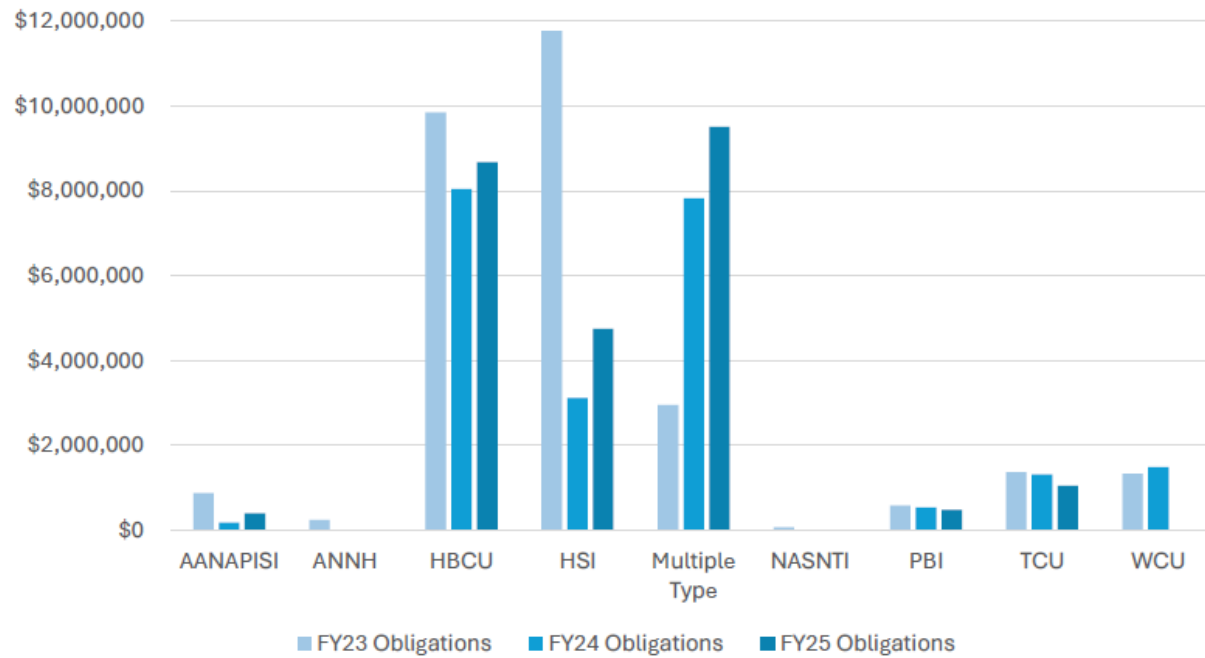
MUREP expands student opportunities in STEM and aerospace through hands-on learning to support national workforce goals to build a highly skilled generation of scientists, engineers, and innovators while boosting collaboration between universities, industry, and government.



Minority University Research Education Project (MUREP)

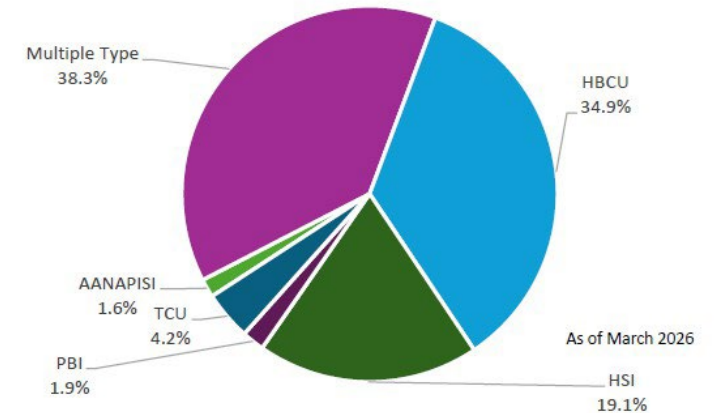
HBCU Investments

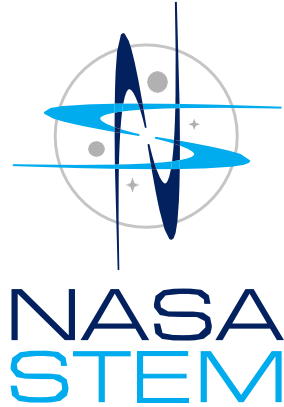
FY23-25 MUREP Obligations per Year by Institution Type



Institution Type	No. Unique Institutions	Total of Obligation
AANAPISI	2	\$396,389
HBCU	19	\$8,678,114
HSI	20	\$4,750,537
Multiple Type	19	\$9,518,378
PBI	2	\$481,680
TCU	11	\$1,043,805
Grand Total	73	\$24,868,904

FY25 MUREP Obligations (\$24.9M)





2026 MUREP Portfolio

Activity Name & Acronym	POP	MSI TYPE	Description	Email
Aeronautics Community Engagement Impacts Research (ACEIR)	3 Years	All	Researches the impacts of Advanced Air Mobility technology and implementation in a specific community identified by each institution.	LaRC- ACEIRManagementTeam@mail.nasa.gov
Aerospace Skills & Technical Readiness Achievement (ASTRA)	N/A	All	Skill-based digital badging piloted in FY25 for MSI interns to complete training modules in one of 6 NASA-relevant topic areas. Badges issued via Credly.	hq-astra@mail.nasa.gov
Earth Systems Science Research (ESSR)	N/A	All	Development of actionable research for the prediction, characterization and mitigation of extreme weather and natural disasters that impact the lives of American citizens and the Nation's economy.	james.l.harrington@nasa.gov
Fellowships	N/A	All	Summer research for master's & PhD students, in partnership with GEM. Fellows attend the GEM site visit and Annual Board Meeting.	hq-fellowships@mail.nasa.gov
Internships	N/A	All	MUREP funding for MSI Students to intern fall, spring, summer.	hq-murep- internships@mail.nasa.gov
MUREP for American Indian & Alaska Native STEM Engagement (MAIANSE)	1-2 Years	TCU	Grants to Tribal Colleges and Universities (TCUs) to increase AI/AN student engagement in STEM via NASA missions.	hq-maianse@mail.nasa.gov
MUREP Curriculum Awards (MCA)	3 Years	All	Enables MSIs to develop or improve curriculum for authentic learning experiences in NASA-relevant STEM fields.	ebony.moreen@nasa.gov
MUREP Institutional Research Opportunity (MIRO)	5 Years	All	Strengthens research capacity and infrastructure of MSIs while promoting student participation in STEM research.	hq-miro@mail.nasa.gov
MUREP Planning Awards (MPLAN)	6 Mos	All	Short-term funding for MSIs to develop ideas and collaborations with NASA in preparation for larger opportunities.	hq-nasamplan@mail.nasa.gov
NASA Community College Aerospace Scholars (NCAS)	1 Year	2-Year	10 partner-led institutions create a week-long NASA robotics competition for 40 STEM students.	JSC-NCAS@mail.nasa.gov
MUREP Space Technology Artemis Research (MSTAR)	3 Year	All	Strengthens MSI research capacity vital to the Space Technology Mission Directorate and Artemis program.	vemitra.m.white@nasa.gov
Opportunities in Research, Business, Innovation, and Technology (ORBIT)	1 Year	All	Student design challenge for solutions to NASA mission needs and entrepreneurial Earth applications based on NASA intellectual property (IP).	hq-orbit@mail.nasa.gov
Pre-College Summer Institute (PSI)	5 Years	HBCU and PBI	HBCUs and PBIs host week-long residential summer camps to prepare underserved high school students for STEM college degrees.	jeressa.n.nixon@nasa.gov

ORBIT (Opportunities in Research, Business, Innovation, & Technology for the Workforce)



The NASA ORBIT Challenge is a student-focused innovation competition designed to inspire breakthrough ideas in space exploration and terrestrial applications of NASA technology. Through mentorship, substantial cash prizes, and ongoing development support, ORBIT creates pathways for university and community college students of ALL MAJORS to contribute to NASA's mission while developing skills for the workforce in aerospace, technology, and entrepreneurship.



WIN SPECTACULAR AWARDS

\$380,000 in total funding with prizes up to \$30,000 for winners, plus \$15,000 for Phase 2 finalists and \$10,000 Integration Bonus opportunities.



GAIN REAL EXPERIENCE

Work with NASA intellectual property, receive mentorship from NASA subject matter experts, visit NASA facilities, and build skills in systems design and entrepreneurship.



OPEN TO COLLEGE STUDENTS

Teams from MSIs, HBCUs, TCUs, and U.S. colleges and universities can participate. All disciplines welcomed—faculty advisor required.



Two Tracks, One Mission:

- **ORBIT Earth:** Challenges teams to select a NASA-owned patent & develop novel commercial applications that address real-world problems.
- **ORBIT Space:** Design technically feasible system concepts aligned with NASA's missions

Teams that successfully integrate objectives from both tracks may qualify for an optional **Integration Bonus**.

ORBIT (Opportunities in Research, Business, Innovation, & Technology for the Workforce)

Structure



• Phase 1: Ideation

Teams register and submit preliminary concept outline

• Phase 2: Design + Development

Teams refine ideas through research, prototyping, and feasibility analysis. They will deliver a technical paper, visual concept, and project video. **Up to 20 teams will advance as finalists and receive \$15,000 each to continue development.**

• Phase 3: Demonstration

Finalists present at an in-person showcase at Johnson Space Center w/ research posters, live pitches & expert judging Q&A. **Track winners announced: \$30,000 (1st), \$25,000 (2nd), plus \$5,000 specialty prizes and \$10,000 Integration Bonus awards.**

• Phase 4: Virtual Accelerator

Finalist teams receive ongoing mentorship, technical support & professional development. Internships and ASTRA Digital Badging are also offered to all participants.

Schedule

Date	Milestone
Dec 2025	Competition Launch and Registration Opens
Jan 2026	Open Information Webinar
Jan 2026	Open Information Webinar
Feb 2026	Open Information Webinar
Feb 2026	Phase 1 Submissions Due
Feb 2026	Phase 2 Kickoff Webinar
Mar 2026	ORBIT Earth Review Webinar and Live Q&A
Mar 2026	ORBIT Space Review Webinar and Live Q&A
May 2026	Phase 2 Submissions Due
May 2026	Phase 2 Award Winner Announcement Webinar
Jun 2026	Phase 3 Kickoff Webinar
Jun 2026	Phase 3 Submissions Due
Jun 2026	Team Pitch / Presentation Preparation Webinar
Jul 15-17	LIVE: NASA ORBIT PITCH SHOWCASE @ Space Center Houston
Jul 22	Accelerator Preliminary Kickoff Webinar
Jul 27-31	Accelerator Team Activities Meetings
Aug 3-7	Closing Accelerator Presentations & Sponsor Meetings



Prizes

Phase	Track	Number of Teams (Up To)	Prize Per Team (Up To)	Total Payout (Up To)
Phase 2: Design Development	ORBIT Earth & ORBIT Space	Up to 7 per track	\$15,000	\$105,000 per track / \$210,000 total
Phase 3: Final Demonstration	ORBIT Earth & ORBIT Space	Up to 4 per track	1st: \$30,000; 2nd: \$25,000; Specialty #1: \$5,000; Specialty #2: \$5,000	\$65,000 per track / \$130,000 total
Phase 3: Integration Bonus	Either Track	Up to 4	\$10,000	\$40,000
Phase 4: Accelerator	All Finalists	Up to 14	No Prize Purse	Not Applicable

**NEXT APPLICATION CYCLE:
SEPT 2026**

NASA's Surprisingly STEM Career Series on YouTube

Highlighting unexpected careers at NASA, each episode features a member of NASA's workforce, with a focus on their unique job and personal career journey.

Students can dive deeper into a topic related to each episode with a **NASA STEM hands-on activity** provided in each video's YouTube description.



SURPRISINGLY
STEM



Scan to watch on
YouTube

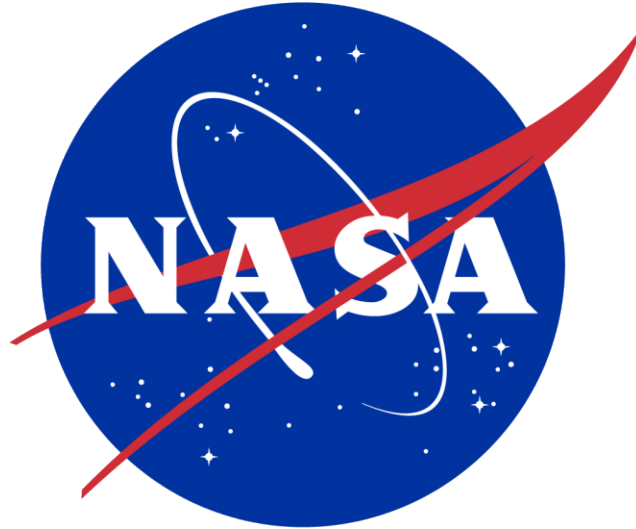
OR

Watch on NASA +

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