

DEPARTMENT OF DEFENSE  
SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS

# DoD STEM

## OVERVIEW

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*Director, DoD STEM*  
Basic Research Office  
October 20, 2023

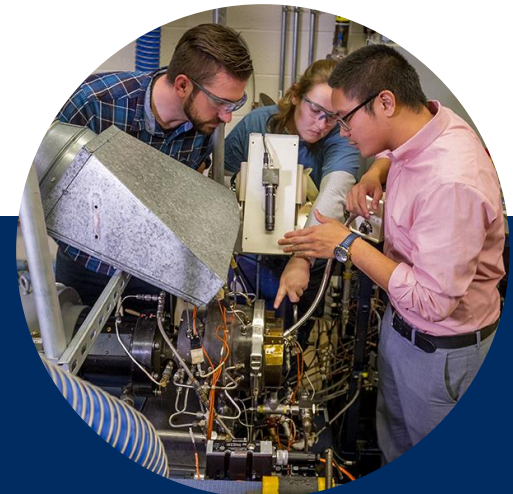


Department of Defense  
**DoDSTEM**  
Science · Technology · Engineering · Mathematics

Distro A: approved for public release

## Why STEM?

The Department of Defense requires **diverse, high quality, and agile STEM talent.**



National security makes it imperative that the United States have available a **substantial, high quality STEM workforce.**

*(National Academies of Sciences)*

## Why STEM?

# The Need for Diversity in DoD STEM Workforce – **Diversity Drives Innovation!**

Shifting demographics: the U.S. population is projected to be **more than 40% minority** in upcoming years.



## Why STEM?

Preparation of students for future STEM careers **starts at K-12.**

Only **20% of college bound seniors** are ready for courses typically required for a STEM major.

*(National Science Foundation)*

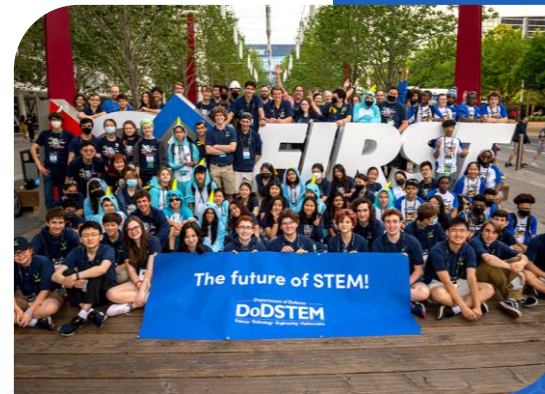


# What encompasses DoD STEM?

DoD STEM is inclusive of Department-wide efforts that aim to **inspire, cultivate, and develop a diverse and exceptional STEM talent** through a continuum of meaningful STEM learning opportunities across the Pre-K-Postdoc continuum.

The National Defense Education Program (NDEP) is one of the largest STEM efforts in the Department.

DoD STEM reaches about **944K students** & **31K educators** annually



## DoD STEM Vision

A **diverse and sustainable STEM talent pool** ready to serve our Nation and extend the DoD's competitive edge.

## DoD STEM Mission

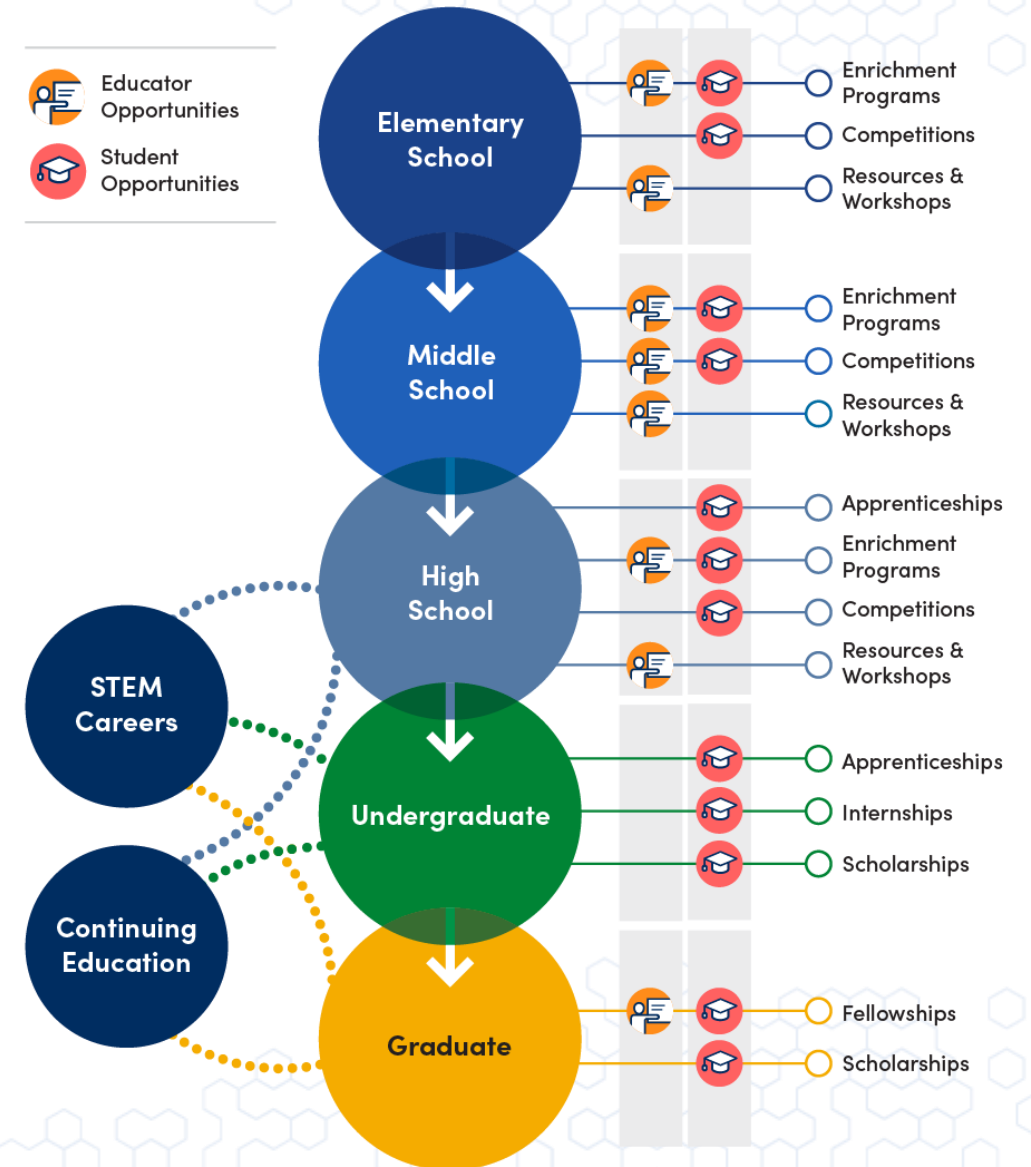
Inspire, cultivate, and develop **exceptional STEM talent** through a **continuum of opportunities** to enrich our current and future DoD workforce poised to tackle evolving defense technological challenges.



# DoD STEM Programs and Reach

DoD STEM **engages** scientists and engineers at Defense laboratories and engineering centers, and Partner organizations to provide unique STEM learning experiences across the K-20 education continuum.

Opportunities include **educational programs, internships, scholarships, and career development for educators and students.**



## SMART

SCIENCE, MATHEMATICS,  
AND RESEARCH FOR  
TRANSFORMATION

PART OF THE NATIONAL  
DEFENSE EDUCATION PROGRAM

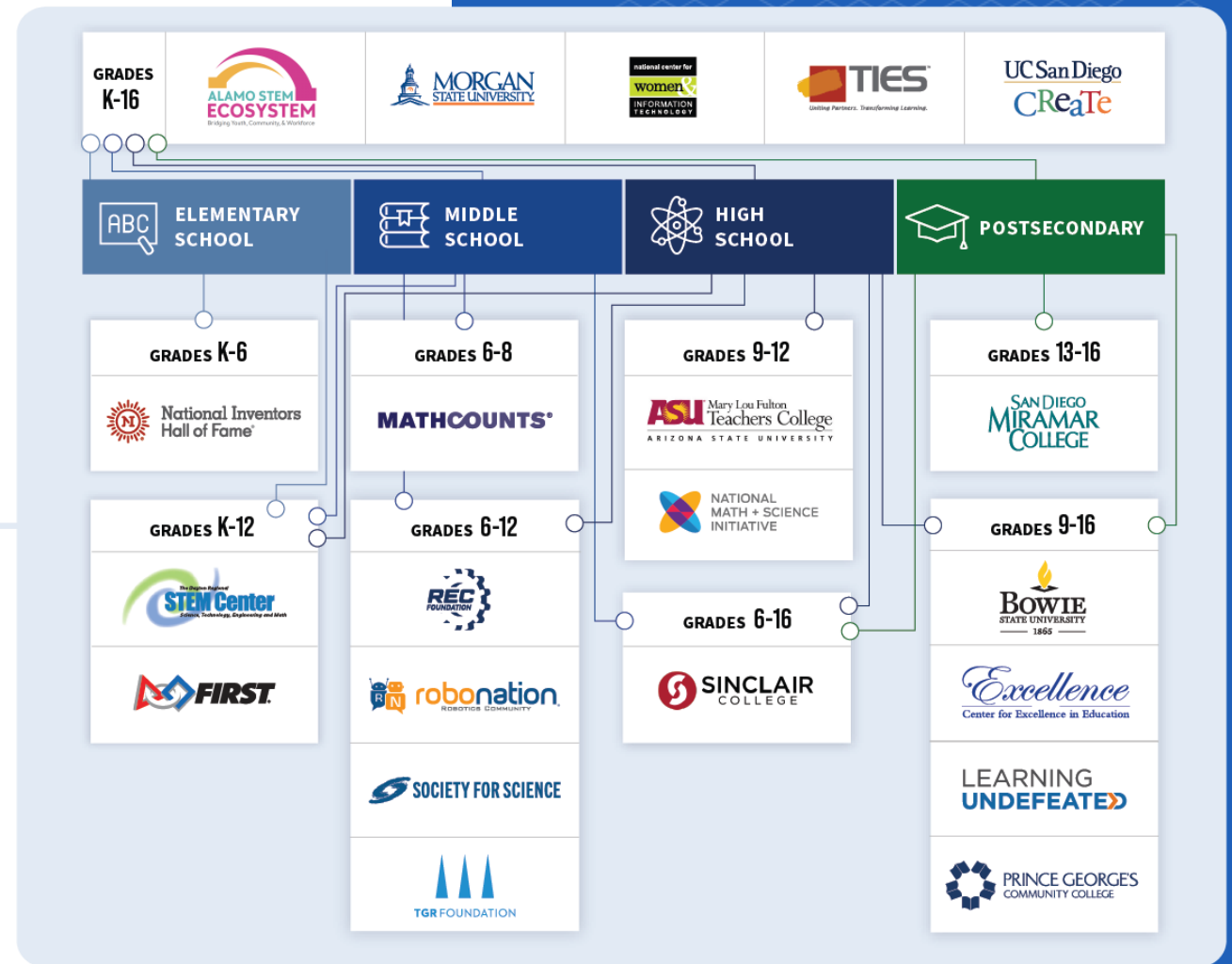
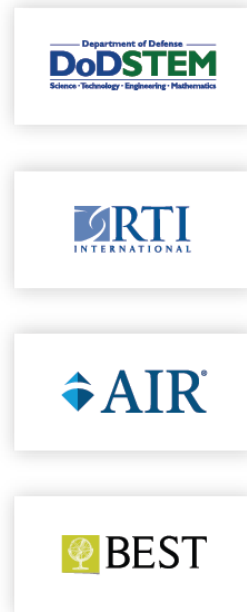
## SMART Program Overview

- SMART funds scholarships across 24 STEM disciplines critical to national security and serves as a workforce development program for the DoD
  - Increases the flow of new, highly skilled technical talent into the DoD
  - Enhances the technical skills of the current civilian workforce
- Awards can be made to students pursuing a BS, MS, or PhD in a STEM discipline
- Scholars serve a 1-for-1 Civilian employment commitment at a DoD lab or facility upon graduation



# Defense STEM Education Consortium (DSEC)

DSEC is a collaborative partnership between academia, industry, not-for-profit organizations, and government that aims to broaden STEM literacy and develop a diverse and agile future workforce to power the innovative defense infrastructure of the United States.





# ARMY STEM OVERVIEW

## 2023 STEM INNOVATION FORUM

Mr. Brian Leftridge  
Ms. Taylor Stewart

20 OCT 2023

# Overview

## BUILDING THE NEXT GENERATION OF INNOVATORS

For over 50 years, the U.S. Army has supported a wide range of educational opportunities in science, technology, engineering, and mathematics (STEM) for our youth, college and graduate students, as well as our valued teachers.

- Why?
  - Literate Citizenry
  - Need for STEM talent grows exponentially
  - Ensure future warfighters maintain overmatch
- How?
  - Leveraging our most valuable assets
    - World-class STEM professionals and research facilities
    - Science & Technology Lab-based community impact efforts
  - Army Educational Outreach Program
    - Nationwide portfolio of STEM programs



# ARMY STEM EDUCATION & OUTREACH



## S&T Lab-based Efforts

- 4 Army Major Commands, 11 Laboratories and Research Centers across 25 states
- Engagement of subject matter experts and educators in STEM outreach activities
- Community focused partnerships and opportunities

## Army Educational Outreach Program (AEOP)

- Portfolio of K-PostDoc programs providing students & teachers access to collaborative high-quality STEM experiences
- Consortium of partners including government, academia, non-profit and industry organizations
- Various Colleges/Universities & Strategic Outreach Partners







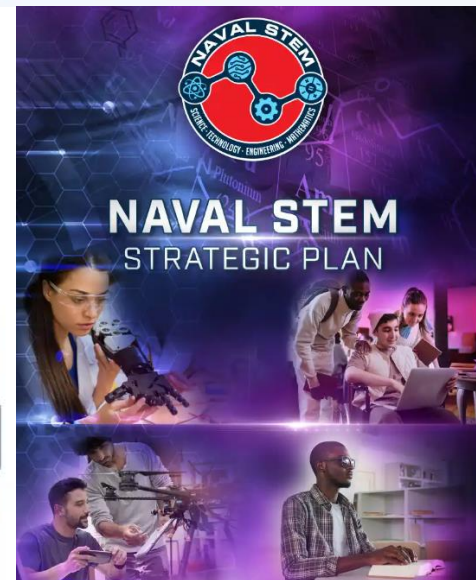
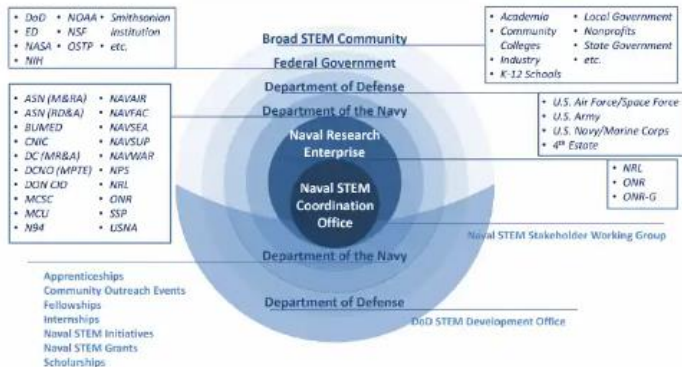
Naval STEM Coordination Office  
[Naval\\_STEM@navy.mil](mailto:Naval_STEM@navy.mil)



# MISSION

Deliver Naval STEM education and outreach opportunities that inspire curiosity and shape a generation of talent prepared for future global challenges.

## NAVAL STEM ECOSYSTEM



WHO WE SERVE		EXPECTED OUTCOMES
PARENTS	ELEMENTARY SCHOOL STUDENTS	Inspire students to pursue STEM
	MIDDLE SCHOOL STUDENTS	Increase student awareness of Naval STEM
	HIGH SCHOOL STUDENTS	
EDUCATORS	2 YEAR INSTITUTION STUDENTS <small>(e.g. trade and community college students)</small>	Prepare students for STEM careers and/or skilled technical workforce
	4 YEAR INSTITUTION STUDENTS <small>(e.g. undergraduate students)</small>	Advance curriculum relevant to Naval STEM
COMMUNITY	GRADUATE STUDENTS	
	CURRENT WORKFORCE	Retain and develop Naval STEM workforce



AIR & SPACE  
**STEM Outreach**  
A Force to Shape the Future

A Department of the Air Force program, we serve K-12 students and teachers across the U.S. to shape the defense STEM workforce of tomorrow. This is where STEM students prove the sky is not the limit – it's the starting point.

## Program Areas of Effort

### National Programs



### Community Programs

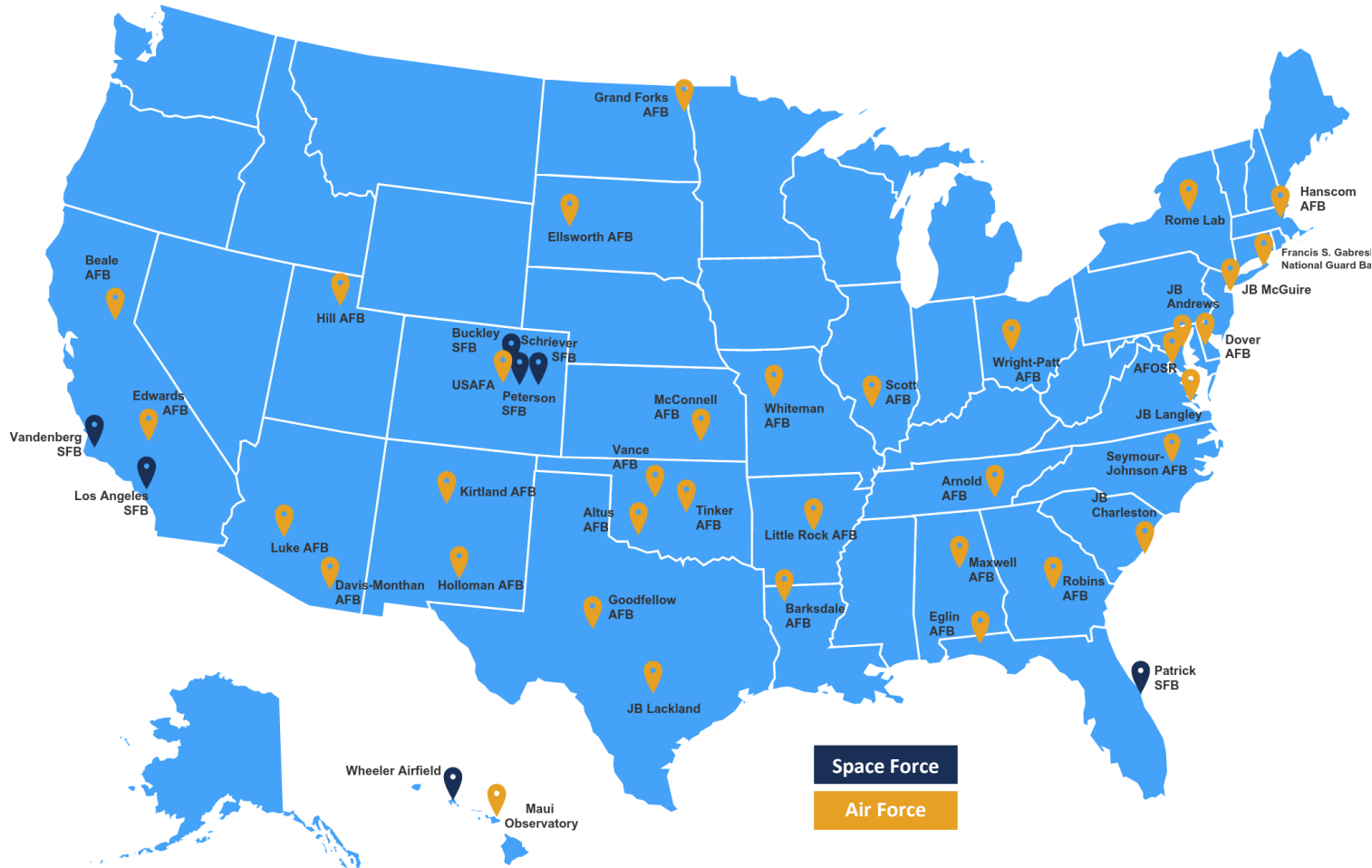


### Program Partners





## 45+ Sites with Diverse Program Efforts



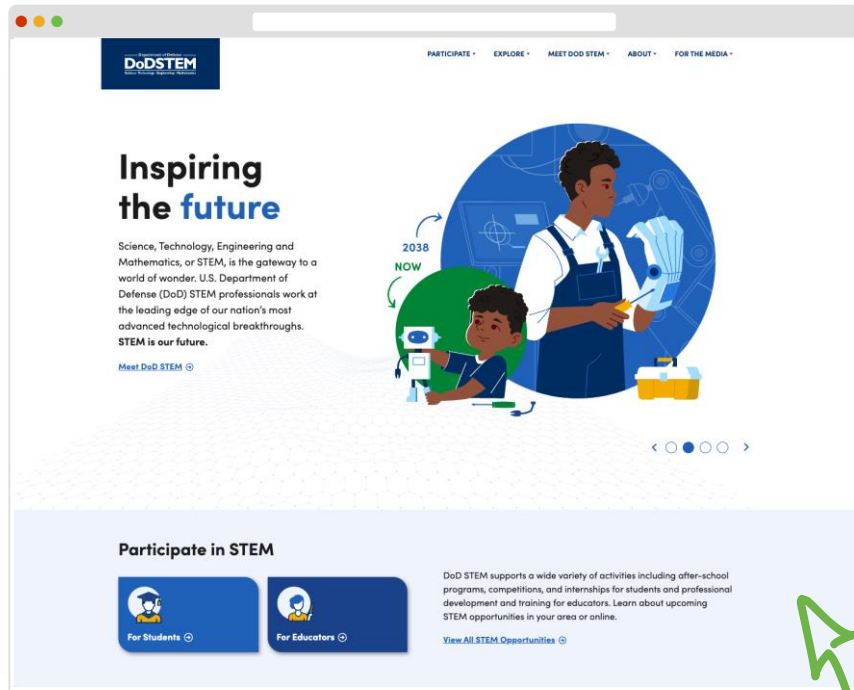
## Audiences Served

Total PreK-12 Students	701K
Military-Connected Students	20K
Teachers & Ed Professionals	29K
PreK-12 Schools	2.7K
DAF S&E Volunteers	3.2K



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 K-12 STEM Director, Dept of the Air Force  
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# Connect with DoD STEM



[dodstem.us](https://dodstem.us)



DoDSTEM



@DoDSTEM



@DoDstem



@DoDstem



Department of Defense

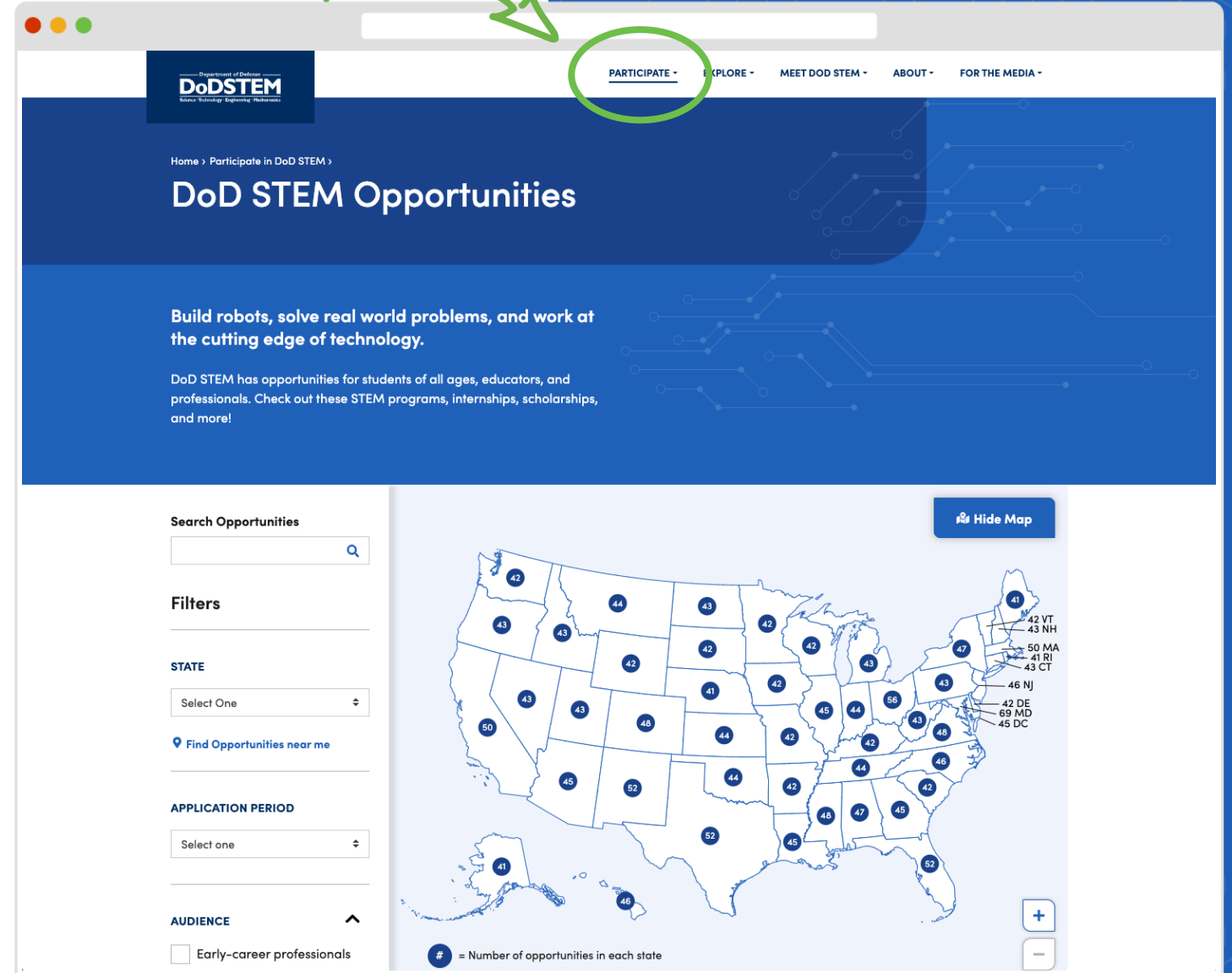
# DoDSTEM

Science · Technology · Engineering · Mathematics

# Participate in DoD STEM



[dodstem.us/  
participate/  
opportunities](https://dodstem.us/participate/opportunities)



The screenshot shows the DoD STEM website interface. At the top, the navigation menu includes 'PARTICIPATE', 'EXPLORE', 'MEET DOD STEM', 'ABOUT', and 'FOR THE MEDIA'. The 'PARTICIPATE' link is circled in green, with a green arrow pointing to it from the top of the page. Below the navigation, the page title is 'DoD STEM Opportunities'. The main content area features the text: 'Build robots, solve real world problems, and work at the cutting edge of technology.' and 'DoD STEM has opportunities for students of all ages, educators, and professionals. Check out these STEM programs, internships, scholarships, and more!'. Below this is a search bar and filter section. The filter section includes 'STATE' (a dropdown menu), 'Find Opportunities near me' (a location-based filter), 'APPLICATION PERIOD' (a dropdown menu), and 'AUDIENCE' (a checkbox for 'Early-career professionals'). To the right of the filters is a map of the United States with numbered circles indicating the number of opportunities in each state. A legend at the bottom of the map states '# = Number of opportunities in each state'. A 'Hide Map' button is located in the top right corner of the map area.

State	Number of Opportunities
AK	41
AL	46
AR	52
AZ	45
CA	50
CO	43
CT	43
DC	45
DE	42
FL	52
GA	48
IA	42
IL	42
IN	42
KS	44
KY	42
LA	48
MA	50
MD	59
ME	41
MI	42
MN	42
MO	44
MS	42
MT	44
NC	44
ND	43
NH	43
NJ	46
NM	42
NY	43
OH	42
OK	44
OR	43
PA	43
RI	41
SC	42
SD	42
TN	48
TX	52
UT	43
VT	42
WA	42
WI	42
WV	42
WY	44

# Who provides DoD STEM opportunities?

The Department of Defense has long supported STEM education and outreach activities throughout the nation through **collaborative partnerships** with academia, industry, and not-for-profit organizations .



Army Educational Outreach Program (AEOP)



Naval STEM



Air & Space STEM Outreach



Wright-Patterson Air Force Base STEM Outreach (WPAFB)



Defense Civilian Personnel Advisory Service (DCPAS)



Defense Threat Reduction Agency (DTRA)



Department of Defense Education Activity (DoDEA)



Department of Defense STARBASE



Manpower and Reserve Affairs (M&RA)



Manufacturing Technology (ManTech)



Missile Defense Agency (MDA)



National Security Agency (NSA)



National Geospatial-Intelligence Agency (NGA)



Test Resource Management Center (TRMC)