



DoD STEM Overview

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What Encompasses DoD STEM?



DoD STEM is inclusive of Department-wide efforts that address near- to mid-term (postsecondary) STEM workforce needs, and long-term (K-16 education & outreach) STEM talent development through a variety of educational and work-experiential opportunities across the K-20 continuum. The National Defense Education Program (NDEP) is one of the largest efforts under DoD STEM.



INSPIRING THE FUTURE

Shaping the Future Workforce to Ensure the Department's Technological Superiority

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DoD STEM Strategy



VISION: A STEM talent pool with minds for innovation, diversity of thought, and technical agility to sustain the Department's competitive edge.

MISSION: Attract, inspire, and develop exceptional STEM talent across the education continuum to enrich our current and future DoD workforce to meet defense technological challenges.

- **COMMUNICATE** the value and purpose of the DoD STEM Strategy and the need for engagement.
- **INSPIRE** youth and community engagement in K-12 STEM education and outreach by encouraging participation in DoD-sponsored STEM activities.
- **CULTIVATE** the future STEM talent pool through supporting and enhancing undergraduate and graduate students served by DoD-sponsored STEM programs.
- **PROMOTE** increased participation of underserved groups in STEM
- **ENHANCE** the efficiency and effectiveness of STEM initiatives by gathering evidence using a systematic approach.



DoD STEM Portfolio



- STEM Coordinating Requirement for the Department, Policy and Oversight
 - STEM Advisory Council
- Represent the Department in Federal Coordination in STEM (FC-STEM) Interagency Working Groups
- National Defense Education Program (NDEP)
 - SMART Scholarship Program
 - STEM Education & Outreach
 - Defense STEM Education Consortium (DSEC)
 - Other NDEP efforts through Funding Opportunity Announcements
 - Manufacturing Engineering Education Program (MEEP)
- Evaluation Assessment Capability (EAC)
 - Capturing the Department's collective impact in STEM activities



STEM Education & Outreach

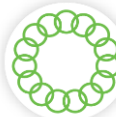


Defense STEM Education Consortium (DSEC)

- **Consortium model approach** to NDEP's K-16 STEM education and outreach initiatives
- **Leveraging partnerships** to amplify awareness and broaden impact
- **National reach and regional focused execution** (DSEC HUBs)
- Coordinated functions, planning, and supports
- **Coherent and interconnected K-16 STEM education & outreach portfolio**
- Incorporates annual '**Innovation Bloc**' funding to address identified gaps



Launched
March 1, 2019



Includes
18 organizations



Structured as a
Cooperative Agreement



Initially scoped as up to
\$75M investment over 5 years



Supports
DoD STEM Strategic Plan
And aligns with
Federal STEM plan

[DSEC Annual Program Report on DoD STEM Website](#)



DSEC Fundamentals



FEDERAL STEM GOALS

BUILD
Strong Foundations for
STEM Literacy

INCREASE
Diversity, Equity, and
Inclusion in STEM

PREPARE
the STEM Workforce for
the Future

FEDERAL STEM PATHWAYS

DEVELOP
and Enrich Strategic
Partnerships

ENGAGE
Students Where
Disciplines Converge

BUILD
Computational
Literacy

OPERATE
with Transparency
and Accountability

DoD STEM GOALS

COMMUNICATE
Value of STEM
Engagement

PROMOTE
Participation by
Underserved

INSPIRE
Community
Engagement in STEM

CULTIVATE
Future STEM
Talent

ENHANCE
Efficiency and
Effectiveness

DSEC FUNDAMENTALS


ENGAGE Students
& Educators in
Meaningful STEM
Experiences


CONNECT to the
DoD STEM
Workforce


SERVE Students
Who Are Military-
Connected &
Underrepresented
in STEM


LEVERAGE the
Network as a
Force Multiplier


EVOLVE the
Approach Based
on Data

DSEC is designed to align with federal and DoD STEM strategic goals.

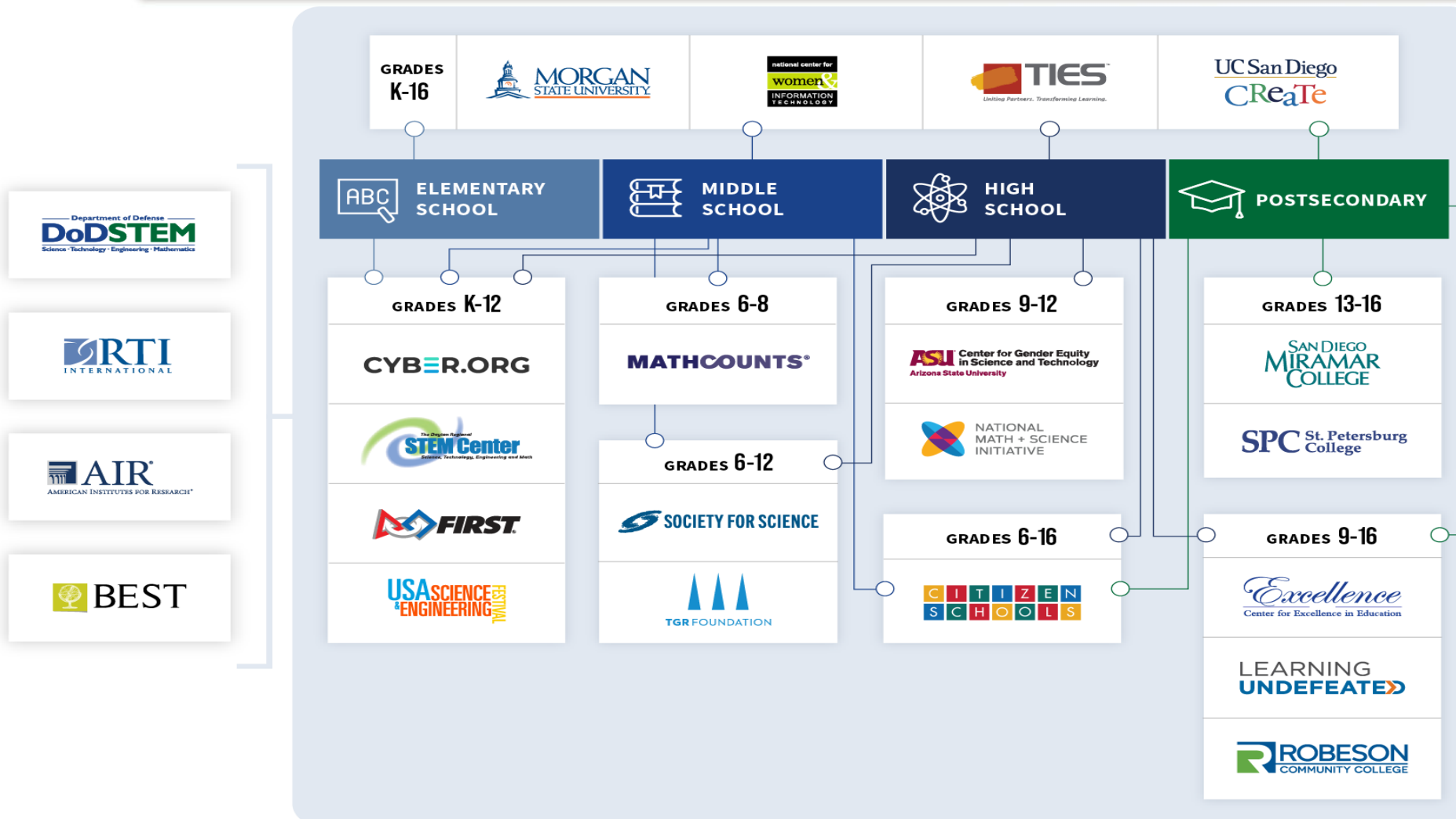
Federal STEM Vision:

All Americans will have lifelong access to high-quality STEM education, and the United States will be the global leader in STEM literacy, innovation, and employment.

Leveraging the breadth and diversity of the Consortium to amplify impact through Collaboration



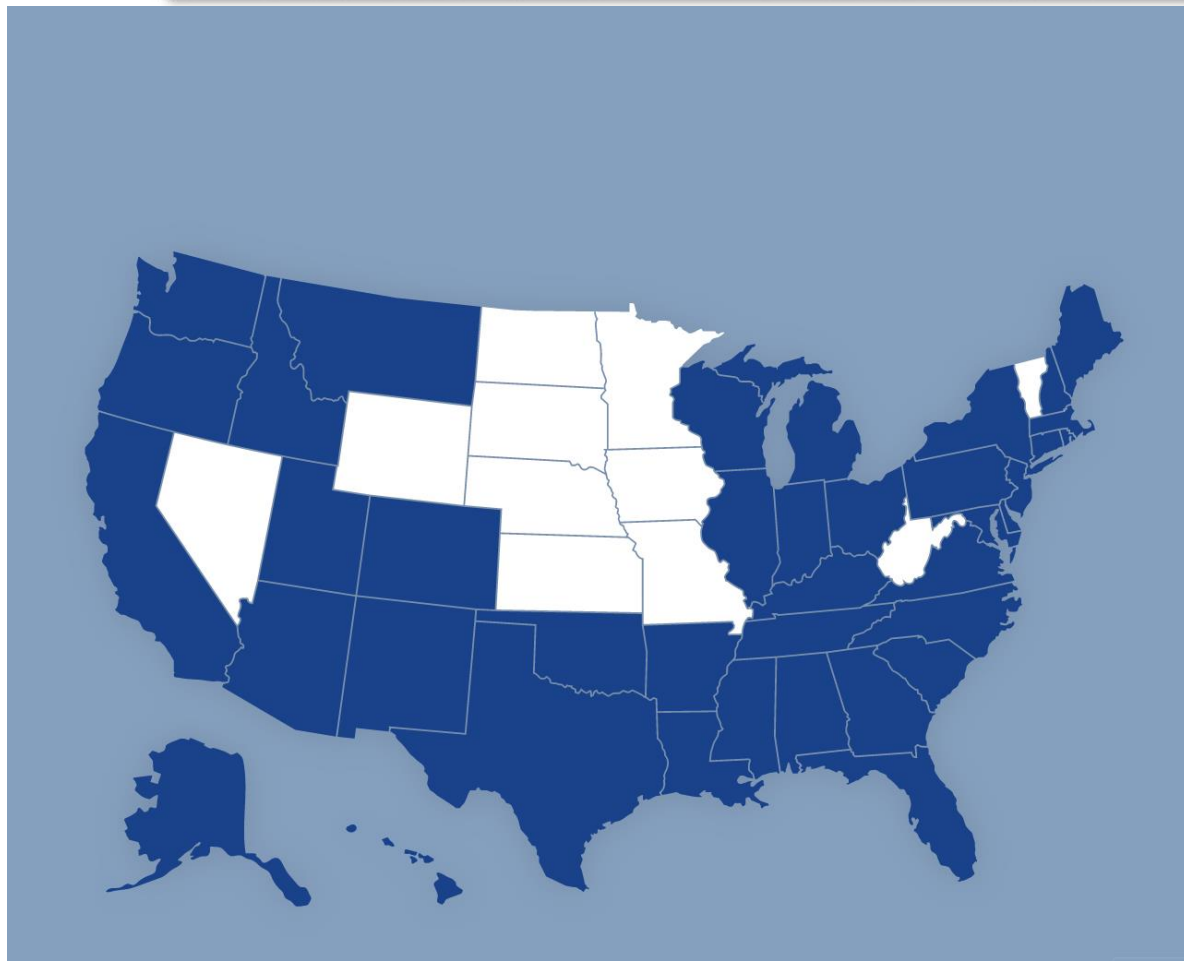
DSEC Partnership Network



Engaging students and educators at multiple entry points across the K-16 continuum



Base Year Outcomes (2019-2020)



DSEC partners engaged students and educators in

39 STATES +
DISTRICT OF COLUMBIA

50%

OF DSEC PROGRAMMING
was intentionally aligned to focus on student populations who are military-connected or underrepresented in STEM.



51,728 STUDENTS
SERVED



3,657 TEACHERS
SERVED



155 OTHER
PARTICIPANTS



DSEC Key Activities in 2020-2021



- Target a program reach of at least 45,000 students and educators in 2020-2021, with an emphasis on military connected and underrepresented communities
- Adapt STEM outreach programming to remote and virtual delivery (in light of COVID-19)
- Expand outreach focused in three priority areas:
 - Community college engagement
 - Biotechnology education
 - Historically Black Colleges and Universities (HBCU) and Minority Serving Institutions (MI)
- Amplify teacher voice through *DoD STEM Ambassador* program
- Launch redesigned DoD STEM communications approach
- Increase engagement of DoD STEM professionals in STEM outreach efforts
- Enhance data collection processes to increase clarity in reported outcomes
- Increase network connectivity among consortium partners



DSEC HBCU/MI Pathways Network Initiative

- **Goal:** Develop partnerships between HBCUs and community colleges to work together to remove obstacles and foster student advancement in STEM career pathways
- Effectively leveraging:
 - the strengths of each institution
 - the K-12 communities they serve
 - potential employers with specific workforce needs
- Currently developing proposals with kickoff in September 2021
- Participating Institutions:

Central State University
and
Sinclair Community
College

Bowie State University
and
Prince George's
Community College



2020-21 NDEP Funding Opportunity Announcement



- 2020-2021 National Defense Education Program (NDEP) Funding Opportunity Announcement (FOA) HQ0034-21-S-F001 closed on 25 January 2021 for white paper applications on Grants.gov.
 - <https://www.grants.gov/web/grants/view-opportunity.html?oppld=330319>
- PURPOSE:
 - The Department of Defense (DoD) seeks innovative applications on mechanisms to implement education, outreach, and/or workforce initiative programs in the areas of Science, Technology, Engineering, and Mathematics (STEM) and Biotechnology.
 - Activities will support the DoD STEM strategic plan and align to the 2018 Federal STEM strategic plan. Additional efforts will create a separate pilot program in Enhanced Civics education.
 - Note: Respondents are not required to address all three focus areas, but should direct their responses to one of the areas, STEM, Biotech, or Enhanced Civics Education.
 - Additional resources:
 - DoD STEM Education and Workforce Development Workshop <https://dodstem.us/blog-posts/2020/dod-stem-education-and-workforce-development-virtual-workshop>
 - Current NDEP Awardees: <https://dodstem.us/blog-posts/2020/national-defense-education-program-stem-awardees>
- The Department intends to award multiple grants, subject to the availability of funds.



2020 NDEP Funding Opportunity Announcement



- **2019-2020 NDEP FOA:** 12 awards presented to distinguished educational and industry partners totaling \$31M over a 3-year period
- **Awardees:** Alabama A&M University; STEM NOLA; Cook Inlet Tribal Council; Goshen Education Consulting; Hillsborough County Public Schools; RTI International; Trident Technical College; University of Illinois at Chicago; University of Illinois at Urbana-Champaign; University of Southern California; University of Toledo; Virginia Polytechnic Institute and State University
- To learn more about the awardees' efforts:
<https://dodstem.us/blog-posts/2020/national-defense-education-program-stem-awardees>



Manufacturing Engineering Education Program (MEEP)



PURPOSE

Congressionally added in 2017-2020, this program **established new or enhances existing programs** (or collections of programs) to better position the current and **next-generation manufacturing workforce** to produce military systems and components that assure technological superiority for the DoD.

APPROACH

Through Funding Opportunity Announcements (FOA), awarded **13** distinguished educational and industry partners with close to **\$50M**, over a three-year period to establish or expand educational opportunities for Americans to acquire manufacturing skills critical to sustaining the defense innovation base.

MEEP Awardees

Battelle Education; Clemson University; Massachusetts Institute of Technology; National Center for Defense Manufacturing & Machining; Institute for Advanced Composites Manufacturing Innovation; Lightweight Innovations for Tomorrow; Loraine County Community College; Monroe Community College; NextFlex; Society of Manufacturing Engineers; University of Texas, Rio Grande Valley; Virginia Polytechnic Institute; and State University.



Evaluation & Assessment Capability



EAC objectives:

1. Develop and implement a **coordinated framework** for evaluating DoD-wide STEM investments consistent with agency strategic and performance plans
2. **Evaluate the impact** of DoD STEM programs
3. Enable a **culture of evidence-based planning, policy, and decision making** that articulates **program goals** and **evaluation metrics**
4. Increase **access to program-level data** to **support decision making**



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