STEM FUTURES
THE LEADERSHIP & WORKFORCE ACADEMY FOR JROTC

CADET IMPACT REPORT 2025

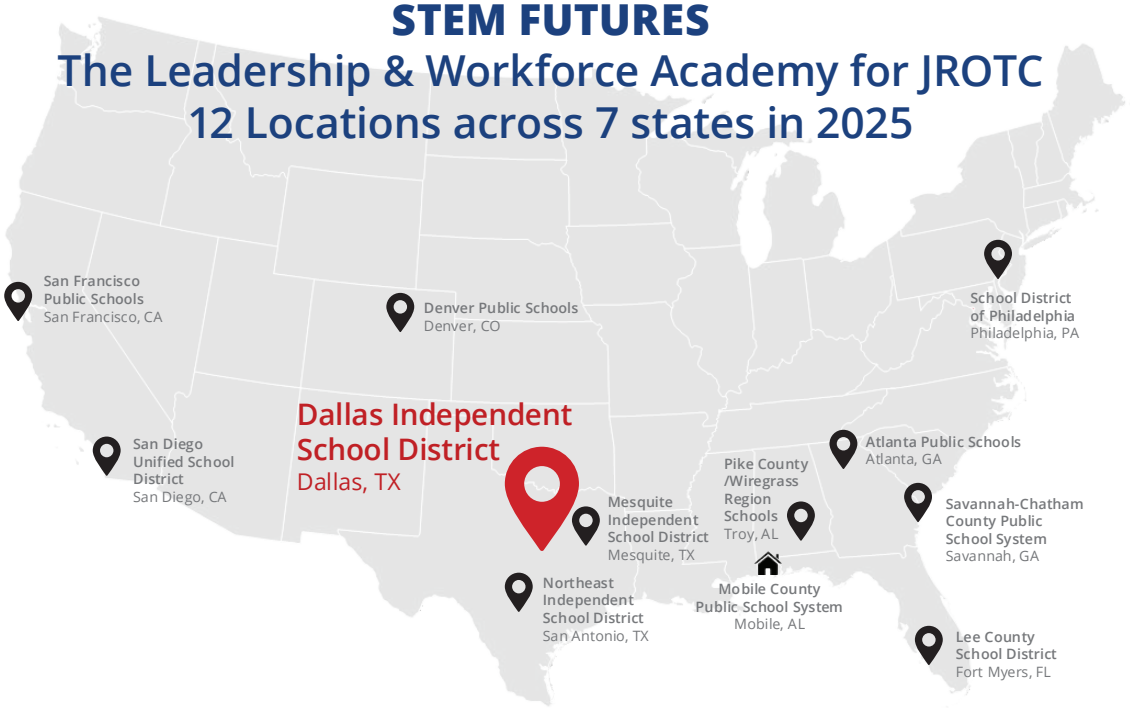
STEM FUTURES: The Leadership & Workforce Academy for JROTC is a week-long residential summer camp that helps meet today's workforce needs by engaging high school students—rising 9th-12th grade JROTC Cadets—in activities that open pathways to STEM learning and careers.

The Academy seeks to increase Cadets' awareness of local high-paying, in-demand STEM career opportunities and their understanding about what it takes to secure these jobs. To do this, the Academy integrates activities aimed at informing JROTC Cadets about STEM jobs, piquing their interest to pursue these jobs, giving them hands-on application of STEM concepts in a team setting, and developing 21st century workforce skills.

The 2025 Dallas Academy took place at Paul Quinn College and the Career Institute in Dallas, Texas. The focus of this Academy was on the advanced manufacturing industry and a related STEM-on-the-Ground curriculum in which Cadets designed, built, and tested remote-controlled, multi-purpose robots that completed several missions, each with increasing complexity.

20 HIGH SCHOOLS | **106** CADETS

STEM FUTURES
The Leadership & Workforce Academy for JROTC
12 Locations across 7 states in 2025



INTEGRATED ACTIVITIES

- STEM Design Challenges
- Visits to Workplaces and Universities
- JROTC Cadet Leadership Challenges
- Inspirational Guest Speakers

How did Cadets respond to teamwork experiences?

There was team spirit in the classroom. Our robot kept breaking, so we used our critical thinking and engineering skills to figure out what the problem was. I learned to be a team player and that it's okay to not always lead.

RISING 11TH GRADER
EMMETT J. CONRAD HIGH SCHOOL, 2025 DALLAS ACADEMY

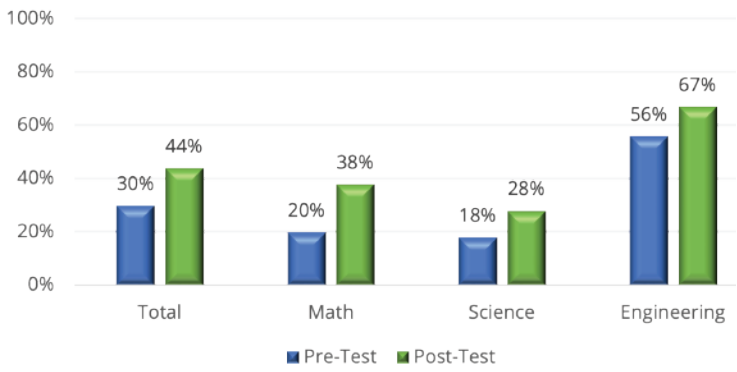
STEM Futures: The Leadership Academy for JROTC engaged Cadets in developing and valuing teamwork, communications, and leadership skills needed to be successful contributors and collaborators. Carefully structured activities designed to do this included:

- Winning Colors® Personality Assessment
- Team Building Activities
- Engineering Design Challenges
- JROTC Fitness Challenges and Sports Nights
- Team Poster Presentations

STEM-on-the-Ground Team Design Challenges

Cadets at the 2025 Dallas Academy applied the concepts of simple and complex machines, gears and gear ratios, inverse relationships (lifting force versus speed), and the engineering design process during their team challenges for the advanced manufacturing-themed curriculum. Cadets used VEX Robotics kits to build and remotely control their robots, which included manipulators to lift and move objects and the ability to traverse different terrains. Cadets conducted trial and error analysis, under specified constraints, to meet criteria and presented the process and results to Academy leaders, peers, and visitors. Pre- and post-assessments indicated that Dallas Cadets achieved statistically significant gains in STEM content knowledge overall and in each of the individual content areas.

2025 DALLAS ACADEMY CADETS' CORRECT ANSWERS TO STEM CONTENT QUESTIONS



I learned that I DO like robotics! That caught me off guard because I've never done robotics before, never liked robotics. I would see others doing it, and I'm like that's not my thing, until I tried it. And I'm really good at it!

RISING 10TH GRADER
LINCOLN HIGH SCHOOL
2025 DALLAS ACADEMY

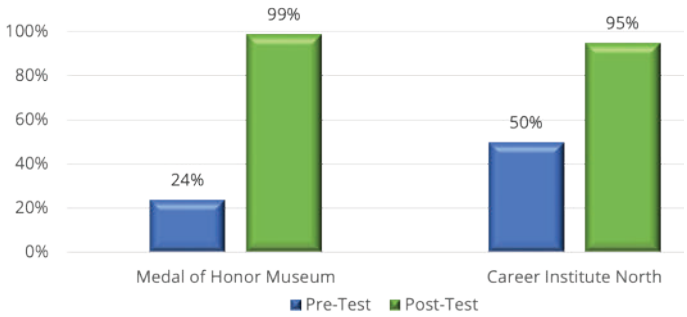
Everyone knew their roles, and the workflow seemed efficient and collaborative. They used data analysis software to track performance metrics, which showed how technology and math were used to make informed decisions and improve operations.

RISING 10TH GRADER
HILLCREST HIGH SCHOOL, 2025 DALLAS ACADEMY

Workplace Visits

To raise Cadets' awareness of how STEM is used in the advanced manufacturing industry, the 2025 Dallas Academy arranged tours of the Dallas Independent School District Career Institute North, which has programs in architecture and construction, health sciences, information technology, manufacturing, transportation and logistics, and food service. Cadets interacted with instructors and other professionals who shared hiring requirements, traits and skills needed, programs offered, and salaries for local, high-demand STEM jobs.

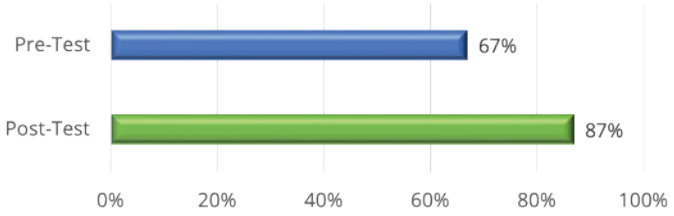
2025 DALLAS ACADEMY CADETS ABLE TO DESCRIBE WORKPLACES VISITED



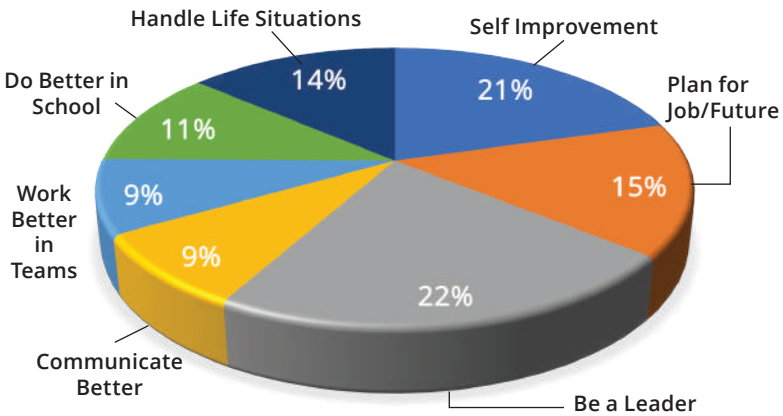
Educational Experiences

During the 2025 Dallas Academy, Cadets resided at Paul Quinn College where they got a taste of campus life and learned about programs offered and admissions. Cadets also visited the new National Medal of Honor Museum in Arlington, Texas, where they learned about the inspirational lives and valor of medal of honor recipients through immersive storytelling and interactive exhibits. Guest speakers shared stories about their lives and career paths, highlighting perseverance and commitment to success. Speakers included Dr. Michael Sorrell, President of Paul Quinn College and Lieutenant Colonel (Ret) Allen B. West, Executive Director of the American Constitutional Rights Union and former U.S. Congressman.

2025 DALLAS ACADEMY CADETS AWARE OF LOCAL, GOOD-PAYING STEM JOBS

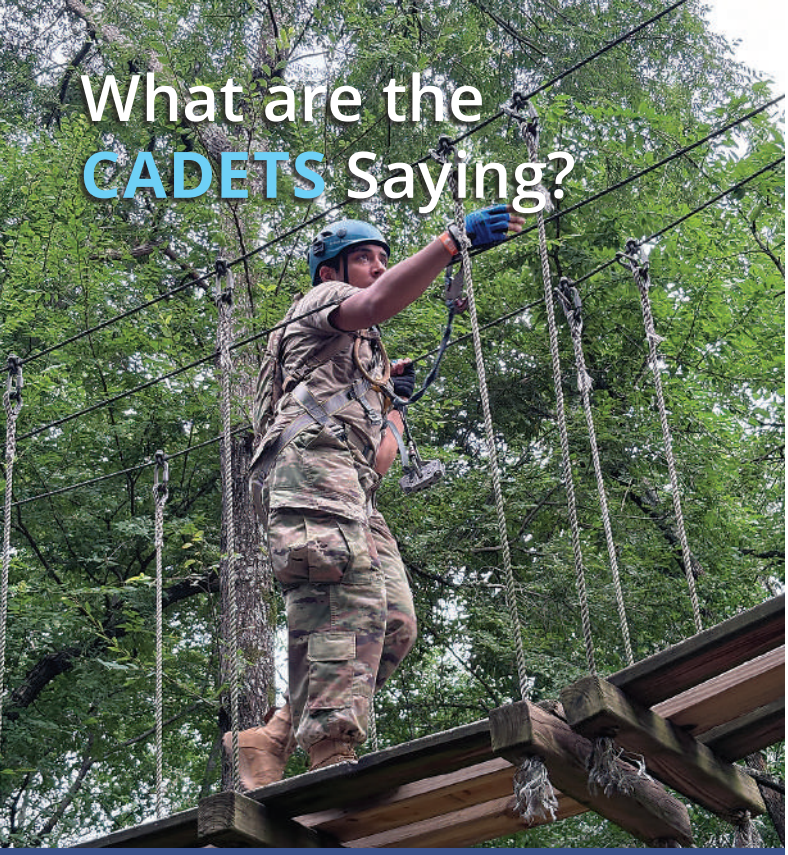


HOW WILL 2025 DALLAS CADETS USE ACADEMY EXPERIENCES IN THE FUTURE?



At the museum, we learned about everybody who got a medal of honor and how they got it. We saw some of their personal items, uniforms, and things used to survive. It was a fun and interactive experience.

RISING 11TH GRADER, H. GRADY SPRUCE HIGH SCHOOL
2025 DALLAS ACADEMY



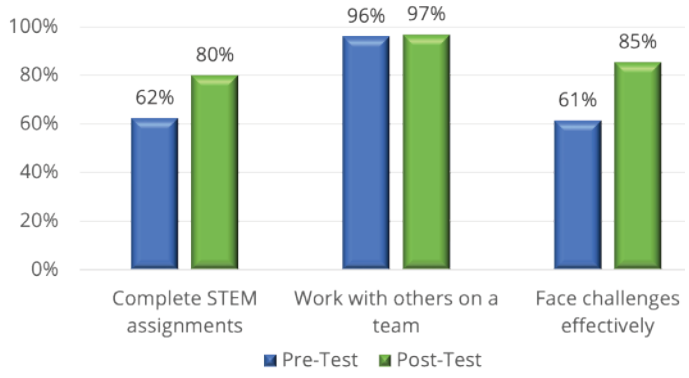
No matter what we were doing at Trinity Forest, everyone was working together. We had to calculate the amount of space to go through the zipline. We learned how to speak up and use our voice to communicate.

RISING 11TH GRADER, SEAGOVILLE HIGH SCHOOL
2025 DALLAS ACADEMY

JROTC Cadet Leadership Challenges

The foundation of the Academy lies in the JROTC culture and character education curriculum. Cadets who attended the Academy received additional exposure to that curriculum and culture by participating in several JROTC Cadet Leadership Challenge (JCLC) activities, including a high ropes course, rock climbing wall, team sports, and physical fitness training. Cadets consider JCLC activities a highlight of the camp that engages them physically while building personal confidence and team camaraderie. Combining JCLC activities and STEM design challenges resulted in linked experiences that helped build academic, team, and leadership skills and promoted self-improvement.

2025 DALLAS ACADEMY CADETS' BELIEFS IN THEIR ABILITY TO...



Overall Conclusions

Based on the analysis of quantitative and qualitative data collected, the **2025 Dallas STEM FUTURES: The Leadership & Workforce Academy for JROTC** increased Cadets' awareness of and interest in local STEM career opportunities and increased their confidence to pursue STEM learning and careers. Cadets made gains in math, science, engineering, and technology concepts aided by hands-on application of those concepts, which increases the likelihood they will be successful in STEM courses and careers. Cadets gained skills in teamwork, leadership, communication, and other 21st century workforce skills and experienced growth in social interactions, confidence, and productivity. All combined, the Academy provided experiences that opened pathways to STEM learning and careers.

JROTC helped me learn the value of discipline and accountability. Being on time, staying focused, and taking responsibility for my actions are habits that can help me in school, work, and personal goals.

RISING 10TH GRADER, HILLCREST HIGH SCHOOL
2025 DALLAS ACADEMY

STEMinACTION
COLLABORATE • INNOVATE • ELEVATE
STEMinAction.org

This material is based upon work supported by the U.S. Department of Defense Award Number HQ00342110009.