SAVANNAH-CHATHAM COUNTY ACADEMY

JROTC STEM LEADERSHIP ACADEMY

CADET IMPACT REPORT 2024

The **JROTC STEM Leadership Academy** is a six-day residential summer camp that helps meet today's workforce needs by engaging a diverse population of high school students—JROTC Cadets going into 9th-12th grades—in activities that open pathways to STEM learning and careers.

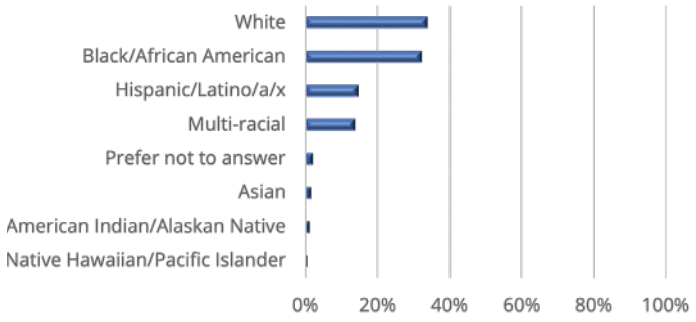
The Academy seeks to increase Cadet awareness of local high-paying, in-demand STEM career opportunities and their understanding about what it takes to secure these jobs. To do this, the Academy integrates several activities aimed at informing JROTC Cadets about STEM jobs, piquing their interest to pursue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

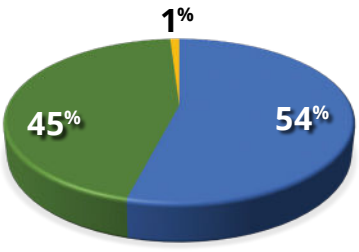
The 2024 Savannah-Chatham County Academy in Georgia focused on the aviation industry and a related STEM-in-the-Air curriculum, in which Cadets investigated STEM concepts using paper airplanes and foam gliders while completing missions of increasing complexity. Cadets then applied the concepts to design, build, and test wings on a motorized, single-propeller, tethered model airplane.

ACTIVITIES

- STEM Design Challenges
- Visits to Industries, Colleges/Universities, and Educational Venues
- JROTC Cadet Leadership Challenge Activities
- Inspirational Guest Speakers

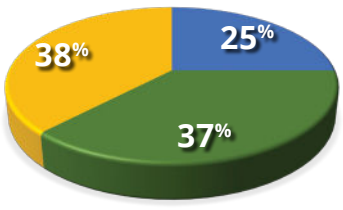
2024 SAVANNAH-CHATHAM COUNTY CADETS BY RACE/ETHNICITY





CADETS BY GENDER

Male Female Prefer not to answer



CADETS BY GRADE

9 10 11

How did **CADETS** respond to teamwork experiences?

"My team was very behind on our project with only one day to complete it. We got together, assigned roles, communicated with each other, and completed the task with almost 20 minutes to spare!"

11TH GRADER
WEST LAURENS HIGH SCHOOL

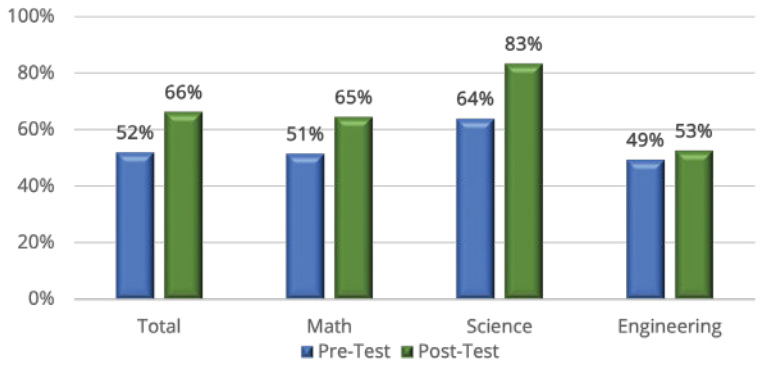
The JROTC STEM Leadership Academy engaged Cadets in developing and valuing skills in teamwork, communication, and leadership needed to be successful contributors and collaborators. Carefully structured activities designed to do this included:

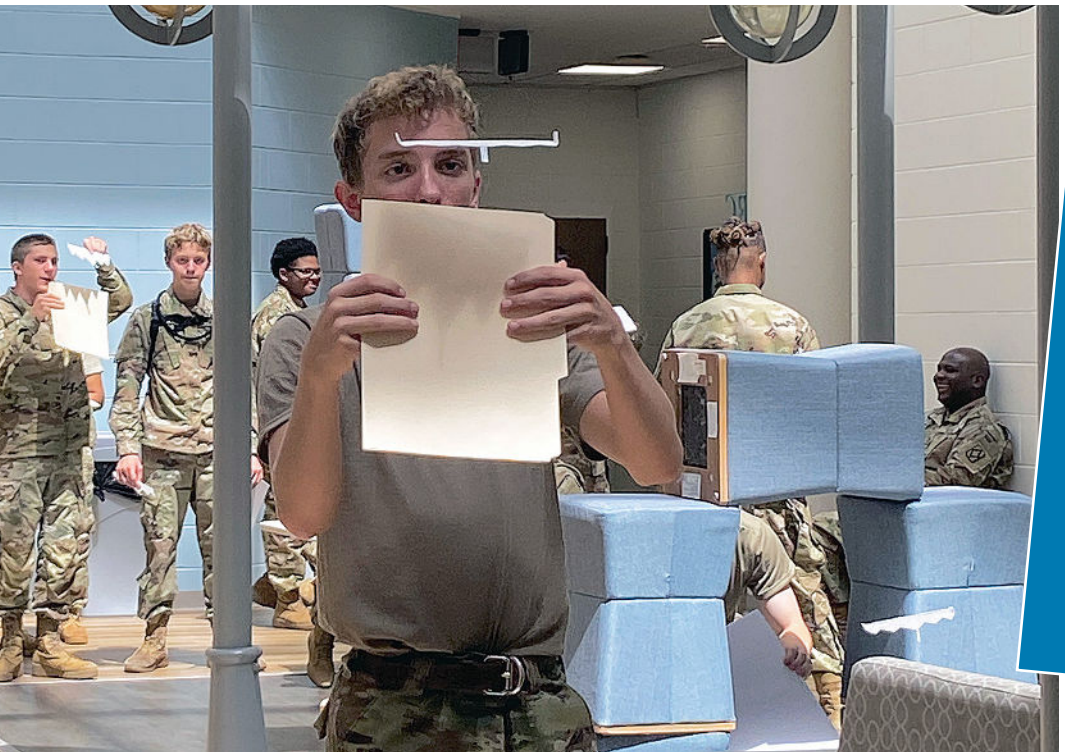
- Winning Colors® Personality Assessment
- Team-Building Activities
- STEM Design Challenges
- JROTC Fitness Challenges and Sports Nights

STEM-in-the-Air Team Design Challenge

Academy Cadets applied concepts for principles of flight, force vectors, proportional reasoning, and aspect ratio, as well as the engineering design process during their team design challenges. Pre- and post-assessment results indicated that the 2024 Savannah-Chatham County Cadets achieved statistically significant gains in STEM content knowledge overall, with gains in math and science being greatest.

2024 SAVANNAH-CHATHAM COUNTY CADETS' CORRECT ANSWERS TO STEM CONTENT QUESTIONS





"At first, working on the aircraft model was stressful, but as we used the engineering design process, we started getting better results. Instead of getting frustrated, I felt accomplished."

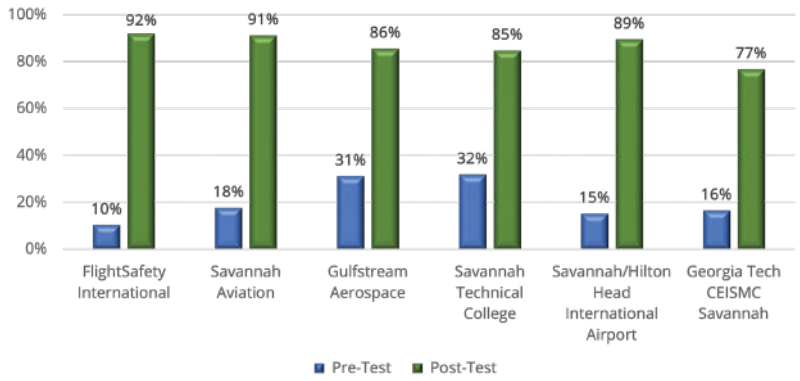
11TH GRADER
A. E. BEACH HIGH SCHOOL

> *"At Savannah Aviation, they gave a lot of details about their jobs, and what we were being taught in class was also spoken about during our visit – the thrust, lift, drag, and weight."*
>
> **11TH GRADER**
> VIDALIA HIGH SCHOOL

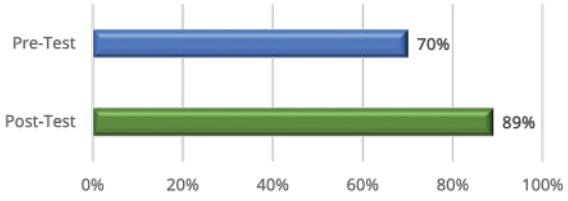
Industry Site Visits

To raise Cadets' awareness of how STEM is used in the aviation industry, the 2024 Savannah-Chatham County Academy arranged visits to Flight Safety International, Gulfstream Aerospace, Hunter Army Airfield, Savannah Aviation, and the Savannah/Hilton Head International Airport. Cadets heard from human resource personnel about hiring requirements, traits and skills needed, training programs offered, and salaries for local, high-demand STEM jobs.

2024 SAVANNAH-CHATHAM COUNTY CADETS ABLE TO DESCRIBE INDUSTRY/CENTER



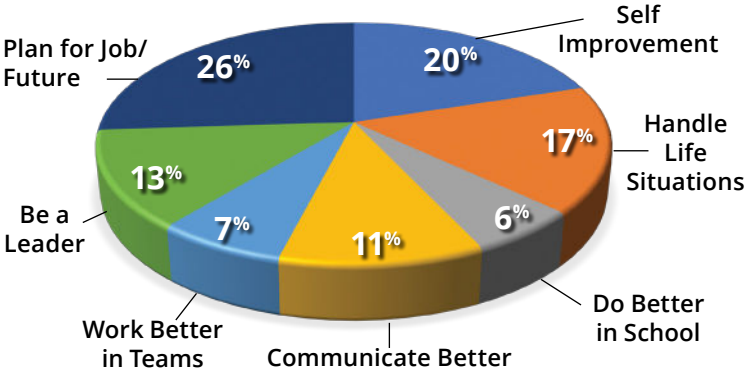
2024 SAVANNAH-CHATHAM COUNTY CADETS AWARE OF LOCAL, GOOD-PAYING STEM JOBS



Educational Experiences

The 2024 Savannah-Chatham County Cadets got a taste of campus life while residing at Georgia Southern University–Armstrong Campus. Cadets visited Savannah Technical College and the Center for Education Integrating Science, Mathematics, and Computing at Georgia Institute of Technology in Savannah where they learned about fields of study, student support, and enrollment.

HOW WILL 2024 SAVANNAH-CHATHAM COUNTY CADETS USE ACADEMY EXPERIENCESIN THE FUTURE?

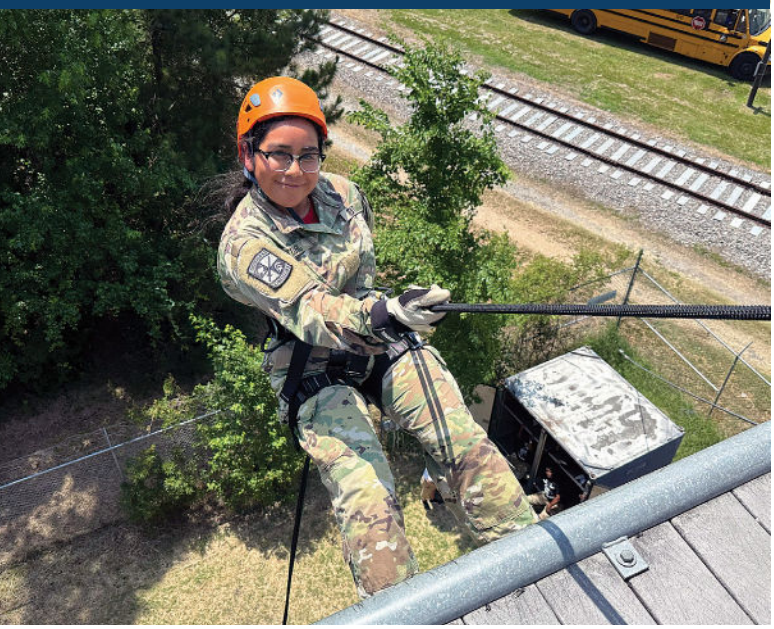


> *"The flight simulator was one of the coolest things. I thought flying would be impossible, but being in a simulator, I think it would be amazing. It's encouraged me to have a career in the military or aviation."*
>
> **11TH GRADER**
> LIBERTY COUNTY HIGH SCHOOL

What are the CADETS Saying?

"When we first started doing outside training activities, my mindset was that I couldn't do it. But thanks to my team motivating me and changing my attitude, I completed the tasks without fear."

9TH GRADER
VIDALIA HIGH SCHOOL



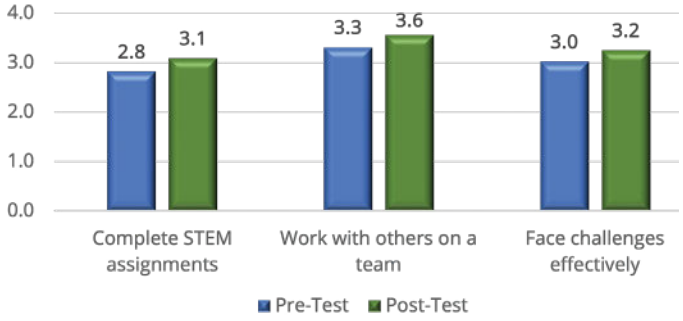
JROTC Cadet Leadership Challenge Activities

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 activities, including:

- Rappelling
- Drownproofing
- Obstacle/Ropes Course
- Physical Fitness Training

Fifty-one percent of Savannah-Chatham County Academy Cadets stated in their journal reflections that their most favorite part of the Academy was the JROTC activities. Combining JROTC challenge activities and STEM design challenges resulted in linked experiences that helped build academic, team, and leadership skills.

2024 SAVANNAH-CHATHAM COUNTY CADETS' BELIEF IN THEIR ABILITY TO...



Overall Conclusions

Based on the analysis of quantitative and qualitative data collected, the 2024 Savannah-Chatham County JROTC STEM Leadership Academy increased a diverse group of Cadets' awareness of and interest in local STEM career opportunities and increased their confidence in being able to enter a STEM career field. Cadets made gains in math, science, and engineering knowledge and experienced working with technology, which increases the likelihood they will succeed in STEM courses and careers. Cadets gained skills in teamwork, leadership, communication, and other 21st century workforce skills, and experienced growth in social skills, confidence, and personal responsibility. All combined, the Academy provided experiences that opened pathways to STEM learning and careers.

"I had a lifetime of adventure all in one week. I realized how fearless I am, and that fear is a game your mind plays rather than a response to an actual threat sometimes. I will use that throughout my life to overcome fears and achieve success."

10TH GRADER, LIBERTY COUNTY HIGH SCHOOL

center for STEM Education

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EOE/F/M/VETS/DISABILITY