BEST ROBOTICS INC.

# 2024 IMPACT REPORT

BOOSTING ENGINEERING, SCIENCE AND TECHNOLOGY

# At a Glance: BEST Robotics Inc. 2024

**Total number of HUBS:** 28

**Total number of teams:** 350

**Total number of teachers:** 511

**Total number of mentors:** 197

**Total number of volunteers:** 628

**Total number of students:** 5544

## BEST Regional Programs in 2024

### South's BEST: 7 Hubs

**Serving States:**
Alabama, Louisiana, Tennessee, Georgia, Florida

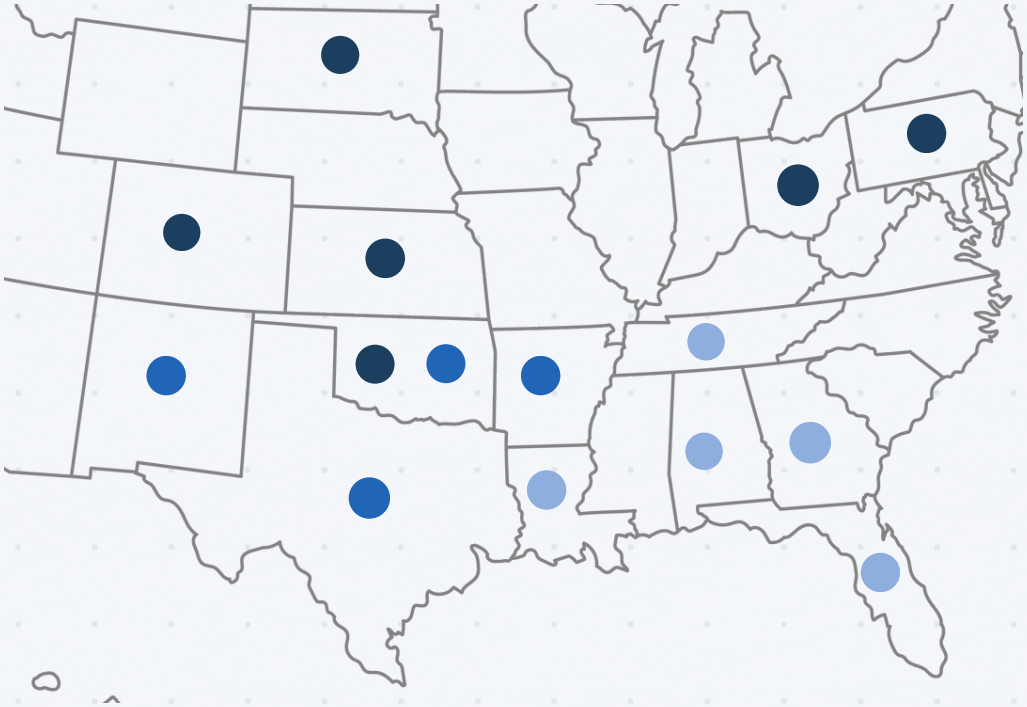
### BEST of Texas Robotics: 13 Hubs

**Serving States:**
Texas. Oklahoma, New Mexico, Arkansas

### Rocky Mountain BEST: 8 Hubs

**Serving States:**
Colorado, Ohio, Pennsylvania, Oklahoma, Kansas, South Dakota

- South's BEST
- BEST of Texas
- Rocky Mountain BEST



# Student Demographics

## Grade Level

| | | | |
|---|---|---|---|
| K-5th | 1.4% | 9th & 10th | 33% |
| 6th-8th | 22% | 11th & 12th | 44% |

## Underserved Populations

| | |
|---|---|
| Reported Disability | 3.2% |
| Free Lunch Program | 24.4% |

## Gender Distribution:

65%

33%

## New vs Returning Students

| | |
|---|---|
| Returning Participants | 34.7% |
| New Participants | 62.5% |

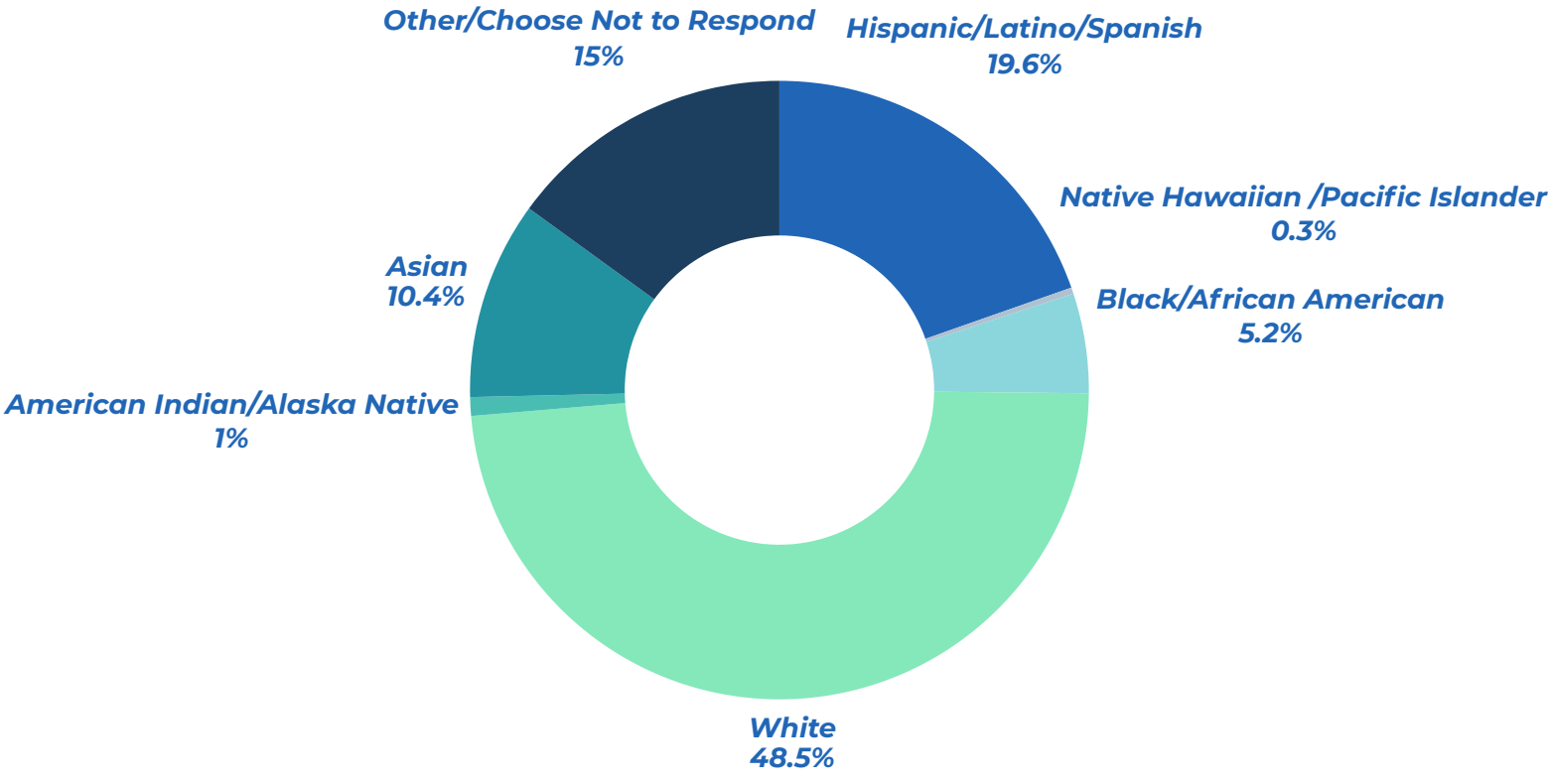
## School Type

| | | | |
|---|---|---|---|
| Public | 73.4% | Homeschool | 5.1% |
| Private | 13.4% | Other: | 1.8% |
| Charter | 6.3% | | |

## Location of School:

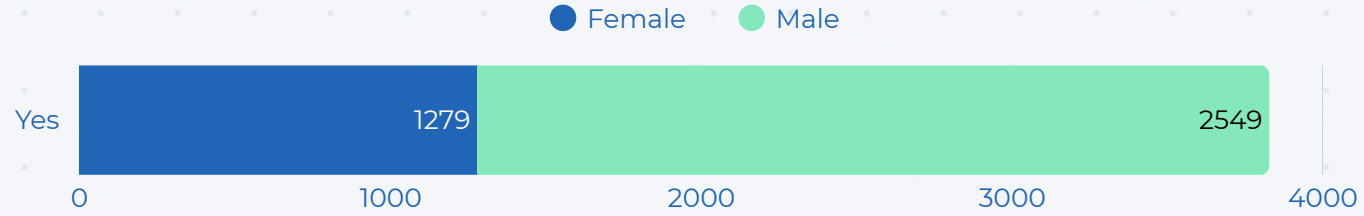
| | |
|---|---|
| Urban | 21.8% |
| Suburban | 42.8% |
| Rural | 35.5% |

## Race/Ethnicity

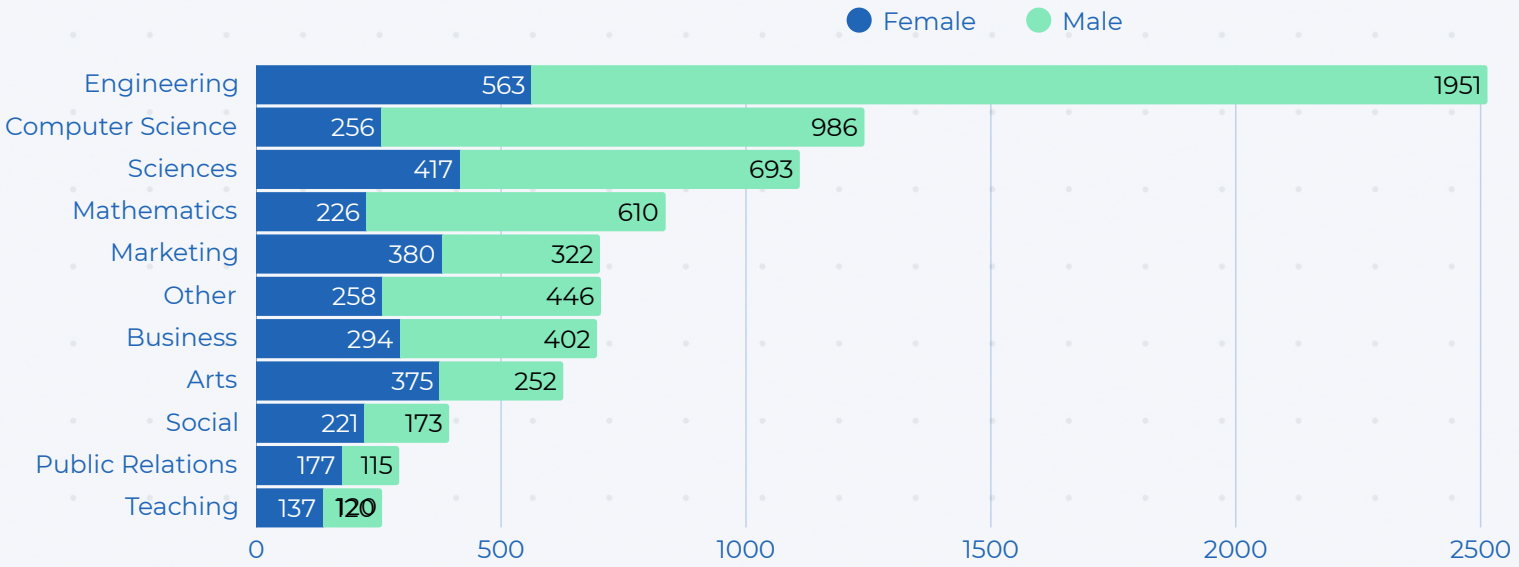


# Student Impact Survey Results

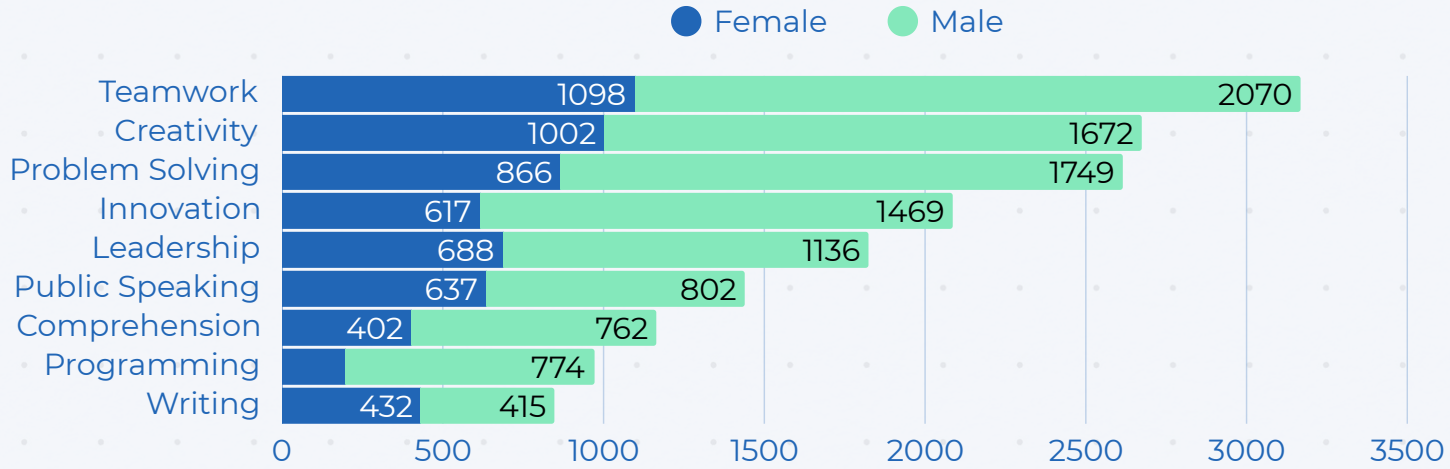
## BEST Increased my interest in STEM Careers: 94% Yes



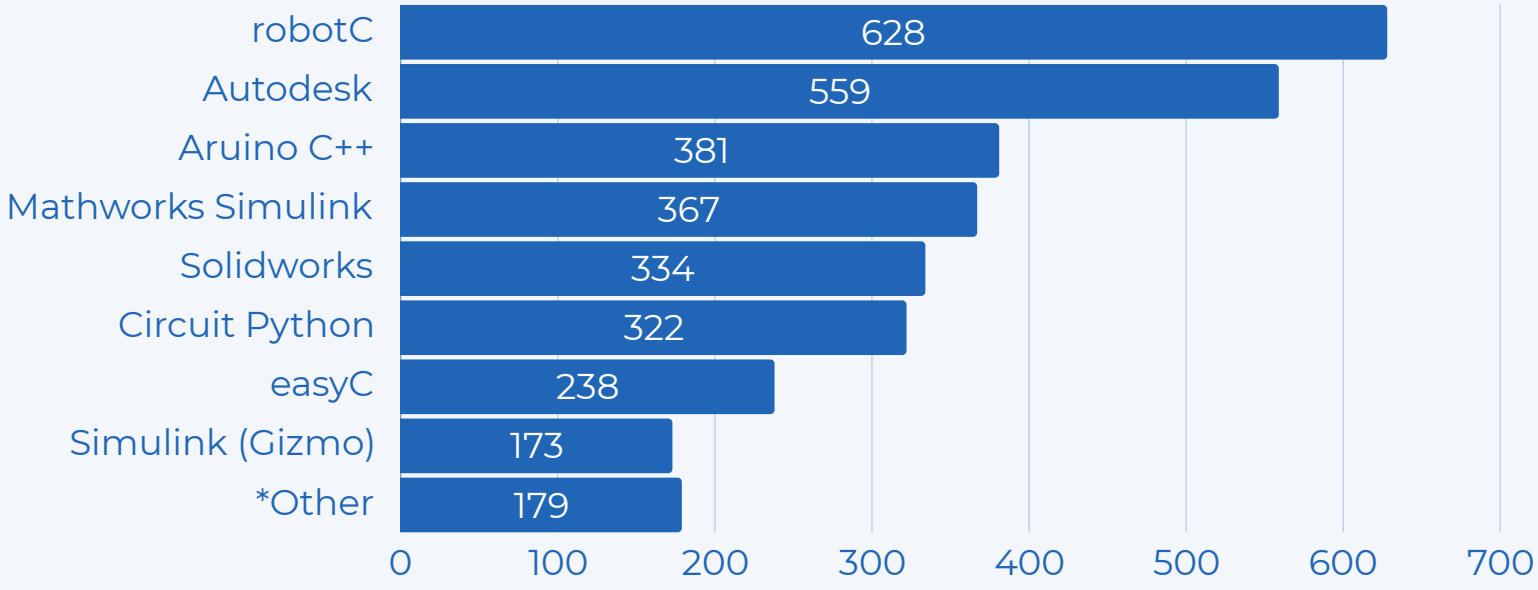

## BEST Influenced me to pursue a career in:




## New Skills acquired by participating in BEST Robotics

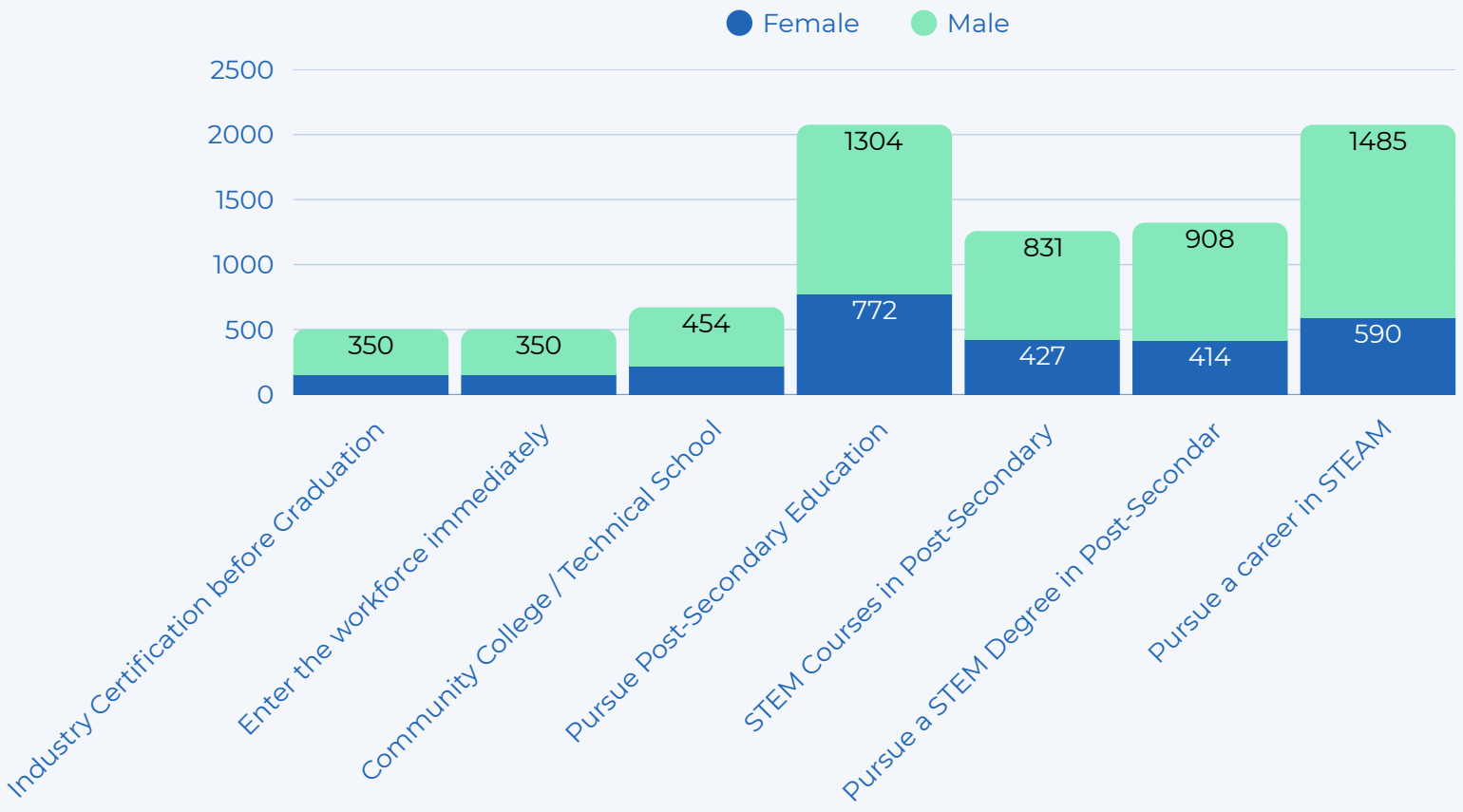


## Software used by students during BEST Robotics in 2024




**Other Including : PROS, Microblocks, Mathematica, Solidwize, Siemens SolidEdge*

## BEST Students reported intentions to:




**91.5%** ***of BEST Students reported that participation in BEST Robotics positively influenced their education and career decisions.***

# Stakeholder Feedback 2024

AT MARTIN'S MILL ISD, OUR ROBOTICS TEAM HAS BEEN PARTICIPATING IN BEST ROBOTICS SINCE 2012. BEST HAS SHAPED OUR PROGRAM INTO A HARD-WORKING TEAM THAT STRIVES FOR SUCCESS. EACH FALL, OUR STUDENTS LOOK FORWARD TO THE CONTEST IN TERMS OF BUILDING A ROBOT TO COMPLETE THE TASKS AND RESEARCHING THE THEME IT'S BASED ON. THE BEST AWARD ALSO PROVIDES OPPORTUNITIES TO OUR STUDENTS WHO ARE MORE INTERESTED IN MARKETING, SALES, DOCUMENTATION, ART, AND COMMUNITY OUTREACH. THIS WIDE RANGE OF ACTIVITIES ALLOWS US TO HAVE A DIVERSE AND UNIQUE TEAM EACH YEAR.

OUR STUDENTS LEARN TO COMMUNICATE AND TO FORM RELATIONSHIPS WITH TEAMS FROM OTHER SCHOOLS AS WELL. THEY ENCOURAGE EACH OTHER AND PUSH EACH OTHER TO BE BETTER. SEVERAL OF OUR STUDENTS HAVE ENDED UP IN THE SAME COLLEGE PROGRAMS AS OTHER BEST PARTICIPANTS AND HAVE BEEN ABLE TO CONTINUE FOSTERING THESE RELATIONSHIPS THERE, TOO.

BEST OFFERS RARE OPPORTUNITIES FOR OUR STUDENTS TO MEET PEOPLE WHO WORK FOR COMPANIES THAT THEY ARE INTERESTED IN AFTER GRADUATION. SOME OF THESE INDIVIDUALS VOLUNTEER FOR BEST, AND OTHERS ATTEND CAREER FAIRS PROVIDED BY BEST AT CONTESTS. THE STUDENTS GET TO LEARN WHAT REQUIREMENTS THEY NEED TO MEET FOR THEIR DREAM JOBS, AND HEAR ABOUT THE OPPORTUNITIES AVAILABLE TO THEM. BECAUSE OF BEST, OUR PROGRAM HAS GRADUATES WHO HAVE GONE ON TO JOBS IN MECHANICAL AND NUCLEAR ENGINEERING, MARKETING, TEACHING, AND CAD DESIGN, TO NAME A FEW.

-COACH MUNNS

THIS SEASON WAS AN INCREDIBLE JOURNEY THAT PUSHED ME TO GROW BOTH TECHNICALLY AND PERSONALLY. I GAINED HANDS-ON EXPERIENCE WITH ENGINEERING CONCEPTS, PROBLEM-SOLVING UNDER PRESSURE, AND COLLABORATING WITH A DIVERSE GROUP OF TEAMMATES, ALL OF WHICH STRENGTHENED MY PASSION FOR ROBOTICS. BEYOND THE TECHNICAL SKILLS, I LEARNED THE IMPORTANCE OF EFFECTIVE COMMUNICATION, ADAPTABILITY, AND STAYING POSITIVE EVEN WHEN FACED WITH CHALLENGES. THE SUPPORT AND CAMARADERIE WITHIN THE TEAM MADE EVERY MOMENT MEMORABLE, AND IT'S AN EXPERIENCE THAT WILL STAY WITH ME AS I CONTINUE TO PURSUE MY GOALS IN STEM.

-2024 STUDENT PARTICIPANT

# 2024 FIELD DESIGN - LOW G

Each year BEST Robotics creates a unique competition theme to provide students with a practical industry-simulating experience by inviting students to solve real STEAM challenges. The field design and course objectives are revealed at a Hub kickoff event and signals the start of the 8-week countdown for teams to design, prototype, test, and adapt their robot for the local Hub competition. Advancing teams move on to their Region's Championship game.

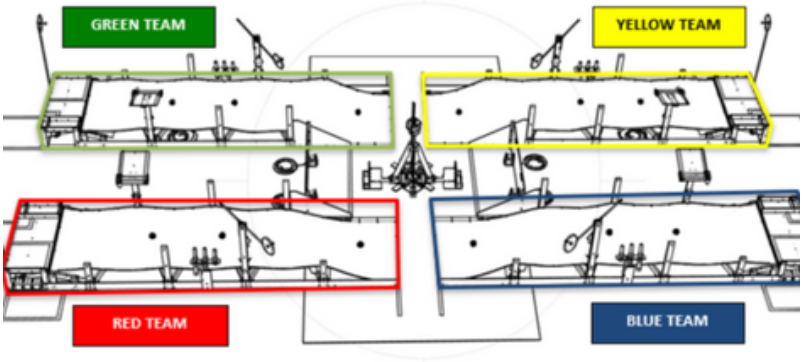



*Figure 3.1 Game Field Top View*

The 2024 Competition theme was "Low G" where students were challenged to develop a robotic prototype to accomplish essential tasks for establishing a base on the moon. Students were not only required to design a robot capable of achieving these tasks, but they faced the additional challenge of traversing uneven terrain and raised canvas terrain to simulate low gravity. Game elements included collecting rock and core samples, restoring an antenna to the upright position, cleaning a solar panel, racing to the center field to be the first to release the hotosphere, and connecting wires without a clear visual of the connection points, all while balancing "Manny the Astronaut". Scores were multiplied based on an adjustable difficulty level of the raised canvas terrain simulator.

To further ensure a diverse and real-world experience for all students participating in BEST Robotics, final team scoring also includes team development of a marketing booth and "Shark-Tank" style presentation to showcase their prototype as a startup seeking investors, thorough documentation of the robot design and build process in an engineering notebook, and team spirit and sportsmanship.