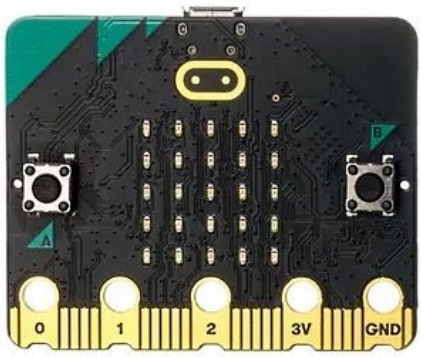
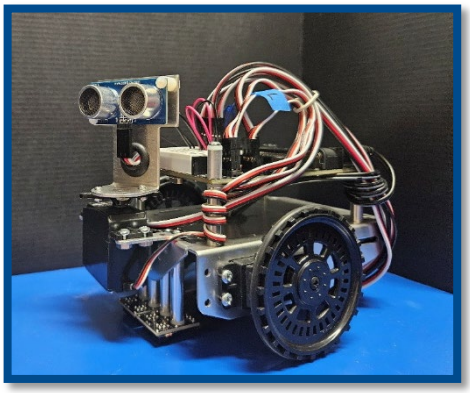
AFRL
NEW MEXICO
STEM OUTREACH

Robotics Challenge

The Robotics Challenge mission provides an opportunity for teams of 3-4 middle school students to explore systems engineering, computer science and robotics by building and programming small robots to complete various tasks.



Student teams work at their school sites to complete several hands-on challenges that guide them through programming a micro:bit microcontroller and a cyber:bot robot using the Python programming language. They also use line following and ultrasonic sensors to control their robots.



The NM STEM Academy team uses the online Canvas learning management system to provide instructions and define challenges for participating student teams to complete. Teams submit work online to show they completed each challenge to earn points toward qualifying for the culminating Robotics Challenge Expo event.

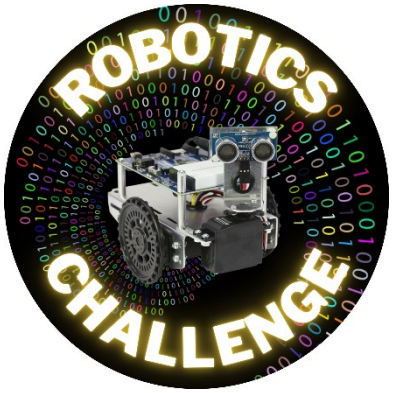
High achieving teams, identified by completed challenges and points earned, are invited to attend the Expo event at Kirtland AFB in the spring. During the Expo, student teams demonstrate creative applications of their programming skills and knowledge and complete on-site challenges.

The Robotics Challenge is a fantastic opportunity to actively involve your students in innovative applications of science, technology, engineering, and math (STEM) concepts, develop problem solving skills, and learn how to work as a productive member of a team.

The NM STEM Academy team provides micro:bit microcontrollers, cyber:bot robot kits, robot sensors, on-line curriculum, and ongoing support for teachers (coaches) and students during the school year.

You provide the students, the enthusiasm, and the expertise, and make the following commitments:

- Complete and submit the **Coach Registration Form**.
- Attend the Robotics Challenge Coach Orientation.
  - Ensure that your school submits an EPA School Participation Form.
  - Complete and submit Teams per Coach and Student Demographics Forms.
  - Distribute, collect, and submit completed Student Permission Forms.
- Recruit students and create student teams to participate in the Robotics Challenge.
- Ensure that your teams have access to computers for programming.
- Provide guidance and advice as your teams work through the micro:bit and cyber:bot challenges online.
  - Remind students to verify their work meets challenge requirements BEFORE submitting it online.
- If one or more of your teams qualifies for the Robotics Challenge Expo:
  - Ensure that all required information is provided in a timely manner.
  - Arrange transportation for you and your students to attend the Expo.
  - Attend the Robotics Challenge Expo with your students.



If you have questions or need additional information, please contact us at:

(505) 846-8042 OR **stem@afrlnewmexico.com**

Visit us on the web at:

https://afrlnm.com/stem/missions/robotics-challenge/

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