

# Moore West Junior High Robotics Team



Competition Season  
Handbook



**A STEM education revolution.**  
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## Team Goals

*In the VEX Competitions, presented by the [Robotics Education & Competition Foundation](#), teams of students are tasked with designing and building a robot to play against other teams from around the world in a game-based engineering challenge. Classroom STEM concepts are put to the test on the playing field as students learn lifelong skills in teamwork, leadership, communications, and more. Tournaments are held year-round at the regional, state, and national levels; local champions go on to compete against the best in the world at VEX Worlds each April!*

### **The goals and objectives of the Moore West Junior High Robotics are:**

- Apply real-world application of science, engineering, computer science, and mathematics experience, competition in a new and different way
- Develop people skills, team skills, and foster teamwork
- Learn realistic technical skills that cross over into college and industry
- Management and administration of a complex project
- Inspire students to study science, technology, engineering, and mathematics (STEM)
- Share experiences with other schools and teams.

Foster working relationships with area sponsors, businesses, schools, and colleges.

- Expand local team and program with new students and mentors
- Promote VEX IQ and help program expansion

## Participation

All participants working with Moore West Junior High Robotics will support the mission and values of Moore West Junior High and VEX Robotics. An undercurrent of learning and "gracious professionalism" will persist at all times. Competing as part of VEX Robotics requires a committed team of students, parents, and mentors. An environment of cooperation, teamwork, and collegiality is necessary for success.

### **The following details what is required to participate:**

- Students desiring to participate for the Moore West Robotics Team **must** submit the appropriate application form (see Appendix). As part of the application, they can offer their area(s) of interest and the abilities they can bring to the team. Once they are part of the team, sponsors will ask for non-refundable dues of \$50.
- Fundraising will not cover all expenses for the team and therefore students will be required to pay for various expenses – mainly related to travel arrangements, food

and lodging, additional competition fees, and possibly uniforms. Students will be required to bring a share of food and snacks to meetings and competition events. Exact costs will be determined year-to-year in the annual budget.

- As with any extracurricular activity, school and grades come with VEX. All academic policies of Moore West Junior High will be in effect as it is with other school activities. Students must maintain a C– or better grade in all classes in order to actively participate. Each week a student is ineligible (having a D or an F) will earn a demerit. Ten total demerits (including those earned for being ineligible ) will result in removal from Robotics.
- Robotics at Moore West is a serious commitment and includes requirements for completion of important tasks and attendance at meetings. The build season is especially intensive and requires a significant time commitment from August through March (typically 2 meetings per week for 2 hours each). Student attendance will be tracked and sign in procedures will be in effect for each meeting, work day, and competition. Students who cannot attend mandatory meetings must inform mentors **in writing before** the meetings occur. Failure to notify sponsors in writing or failure to sign the sign-in log, will result in a demerit for each infraction. Ten total demerits will result in removal from Robotics.
- It is understood that students' schedules may be full with other activities, but only the most committed members will be allowed on the drive team and/or the pit crew. This will be at the discretion of the team members and sponsors .
- Student team members are expected to regularly monitor team-related communications via email, the website, or other media to stay informed on team status and activities.
- Team position and assignments are defined below in this handbook and will be reevaluated for each build season. Students are expected to support and mentor rookie students and listen to those in leadership roles. Students are also obligated to help other members when in need.
- Students are expected to complete tasks assigned to them. Jobs are expected to be done right and on time (exactly like the expectations in a real-world engineering project). When a task is difficult or confusing, you must always feel free to ask for help. Learn at every opportunity, ask questions, and offer to help. Maintain a positive attitude at all times.
- Appropriate behavior is expected at all times adhering to norms expressed in the code of conduct expected by Moore West Junior High. Students are expected to follow directions from sponsors, mentors and leaders. Having fun should always be part of the team, but inappropriate behavior or excessive socializing can disrupt the

team goal. Negative student behavior (such as disrupting meetings or work time) may result in the student being asked to leave the meeting or earn the student a demerit.

- No distracting cellphone/computer use during mandatory team meetings unless it is used to achieve the teach goals and at permission of the sponsors/leadership team.
- Safety is imperative! Safety is a foremost priority related to robot construction and operation. Students are expected to adhere to safety rules and practices defined by VEX Robotics, Moore West Junior High, and the mentors/leadership team. This includes the use of safety glasses while driving the robot or near the competition table.
- All students are expected to practice good stewardship of school property and materials related to the robot. There are very substantial expenses related to this team and most are provided by gracious sponsors who support our school and STEM education.
- All team members are responsible for keeping the work room clean and organized at all times. If a “mess” is seen, it is expected to be cleaned up without being asked.
- Participation in VEX is very public, exposing the image of Moore West to many other schools and institutions (far more than typical sporting events). You are expected to represent the school positively at all times. Cheer for your team, applaud your opponents, congratulate winners, and respect inspectors and judges.
- Our robotics team is so much more than just building something that moves. Team members will be respectful of all decisions that have been made in other areas that they may not be a part of. If a team member feels strongly about an area of the team, then they are encouraged to “step-up” to pursue membership in that committee.
- Students who are academically ineligible are allowed to attend the weekly mandatory meeting, but may not actively work on the team otherwise until grades reach the C- minimum requirement. Those students ineligible during the week of competition will not be allowed to miss school. They are only allowed during the Saturday portion of the competition and will need to have parents bring them to the competition.

- The lead mentors feel that being a part of the Moore West Robotics Team requires a certain level of commitment and responsibility.

**The following demerit system will be used as necessary.**

If any student acquires 10 demerits in one season they will be off the team (no refunds) and will have to undergo an interview process before being allowed to participate in the following seasons.

- o Demerits can be given if a student is found not practicing safely around dangerous tools/equipment.
- o A demerit will be given for missing a mandatory team meeting without informing a lead mentor ahead of time in writing. The only excused reasons for missing a meeting is participation in other school activities or if a student is absent from school.
- o Failure to sign in/out can result in a demerit. This includes meetings, community activities, competitions, etc. This especially includes leaving a competition event without notifying a teacher or mentor.
- o A demerit can be given anytime a student misses a deadline.
- o A demerit will be given if required forms are not turned in by the deadline. More than 2 copies will not be made for students.
- o A demerit will be given each time grades are checked and a student is found ineligible.
- o Demerits can be given anytime a student must be repeatedly told to do or not to do something.

## **Mentor Participation**

Mentors are teachers, parents, area college students, or local adult experts that dedicate their time and abilities to the Moore West Robotics Team.

**Below are the expectations for mentors:**

- Offer time and talents to the build season and competitions related to participating in VEX Robotics.
- Familiarize themselves with the VEX Robotics mission and history, and review previous competitions.
- Provide leadership and real-world expertise in some aspect of team and robot development. Be a positive example and role model. Work to motivate and mentor students with emphasis on engineering, teamwork, and communication skills.

- Recruit, support, and manage experts that are necessary to provide specialized help with robot construction.
- Oversee student teams and support team leaders as required. Participate, but allow students to do as much work as possible.
- Supervise safety of overall working environment; provide training for specific tools as required for safe operation
- Provide final decisions as needed to resolve issues and overcome barriers.
- Devote substantial time toward team during build season and competition season. Attend 2-3 VEX Robotics competitions as mentor, pit crew support, and robot mechanical maintenance support.

## **Parent/Volunteer Participation**

As with any school activity or sport, parental support and participation is invaluable. Some parents will be invited to participate directly on the team as mentors. Other parents are invited to provide support to the team including snacks, travel, supervision, seeking sponsorship, volunteering time at competitions, distributing information and communications, etc. If any mentor, parent, student or outside organization would like the assistance of the Robotics Team for a fundraising event or presentation, they must contact a lead mentor at least two weeks before the event. This is necessary to allow time for the proposal to be considered and to insure that planning with students can be performed during students at least one weekly team meeting.

## **Organization**

The Moore West robotics program requires significant participation from a variety of aspects. Not only does a robot have to be built, but it has to be financed and promoted. The team requires recruiting to find interested and talented students to continue it from year-to-year. Below are the designated jobs for this effort. Students can participate in multiple roles and there is of course flexibility in the defined duties as the season(s) progress and more is learned. Designation of team members is based on interest and ability.

### **Team Organization – Leadership Roles**

**Below is the designated leadership structure for the team:**

- Teacher / Coach
  - Plan team meeting
  - Create schedules

- Financial reporting
- Ordering parts
- Overall team progress and safety
  - Responsible for overall team administration and decision-making
  - Set directions and high-level planning
  - Assign student roles
  - Make final decisions on issues
  - Designated as VEX IQ point-of-contact
- Volunteer Board
  - Comprised of teachers/volunteer designated as overall project leaders
  - Offer special skills or expertise and are responsible for supporting one or more student jobs
  - Approve all decisions of team activities
  - Offer guidance to specialized mentors and other volunteers as they work with students
  - Act as a liaison between students and other adults if conflicts arise
  - Act as the disciplinarian if ever needed for students
  - Maintain and update the Team Handbook
- Specialized Mentors
  - Teachers, parents, volunteers invited to participate
  - Oversee a subteam in their area of expertise

## **Job Descriptions – Student Roles**

Selection of students for these jobs and leadership positions will be based on student interests, but the final selections will be made by leadership board. Students may be involved in more than one team. Students may be encouraged to rotate through the roles to allow students to experience all jobs and to learn about all aspects of Robotics.

- Notebook (everyone contributes to this)
  - Takes notes at any general meeting; keep required records
  - Develop and maintain team rosters
  - Maintain and publish team calendar; manage team deadlines
  - Study rules of game; advise build team as required when design decisions conflict with game rules

- Communications
  - Manage web site
  - Ready press releases
  - Photo/video history of build season/competitions
  - Publish photography and video of team on website, publications, presentations
  - Dissemination of team information (emails, text messages, etc.)
  - Contact newspaper and school website/newsletter; create press releases as needed.
- Public Relations/Spirit/Awards
  - Recruit and interact with sponsors
  - Plan for team cheering and general participation in robotics competitions
  - Assist with promotional visits to demonstrate robot to classes or sponsors
  - Research awards team can pursue
  - Keeps list of required thank-you notices; be sure notices are sent
  - Oversee creation/distribution of t-shirts, buttons, and other promotional materials
  - Research requirements for pursuit of important awards presented at VEX competitions
- Engineering
  - Mechanical Engineering (everyone has input on this)
    - Design and construction of chassis; robot drive, and mobility
    - Design and fabricate required VEX IQ specialized game competition mechanism (unique each competition season)
    - Integrate motors, gearing, and pneumatic mechanisms required for competition
    - Design/construction mechanics for specialized game mechanism
    - Work closely with electrical and computer teams as required
    - Create drawings of robot and update notebook of any changes

- Wire electronic components of robot
      - Design/construction electronics for specialized game mechanism
      - Test and validate electrical problems
      - Work closely with mechanical and software members as required
    - Closely monitor VEX IQ web resources to prepare maintain most up-to-date versions for robot processor and driver station
      - Perform software updates/installations
      - Program robot processor for autonomous and normal operation; debug as needed
      - Work closely with mechanical and electrical members as required
- Competition Preparation and Participation
  - Go to [robotevents.com](http://robotevents.com) and get information about upcoming competitions
  - Create and implement a checklist for competition
  - Know which awards are available at the competition
  - Make sure the robot is in compliance with all rules
- Drivers (everyone needs to learn this)
  - Devote adequate time to practice and optimize robot performance
  - Operate robot in competitions
  - Lead work for robot readiness and adjustments for competition
- Pit Crew (everyone)
  - Perform required robot maintenance between competitions
  - Keep pit area clean and organized
  - Maintain discipline in pit area; keep area clear for work; manage visitors to area
  - Assist with packing and unpacking
  - Monitor battery charging strategies

- Safety (at least 2 per team)
  - Attends safety meeting at competitions
  - Studies safety manual and prepares team for competition events
  - Questions/observes others in pit/arena for other teams using good safety practices
  - Reminds our team of safety issues
  
- Scouting
  - Scout opponent teams during build season via web searches
  - Tracks competition wins and capabilities in order to choose/suggest changes and get an advantage at competitions
  - Provide expertise on game rules/strategy
  - Observe matches, recording pros/cons of all teams
  - Closely monitor online blogs/discussions related to VEX IQ build season for updates, hints, ideas, and changes
  
- Media
  - Photograph team and event in general
  - Photograph other robots (with permission)
  - Videotape events
  
- Spirit Team
  - Promotes our team image
  - Encourages cheering in the stands
  - Not only cheer for our team, but for VEX, volunteers, other teams, etc.
  - Strive for the Team Spirit Award!!
  
- STEM Team (everyone needs to be involved in this and the presentation)
  - Determine topic for research project according to VEX rules
  - Perform/Present at competitions
  - Choose method of presentation
  - Research your topic
  - Practice your presentations
  - Create props (if necessary)

## Sponsorship and Finances

We are a robotics competition team from Moore West Junior High. We will be participating in the VEX IQ robotics competition program, a program in which participants design, build, and program a robot to complete specific tasks/challenges.

We are a fairly new team in the VEX world. Our goal as a new team is to learn as much as we can from going to several competitions. We would like to qualify for STATE and possibly World competition.

About thirty-six plus hardworking and motivated students sign up to sacrifice their after school time to design and construct a competitive robot in exactly six weeks. We have some students coming into the program with past experience, but the majority are here for a new experience and are very eager to learn. I am certain they will contribute greatly to our team.

### About the VEX IQ Program



**A STEM education revolution.**

Learn more at [www.vexrobotics.com/vexiq](http://www.vexrobotics.com/vexiq)



The world needs the students of today to become the scientists, engineers, and problem solving leaders of tomorrow. Science constantly presents us with new breakthroughs and challenges, creating greater opportunities for problem solving through technology.

The solutions to such problems could help change the world, and technology-based problem solvers will be the people to make it all possible. The VEX IQ platform and curriculum provide a fun and engaging vehicle to begin the journey toward becoming the type of problem solver our world needs the most. No matter what you see in your future, the VEX IQ platform and curriculum can help you build the kinds of skills expected of a 21st century innovator.



## Moore West Junior High Estimated 2018-2019 Budget

Item	Cost	Description
<b>Tournament Registrations and Parts (not including Worlds**)</b>	\$1600	Tournament registration fee and base kit of parts for team needs.
<b>Pit Supplies</b>		Supplies which go in our designated area (pit) at the tournament.
Banner	\$250	A banner with team name and logo, as well as logos of company sponsors.
Furniture (Carts, toolboxes, etc.)	\$150	A cart to move our robot around the tournament and toolboxes or tackle boxes to organize our parts.
Give-aways (helps with scoring and team building)	\$300	Items to give to other teams to remember us by.
<b>Computer- Software</b>	\$1200	Needed to run programming software for tournaments
<b>Tools</b>	\$100	Getting our own tools so we are not forced to bring the school's to the tournament.
<b>T-Shirts</b>	\$400	New Team T-Shirts to wear to competitions
<b>Total Estimated Budget</b>	<b>\$4000.</b>	Total estimated costs for this FIRST season

\*\*Attendance at WORLDS will be at least 975\$ registration per team plus travel and other incidental costs.

# 2017-2018 Moore West Junior High Junior High Robotics Sponsorship Reply Form

Please fill out the following form and return it to the address at the bottom of this page.

Name of Individual or Company: \_\_\_\_\_

## CONTACT INFORMATION:

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Email Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

## SPONSORSHIP INFORMATION:

I/we plan to pledge the following financial contribution (Donations are Tax Deductible):

\$100     \$250     \$500     \$1000     \$2500     \$5000     Other: \$\_\_\_\_\_

I/we plan to pledge the following other contributions:

Materials (Computers, Tools, etc...): \_\_\_\_\_

\_\_\_\_\_

Services (Printing, Equipment/Facilities, etc...): \_\_\_\_\_

\_\_\_\_\_

Mentorship (CAD or Robot C training)

Name of Mentor: \_\_\_\_\_

Email: \_\_\_\_\_ Phone: \_\_\_\_\_

For additional information, contact Donna Haworth at [donnahaworth@mooreschools.com](mailto:donnahaworth@mooreschools.com)

## What Do You Receive for Your Contribution?

Donation Level	Team Gift	Link on Website	Logo on Website	Logo on Banner	Logo on Robot
< \$49					
\$50-\$99	X				
\$100-\$249	X	X			
\$250-\$499	X	X	Small		
\$500-\$999	X	X	Medium	Small	Small
\$1000-\$2499	X	X	Medium	Medium	Medium
\$2500-\$4999	X	X	Large	Large	Medium
\$5000 +	X	X	Large	Large	Large

*Your contribution to the Moore West Junior High Robotics team helps us to make this year's season possible, as well as helps to expand our program in future years. The chart above and descriptions below explain what you will receive in return in thanks for your valuable contribution to our team.*

- **Descriptions:**

- **Team Gift:** a special gift chosen by our team
- **Link on Website:** the name of your company is linked to your website
- **Logo on Website:** The logo of your company will be placed on our website (size depending on the chart).
- **Logo on Banner:** The logo of your company will be placed on our team banner which is displayed at team events, as well as the tournament (size depending on chart).
- **Logo on Robot:** The logo of your company will be placed on available space on our robot (size depending on chart and Robot).

## **Student Fundraising Requirements**

Students, in addition to promoting/participating in fundraising activities, will be asked to find donations/donors. Student fundraising will include a variety of traditional strategies including candy sales, t-shirt sales, restaurant nights, etc.

### **Fundraising Strategies for Sponsors**

The following are strategies to promote program sponsorship:

- o Keep robot prepared to run for general promotion and exposure
  - School board meetings
  - During school day; homecoming; pep rallies; assemblies
  - Career days; school clubs; parent/teacher conferences
- o Ready a sponsorship proposal packet
  - Brochure or letter
  - Personalized cover letter Include mention of website
    - Return form and envelope, note requested amounts, uses of donations, and recognition expected
    - Include plans for follow-up on packets
- o For all contributors/sponsors:
  - Personalized thank you letter
  - Tax information
  - Get their logo on our banner
  - Invite to practice runs, team open houses, or competitions

## **Season Schedule/Checklist Prior to Build Season - Fall**

- o Prepare for Fall competition events
- o Recruit for team as needed
- o Schedule and hold initial parent meeting – early in new school year
- o Collect student team applications – match interests with needs
- o Assign students to team leadership positions
- o Begin initial team meetings
- o Perform training as necessary computer software, safety, robot operation, wiring, etc.
- o Finalize sponsors at least one month prior to Kick-Off Day
- o Register for events in early Fall
- o Prepare budget - Estimate total costs for season
- o Prepare fundraising plan – collect money from sponsors
- o Plan list of anticipated tools/supplies – Stock up known required materials
- o Actively recruit mentors and engineers for build season; foster relationships with educational and businesses that could provide support – define precise roles for each
- o Collect/build logos/graphics from sponsors
- o Design t-shirts/uniforms
- o Identify suppliers for creation ‘giveaways’ and stickers
- o Ready material for fabrication of chassis/frame
- o Prepare competition area banner
- o Identify parent(s) to designate as parent coordinator
- o Prepare team roster & directory including phone/email contacts
- o Plan “thank you” notes for all parents providing meals/snacks

# Competition Equipment List

- o Primary robot
- o Competition area banner
- o USB backup of programming
- o Reference manuals & updates
- o Administrative manual and documents
- o Consent forms
- o List of emergency numbers
- o List of team cell phone numbers
- o Battery chargers and charging station(s)
- o Batteries (numbered)
- o Clipboard for recording battery charges
- o Fasteners for banner to gym wall
- o Team giveaways
- o Whiteboard & markers
- o Folding chairs
- o Pit storage containers
- o Safety glasses (extra for visitors)
- o Development PC laptop & power cord
- o VEX aid kit
- o Driver
- o Driver station board/platform and joystick controllers
- o 2-3 power cords
- o 2-3 power strips (surge protection)
- o Pens, pencils, Sharpie pens
- o Notebook
- o Snacks & drinks
- o Flashlight
- o Rubber bands
- o Tape measures
- o Parts
  - o Robot spare parts
  - o Spare wheels
  - o Extra motors
  - o Extra data connectors