

Southridge Junior High Robotics Team



Competition Season
Handbook

Last update: 05/11/2020

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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 Southridge 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 Southridge Junior High Robotics will support the mission and values of Southridge 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 Southridge 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, team leaders will ask for dues of \$100 (which can be split into two payments).

- 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, 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 first. All academic policies of Southridge 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.
- Robotics at Southridge 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 one meeting a week for 2 ½ hours additional meeting times are sometimes offered as we get ready for a competition or as students ask). 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.
- 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.
- 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. Returning team members are expected to support and mentor rookie team members while allowing new team members to help with decision making. Students are also obligated to help other members when they need it.
- 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, do some research, watch training videos, 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 Southridge Junior High. Students are expected to follow directions from 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.

- No cellphone/computer use during mandatory team meetings.
- Safety is imperative! Safety is the VEX and foremost priority related to robot construction and operation. Students are expected to adhere to safety rules and practices defined by VEX Robotics, Southridge Junior High, and the mentors/leadership team.
- 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 Southridge 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 not allowed to attend the weekly mandatory meeting until their grade reaches the C- minimum requirement. Those students ineligible during the week of competition will not be allowed to miss school and will not travel with the team.
- The lead mentors feel that being a part of the Southridge 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 safety 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 Southridge 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 high school 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. Build and 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 Southridge 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.

- Notebook (2 per team)
 - 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

- 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

■ Electrical Engineering

- 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

■ Software Engineering

- 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 robotsevents.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)
 - 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
- 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)

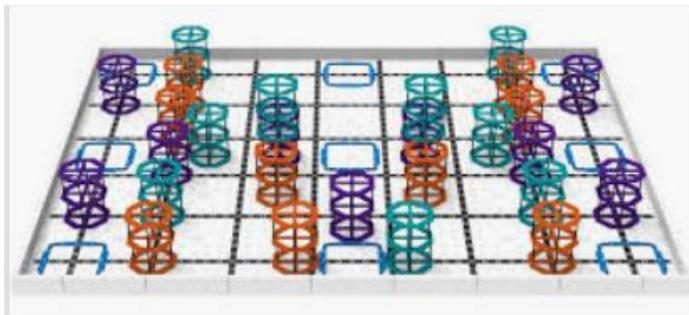
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Sponsorship and Finances

Southridge Junior High

Tech Cats/ Kit Kats/ Cyber Paws/ Ridge Bots

We are a robotics competition team. We currently participate in 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. This is our fifth year and we are looking forward to a great season. We are one of five junior high sites in our district with teams. Last year all of our teams made it to the state championship and one of our teams was a finalist in a world-wide video competition promoting robotics. Our goal is to learn as much as we can from going to several competitions. We plan on earning a bid to state. Our goal is to qualify for the World competition in April.

Due to Covid-19 shutting down school we were unable to accept applications before school was out. Typically, our teams are made up of twenty to twenty-five hardworking and motivated students. That sign up to sacrifice their after-school time to design and construct a competitive robot in 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. We are certain they will contribute greatly to our team.

About the VEX IQ Program

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.



Estimated 2020-20201 Budget

| Item | Cost | Description |
|---|--------|---|
| Tournament Registration | \$2400 | Tournament registration fee and base kit of parts every team receives. |
| Pit Supplies | \$100 | Supplies which go in our designated area (pit) at the tournament. |
| Banner | \$100 | A banner with team name and logo, as well as logos of company sponsors |
| Furniture (carts, toolboxes, etc) | \$200 | A cart to move our robot around the tournament and other furniture such as tables to work on when in the pit. |
| Giveaways and Gifts | \$1000 | Items to give other teams to remember us by. Part of the hospitality portion (\$200 for each team) |
| Computers | \$2000 | We are needing additional computers for programming skills. |
| Miscellaneous Tools (Screwdrivers, extension cords, surge protectors, zip ties, USB Drives, etc.) | \$200 | The rest of the basic tools which we do not currently own. |

| | | |
|-------------------------|----------|--|
| T-Shirts | \$1000 | Team T-shirts for use at the tournament. |
| Hosting a Tournament | \$3000 | Equipment and rental fees to host a local tournament |
| Total Estimated Budget: | \$10,000 | |

- Tournament fees and giveaways could be higher if we make it to the Worlds Competition

2020-2021 Southridge Junior High Robotics Sponsorship 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)

| | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| \$100 | \$250 | \$500 | \$1000 | \$2500 | \$5000 | Other \$ _____ |

I/We plan to pledge the following other contributions:

| | |
|--------------------------|---|
| <input type="checkbox"/> | Materials (Computers, Tools, etc. ..) |
| <input type="checkbox"/> | Services (Printing, Equipment/Facilities, etc....) |
| <input type="checkbox"/> | Mentorship (CAD or Robot C Training) Name of Mentor: _____ Email : _____ Phone: _____ |

T-Shirt Sizes and Quantities, if applicable (See: "What do you receive for your contribution?")

| | | | | | | |
|-----|----|----|-----|-----|------|-------|
| XS: | S: | M: | LG: | XL: | XXL: | XXXL: |
|-----|----|----|-----|-----|------|-------|

Please make checks payable to:
 Southridge Junior High
 Memo: Robotics Team
 Please send checks to:
 Attn: Heather Armstrong
 Southridge Junior High
 14141 S Penn Ave
 OKC, OK 73170

For additional information, contact Lori Christ lorichrist@mooreschools.com or Heather Armstrong heatherarmstrong@mooreschools.com

What do you receive for your contribution?

| Donation Level | Team Gift | Logo On Website | Logo on Banner | Team T-Shirt | Framed Picture of our team | Personalized Wall Plaque |
|----------------|-----------|-----------------|----------------|--------------|----------------------------|--------------------------|
| < \$49 | | | | | | |
| \$50-\$99 | X | | | | | |
| \$100-249 | X | Small | | | | |
| \$250-\$499 | X | Small | Small | | | |
| \$500-\$999 | C | Medium | Medium | 1 | | |
| \$1000-\$2499 | X | Medium | Medium | 2 | | |
| \$2500-\$4999 | X | Medium | Large | 3 | X | |
| \$5000 + | X | Large | Large | 5 | X | x |

Your contribution to the Southridge Roboticist team helps us to make this year's season possible, as well as helps to expand our program in future years. The chart 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
 - 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).
 - Team T-shirts: You will receive the specified number of team shirts. Sizes are requested in the "Sponsorship Form"
 - Personalized Wall Plaque: You will receive a custom-machined desk plaque with the inscription of your choosing.

Student Fundraising Requirements

Students not participating in fundraisers will be asked to find donations. Student fundraising will include a variety of traditional strategies including coupon books, talent show, bowl-a-thon, Pampered Chef, etc.

Fundraising Strategies for Sponsors

- The following are strategies to promote program sponsorship:
 - 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
 - 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
- 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 of t-shirts 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

Competition Equipment List

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