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Special Olympics Unified Robotics Official Guidebook

Version 2.0.1

Special Olympics
Washington
Unified Robotics



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INTRODUCTION

Special Olympics® Unified Robotics™ is an inclusive robotics program open to students with a variety of learning levels, bringing the world of STEM and robotics to high school students with special needs during a 6-week after school program.

Special Olympics Unified Robotics™ exposes engineering, programming and robotics to students with learning disabilities and behavioral challenges. Robotics team members are partners that work one-on-one with students with, and without, intellectual disabilities to build robots in small teams of about four students using robotics kits made by LEGO®. Each team designs, builds, and programs their own robot. At the Championship, each team presents their robot and its features, then competes in a tournament-style competition.

The Special Olympics Unified Robotics Guidebook provides the tools to start a team and participate with other schools with the same mission, rules, and involvement. This guidebook will update frequently, so please check back on the Special Olympics Unified Robotics website for the most up-to-date version.

INVOLVEMENT

Partners involved in a *FIRST*® Robotics Competition or a *FIRST*® Tech Challenge team work alongside athletes (including students with, and without, disabilities and/or behavioral challenges). The robotics coach (and/or student lead) and a special education teacher communicate to initiate the club, schedule meetings, and spread word about the program. The special education teacher plays a crucial role in generating awareness and encouraging students to join. If your school already has a Unified Sports® program through Special Olympics, the coordinator will also assist you.

CREATING THE CLUB

It is advised to notify necessary school staff regarding this program, including, but not limited to, the special education coordinator/teacher, school principal, school ASB club, and yearbook staff (if you are planning to add the club to your school's yearbook).

It is recommended that the staff is notified during the springtime for planning, and to publicize that your school is participating in a Special Olympics Unified Robotics™ Club in course overview packets. Generally, the steps to create a club are the following:

1. Contact your club advisor. An example includes your special education coordinator.
2. Follow any guidelines your school established in regards to creating a club.
3. Fill out and submit any required forms.
4. Register online at <http://unifiedrobotics.org>.

Check your school's club policies for a more accurate process.

MATERIALS

Kits and Software

Teams of four (4) to six (6) students will be working with LEGO® MINDSTORMS® EV3 Education Core Kits throughout the season. Each team requires the use of one (1) Core Kit, each costing \$379.95. The total quantity of Core Kits varies depending on the number of teams in the club. The club also requires one (1) or more MINDSTORMS® EV3 Expansion Kits for extra and additional parts, each costing \$99.95.

You are able to purchase [Core Kits](#) and purchase [Expansion Kits](#) at the LEGO® Education website.

Each team requires at least one (1) computer to use the MINDSTORMS® Programming Software. Programming the robot requires a laptop or desktop computer running the latest version of Microsoft® Windows® or Mac OS® X with the MINDSTORMS® EV3 Programming Software. The purchaser of the MINDSTORMS® Kits receives download and installation instructions, and can install and run the software on team computers.

Space and Time

Clubs are encouraged to have enough space to accommodate all students and peer mentors. It is recommended that they have one (1) table per team to have enough space to place a computer, their MINDSTORMS® Kit, and their robot. It is ideal to be in a quiet and distraction-free environment.

Teams are strongly encouraged to build and program their robot based on the pace of the student. Meetings generally are one (1) hour and thirty (30) minutes, but can extend up to two (2) hours, depending on the schedule, pacing, and consensus of peer mentors.

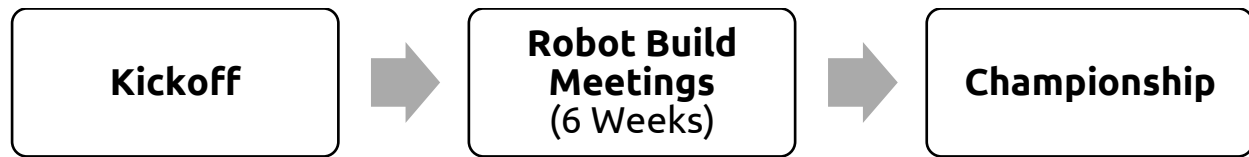
People and Creating Teams

Lead mentors should work with the special education teacher in their school to organize teams in advance based on the abilities of each student. There should be a ratio of one (1) peer mentor per one (1) or two (2) students. Teams should not exceed a combined total of six (6) students and peer mentors. Teams should be based on student pacing—students with different pacing may affect student interest and enthusiasm.

UPCOMING EVENTS

2017 Season: September 18 – November 12

TIMELINE



Special Olympics Unified Robotics™ is approximately eight (8) weeks long consisting of one (1) kickoff meeting, one (1) build meeting per week, starting in October and going through early-December, and culminating in a Championship Tournament. Each meeting typically lasts one (1) hour and thirty (30) minutes, starting in the afternoon (e.g. 3:00 PM), however, meeting times and days may vary, depending on student and staff availability.

Note: If you start a Unified Robotics™ team within a few weeks after the official kickoff, you are still able to participate and compete in the season’s culminating tournament as long as the team has met a minimum of four (4) building days and has a complete robot.

The kickoff meeting is a social and introductory meeting where everyone in the club gets to know each other and is informed of the logistics of meetings and the general timeline of the season.

The introduction to the club should include the following:

- Icebreaker.
- Club mission and roles of everyone involved.
- Distribution of Special Olympics Washington Paperwork to be completed and submitted by second week.
- Distribute schedule of the season, including the Meetings and the Championship.
- Demonstration and introduction to LEGO® MINDSTORMS® robot kits, including the MINDSTORMS® Brick, key parts, and mechanisms.
- Establish Team Name and Team Cheer.
- Some time to allow students to see and play.

After the kickoff meeting, teammates will work together to build and program a MINDSTORMS® robot, either through the provided instruction manual in their kit or through a design the team develops. This part of the season can last five (5) to seven (7) weeks, depending on club size and schedule. After their robot has been built, teams will program their robot with software provided by the LEGO® Group, and will continuously test and refine their designs and program to develop a well-tested and structurally sound robot.

During the last two (2) weeks of Robot Build Meetings, students will also practice presenting their robot, which includes the following:

- An introduction of the Team, along with an explanation of how their robot works.

- The Design, Build, and Programming process.
- The season's game, with Main Objective and basic rules.

During this time, teams test and refine their robot on a game field.

The last week of the Season includes the tournament. As schools within a region form teams, they will compete in an interschool competition. Until such a time, each school is encouraged to hold a tournament in your school during which the teams from that school can showcase their robots and compete against each other.

The Championship Tournament begins with an Opening Ceremony, highlighting the participants and supporters of the program. Teams will give their presentations to the audience with the points described above. All teams will be competing in a Double-Elimination Tournament with the Game established in the beginning of the Season. During this time, Judges will determine teams who receive awards based on the criteria required to qualify. Officials are provided for each competition.

Planning the Championship

The Championship should be a well-thought-out event in which generates interest from the community and other schools. Be sure to spread the word and get the local community excited about the Unified Robotics™ program through flyers, blog posts, social media, word of mouth, and school bulletins.

It is very important to plan the event at least a few weeks in advance to reserve the venue (i.e. school auditorium/gym) to invite the public to attend. Special Olympics medals and ribbons are provided to 1st – 8th place finishers – participant ribbons are provided to teams who competed but did not finish. It is ideal to have an Emcee and Game Announcer ready for the event.

Awards

Each event is required to have judged awards for teams to achieve. Awards include, but are not limited to:

- **First Place:** A Special Olympics Unified Sports Gold Medal is presented to the team who earned first (1st) place in the tournament.
- **Second Place:** A Special Olympics Unified Sports Silver Medal is presented to the team who earned second (2nd) place in the tournament.
- **Third Place:** A Special Olympics Unified Sports Bronze Medal is presented to the team who earned third (3rd) place in the tournament.
- **4th – 8th Place:** Special Olympics ribbons are presented to the team who earned fourth (4th) to eighth (8th) place in the tournament.

- **Best Spirit:** This award is presented to the team who celebrates extraordinary enthusiasm and spirit through exceptional partnership and teamwork.
- **Best Design:** This award is presented to the team who designs and develops a mechanically sound robot that is durable and efficient.
- **Best Program:** This award is presented to the team who utilizes outstanding programming principles, including clear and concise code that allows their robot to perform autonomously and consistently.
- **Most Creative Design:** This award is presented to the team who designs and develops a mechanically sound robot that is exceptionally unique.

For onsite school competitions, your club will make, procure, or purchase ribbons and awards, as well as Certificates for Judged Awards, including the Award Title and the Description of the Award.

One possibility for trophies is to create small 3-D Printed trophies for every participant of the Club, including peer mentors. The trophy must include the Special Olympics Unified Robotics™ Logo, and all should be printed before the start of the event. (Be sure to plan ample time for this). Please see the Unified Robotics website for available logos to download.

TIPS AND ADVICE

- Find out if there are Unified Sports at your school. If so, connect your Athletic Director to the Robotics Teacher and begin working together to start a team.
- **Connect** with your region's Special Olympics director.
- Reach out to your community through local newspapers, social media, or other outlets to notify them about upcoming events and get them excited about Special Olympics Unified Robotics™.
- Keep parents involved every step of the way, so they can be inspired by what they see and help the program grow by spreading word to friends and coworkers.
- Learn respectful vocabulary, such as mentioning the student as a "student with special needs." The disability goes after the subject. The student should not be mentioned as a "kid." Never describe someone by his/her disability (e.g. an "autistic student").
- **Never** call the student "retarded," a "retard," or "a student with mental retardation." Use of these terms can hurt millions with intellectual disabilities, including their families and friends. Take the pledge to eliminate the use of the "R-Word" in everyday speech at <http://www.r-word.org>.
- Keep in social contact with the students before, during, after the season, and throughout the school year. You've made new friends!
- Take the Disability Awareness training through Special Olympics before you begin training.
- Read Article 1 of the Special Olympics general rules.
- Focus on each individual's abilities, not their disabilities.
- Peer mentors and lead mentor meet with the special education teacher for a brief training session in order to gain confidence working with students they may not yet be familiar with.
- Peer mentors work with the students at individualized paces, and must work together at an equal level. This is a hands-on activity for all, so peer mentors are highly discouraged from taking over or doing all of the work.
- To encourage appropriate school behavior, refrain from hugging the student. High-five them instead.
- Communicate to students that no experience is necessary to join the club, that the student works at his/her own pace, and that the club is a fun, hands-on, and competitive learning experience.
- Encourage students to come to the first meeting to have a feel for the club, especially when the student is hesitant to join. Almost all the time, students join the club by the end of the first meeting.

- Peer mentors and students are often hungry after a long day. Bringing snacks and beverages for the entire team to share is encouraged. Bring a sheet to the first meeting and/or email parents, allowing them to sign up for bringing snacks.
- T-Shirts are a great way to encourage Special Olympics Unified Robotics™ spirit. Have teams vote if they are willing to purchase a team shirt for \$10-\$12 each. Find a local printer to print shirts
- Schools near each other can join together to share resources (e.g. workspace, peer mentors, etc.). Special Olympics Unified Robotics™ is all about helping one another. Gracious Professionalism® and Coopertition™ is evident in all Special Olympics Unified Robotics™ events.
- Find out if your school participates in Special Olympics Unified Sports® consisting of students with, and without, disabilities.
- Non-robotics team student mentors can be taught how to become a peer mentor to assist their school's *FIRST*® Team. This is highly encouraged to promote school Unity.
- *FIRST*® Team Members should consider joining their school's Unity Club.

RESOURCES

Check the Unified Robotics website for a list of resources you can access.

CONTACT

Team 4911 CyberKnights (Founding Team)

- Head Coach: Mikel Thompson – mthompson@kingsschools.org
- Website: <http://cyberknights4911.com>
- Facebook: King's High School FRC® Robotics 4911
- Twitter: @FRCteam4911
- Instagram: @unifiedrobotics

Advising Mentor and Student Lead

- Noelle Foster (Advising Mentor): noellefoster@me.com
- Andrew LaPrade (Student Lead): alaprade@cyberknights4911.com

Special Olympics® Washington Advisor

- Morgan Larche (Director of Unified Schools): mlarche@sowa.org

GLOSSARY

- **Lead Mentor:** A student or adult participating in a *FIRST*® Robotics Competition or *FIRST*® Tech Challenge Team who has been designated as manager and lead of the club.

- **Partner:** A student or adult participating in a *FIRST*® Robotics Competition or *FIRST*® Tech Challenge Team.
- **Special Education Teacher:** A staff member of the school where the Special Olympics Unified Robotics™ Club is held. He/she can be a head teacher, manager, or classroom aide.
- **Athlete:** A student with Special Needs.
- **Unified Sports®:** A Special Olympics program where students with and without disabilities join together on the field of play with an equal number of special education and general education students.

DISCLAIMER

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