Our Mission

Create a strong Robotics team at

Lynnwood High school that:

- Welcomes all students, mentors and sponsors, and make them feel like an important part of our team
- Provides experience with and teaches skills in technology including: mechanics, electronics pneumatics, programming web site design, animation/ video production, Computer Aided Design and any other areas related to competing in the FIRST Robotics competitions
- Provide experience with and teaches organizational skills including: marketing, administration, communications, budgeting, project planning, safety and other areas helpful to running a robotics team
- Acquire and retain support for the team and FIRST from the school, the district, mentors, sponsors, the community and legislature
- Effectively compete while following the FIRST ideals of "Coopertition" and "Gracious Professionalism"

Contact Information

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More robotics information can be found online:

Team website: www.Royalrobotics.org
State website: www.FIRSTWA.org
National website: www.USFIRST.org

Royal Robotics
TEAM HANDBOOK

"In the past people were born royal.
Nowadays royalty comes
from what you do."
~Gianni Versace~

Who is Royal Robotics?

In 2009 we started small with only 3 members. *FIRST* Team 1778 graciously lent us shop space, and worked with us to create a full team. Since then we have come a long way. With the building of a new school and a new shop, our team has grown to include over thirty members.

What students get out of FIRST and FRC

The Lynnwood High School Royal Robotics program prepares students for the world of engineering and business. Students enter with little to no experience, but will emerge with a wide array of knowledge. Royal Robotics provides training in not only science and technology, but other professions as well. There are opportunities to learn animation, marketing, administration, video production, and much more. Students become adept at problem solving in teams, and gain personal confidence throughout the Royal Robotics experience.

With the rising cost of higher education, participation in *FIRST* paves the way for financial aid. There are over $14 million in scholarships, from 147 providers, only offered through the *FIRST* program. Scholarships are not only available for STEM majors but for other courses of study as well.

Engineering Skills

- Pneumatics
- Programming
- System integration design
- Animation
- Website design
- CAD
- Designing/prototyping
- Electrical engineering
- Hydraulics
- Mechanical engineering

Notes

Positive Communication Principles

Here at Royal Robotics we expect everyone to treat other members with respect. If you have a conflict, please follow the accompanying guide lines.

- First, take a deep breath
- If you need to go outside and cool off, tell a mentor
- Be quick to apologize if you were at fault
- Remember Gracious Professionalism ®
- Speak directly to the person you have a problem with or another mentor if that's more confortable.
- Speak to the person as soon as you can address them calmly
- Do not use e-mail to resolve, your words can become misconstrued.
- Be open to the fact that it's all probably a misunderstanding
- Do your best to understand the other person's perspective
- Assume the best of the person and the situation
- Make efforts to resolve it between the two of you before going to a third party
- Try to talk it out with a mentor over your friends
- Smile :) Everything will always turn out for the better

Photography and Copyright Consent

All team members will be required to sign a Photography and Copyright Consent Form as part of your commitment to FIRST Team 2522. This form gives the team permission to use you in various media such as our printed brochure. It's important for team publicity that we can display pictures of team members enjoying themselves doing team activities and events. We are careful to protect the identity of our students. We only identify students by their first name.

21st Century Skills

- Teamwork
- Public speaking
- Working across functional groups
- Work environment
- Communication (e-mails, meetings, presentations)
- Leadership

Business Skills

- Marketing
- Grant writing
- Sponsorship development
- Business plans
- Entrepreneurship
- Social Media

What parents saw in their students after FRC:

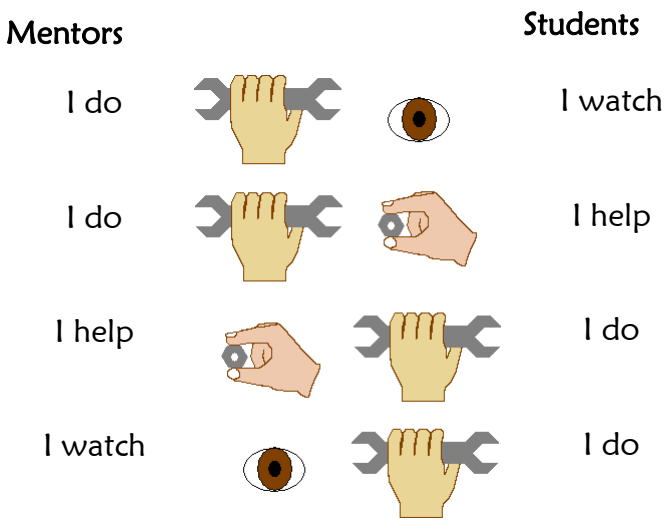
- Comfortable speaking in public
- Checking and responding to e-mails
- More focus on tasks at hand
- Learning that adult mentors can have a lot to offer in terms of education
- CAD: Computer Aided Design.
- Interest in tools, hardware stores, creating and fixing
- Problem solving
- Realization that they had an impact on a team that achieved their overall goal

Member Requirements:

Joining Royal Robotics is a large undertaking and we want to make sure that you are fully aware of what we are expecting of you and what you as a student can expect from us.

The students that are most successful and enjoy our program the most are usually: hardworking and self motivated, open-minded and willing to learn, have a substantial amount of time to commit, can work with and appreciate mentors and other support, project Gracious Professionalism® and Coopertition®, and can balance robotics and school.

For donating your talent and time to us you can expect to: gain valuable hands-on knowledge related to your particular interest, create new friendships, and be a part of an amazing team that has the chance to build robots.



Sponsor Levels

Knights and Ladies $1-99

Your name is listed on our website with a link to your website and you also receive a team sticker.

Dukes and Duchesses $100-499

All the Knights and Ladies benefits along with: your logo or photo on our website, your name listed on the team t-shirt and a team sponsor certificate.

Princes and Princesses $500-749

All the Dukes and Duchesses benefits along with: a paragraph about your company on our website, your logo printed on the FRC robot.

Kings and Queens $750-999

All Princes and Princesses benefits along with: a detailed info section on our team website, your logo on the team website and shirts and even our team banner. Also, a team presentation at your location upon your request.

Emperors and Empresses $1000+

All Kings and Queens benefits along with: special recognition as a generous team partner.

2012 Team Budget

Income

Dinner Auction	$9,000
Other Fundraisers	$1,000
Grants	$8,500
Sponsor Donations	$4,500
Mentors' Matching Hours	$3,000
Total	$25,000

Expenses

Administrative supplies and copies	$1,000
FRC	$3,200
FTC	$13,500
MATE ROV	$2,000
Marketing	$1,200
Tolls / Equipment	$2,000
Travel Expenses	$2,100
Total	$25,000

Mentors

Role

Mentors may be professionals or parents. They must be willing to share their time and knowledge. A mentor is a teacher, an advocate, a sponsor and a

Requirements

Your job as a mentor is to bring out the very best in every student. This means you have to be willing to interact with all the students and have some

"Teamwork: simply stated, is less me and more we"

~ Unknown

Parents

Role

Parents are one of the largest forms of support. They are there to make sure that students are staying on top of all their responsibilities with the team and in other places.

Requirements

If students are unable to fulfill their responsibilities, the parents need to help. Whether that means getting their students to meetings, or making sure they stay current on their school work.

Team Leadership

The Royal Robotics Team is a student led organization, with adult coaches and mentors to provide guidance. All team members are encouraged to take an active role in team leadership. The team is organized in a two-layer system. There is the administrative level with positions that help organize and plan team efforts and activities on a year-round basis. Then there is the competition level with positions that last for the duration of a specific build and competition. Team members can hold more than one leadership role.

Administrative

The executive committee is the group responsible for all team activities. Executive committee members are chosen in May and serve a one-year term. Positions may be held by one or multiple individuals. To be eligible for the executive committee, a team member must have at least one year's experience with the FRC season.

Specialists are those that take on a specific team responsibilities. They are chosen in May and serve a one-year term. Positions may be co-chaired. There are no eligibility requirements

Competition / Build

Competition and build leads take on a specific responsibility for the duration of that competition. FTC and Animation are September through December, FRC is January through April, and ROV is January through May. FRC leads are chosen in October, and other leads are chosen either one month prior or at kick-off. Program Managers and FRC robot production leads must have one season of experience, all other positions are open to any member. Some competition positions are chosen during the build and may have special requirements, such as the FRC drive team must attend 75% of build hours to be eligible.

- **MATE ROV**: The Marine Advanced Technology Education (MATE) Center coordinates an international student underwater robotics (remotely operated vehicle or ROV) competition annually. Each year's mission challenges consist of real-world scenarios such as oil spills or scientific data collection. Teams develop a mock company and present a project plan and technical reports to judges . Teams build an ROV which competes by diving and manipulating mission parts at varying depths at the bottom of a pool.
- **Safety Animation:** A group creates a safety animation using the Autodesk 3ds Max program. This animation is about safety and is submitted for review in December.
- **Robotics and More**: Robotics and More provides opportunity for our team members to mentor middle school students in the area of STEM education. We use FLL, MATE ROV, and curriculum developed by our seniors to ensure these students develop a passion for technology.
- **Team Training:** September through December, we have a training program for our new members. Our experienced members teach about programming, mechanics, team organization, and more.
- **STEM presentations:** Our team goes out to teach what we know about Science, Technology, Engineering and Math and teamwork. Presentations can range from a 30 minute lesson to a 5 day camp. We've presented to many elementary schools and public venues.

Our Programs

In one year, our team participates in a variety of programs. These programs include FTC (*FIRST* Technical Challenge), FRC (*FIRST* Robotics Competition), and MATE ROV (Marine Advanced Technology Education). This year, we have created a program called Robotics and More.

- **FRC**: "The Varsity Sport for the Mind," FRC combines the excitement of sport with the rigors of science and technology. Under strict rules, limited resources, and time constraints, teams are challenged to raise funds, design a team "brand", hone teamwork skills and build and program robots to perform prescribed tasks against a field of competitors. It's as close to "real-world engineering" as a student can get. Volunteers and professional mentors lend their time and talents to guide each team.
- **FTC:** this competition is designed for those who want to compete head to head, using a sports model. Teams of up to 10 students are responsible for designing, building, and programming their robots to compete in an alliance against other teams. Teams, develop a strategy and build robots based on sound engineering principles. Awards are given for performance, innovation, community outreach, spirit and more.
- **FLL**: FLL introduces younger students to real-world engineering challenges by building LEGO-based robots to complete tasks on a thematic playing surface. FLL teams, guided by their imagination and coaches, discover exciting career possibilities and make positive contributions.

President	Leads planning meetings, makes final decisions regarding tem activities and goals, directs all other leads and executive committee members
Vice President	Shares presidential duties
Marketing Director	Makes decisions regarding team marketing an community outreach activities. Plans and organizes those activities. Supervises spirit leads and team ambassadors, and has input for media manager, webmaster and video production. Is also the presentation lead
Treasurer	Keeps financial records, prepares the team budget, and advises the Inventory Control lead.
Secretary	Keeps team records and provides team communications, supervises volunteer coordinator and may work with media manager and webmaster on content. Is the Admin lead for FRC
ASB Liaison	Gets information to and from ASB. Promotes our team within the school and helps us participate in school functions.
Shop Manager	Responsible for the shop and tools. Keeps inventory and orders supplies as needed.
Safety Officer	Plans and organizes safety training for members. Keeps inventory of safety equipment.
Video/Animation	Helps create videos and animations for marketing, recruiting, or competition.
Webmaster	Creates and maintains the team's website.
Volunteer Coordinator	Organizes volunteers for team activities. Keeps records for mentors.
Media Manager	Creates and maintains team media sites such as Facebook, twitter, Flickr, etc. Helps take
Ambassador	Team spokespersons for outreach and at competition. Helps prepare marketing materials as well.

Project manager	Sets and tracks the build schedule with help from leads. Helps review the build process.
Administrative	Helps with registration, member records and communication.
Presentation	Helps with presentation materials for judging and public display.
Spirit	Creates and maintains spirit materials, such as costumes and flags. May make giveaway items for other teams or the public.
Strategist	Knows all of the competition requirements and helps determine the game strategy. During FRC and FTC, they keep track of the teams abilities and reports to the drive team.
R&D (ROV Only)	Helps with research and development for both presentation and ROV design.
Inventory Control	Maintains materials used for production. Also makes and tracks orders.
Pit Boss	Prepares, sets up and takes down pit materials and parts at competition.
Inspector	Knows all the competition rules, tracks blogs and checks that the robot will pass inspection.
Production Leads	Responsible for designing and manufacturing of the robot. Leads may be organized as to functions, such as CAD, mechanical, electrical, pneumatic/hydraulic, or by feature like drive base or lift.
Programming Lead	Responsible for programming robot
Field/Pit Lead	Responsible for designing and manufacturing the field parts and testing the robot and pit features.
Captain	Leads the team at competition. The President is the FRC Captain.
Drive Team	Runs the robot during rounds at competition. May be one drive team, or a rotating a rotating schedule of drivers.

Calendar

Fall (Sept - Nov)

- Recruiting student members, sponsors and mentors
- Team training: learn skills to design, build and program a robot, as well as classes in teamwork, video/animation, marketing and leadership.
- FTC build
- Advanced training projects (drive bases or manipulators)
- Create a safety animation
- STEM presentations
- Community service events
- Educational field trips
- Hold our annual spaghetti feed fundraiser
- Mentor FLL teams

Winter (Dec - Mar)

- Host an FLL Regional
- FTC competition
- FRC build and competition
- STEM presentations
- Community service events
- Educational field trips
- ROV build
- Review and update website

Spring (Apr – June)

- Possible 2nd FRC competition
- ROV build and competition
- Vote for next year's leadership
- Review business plan
- Mentor Robotics and More tech club
- STEM presentations
- Community service events
- Educational field trips
- Xbox competition fundraiser
- Team party

Summer (July – Aug)

- FLL Day Camp programs for Alderwood Boys and Girls Club
- We occasionally schedule special robot projects (like making pneumatic cannons)
- STEM presentations
- Community service events
- Educational field trips
- Carwash for fundraising
- Alumni picnic
- Website projects